

Anke Lipinsky (ed.)

Encouragement to Advance—
Supporting Women in European Science Careers



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Preface

Measures for realizing greater equal opportunity for women scientists have been part of efforts towards reform in science and research for a number of years now. The support of junior women scientists in particular, through career training and coaching has been much more hesitant to find its way into academia than into business, politics and society. Efforts to provide greater access to these tools have received powerful impetus from the Center of Excellence Women and Science CEWS who on behalf of the German Federal Ministry of Education and Research in 2001–2005 supported more than 700 women scientists in Germany via the national programme "Encouragement to Advance". Building on this experience, support from the European Commission was obtained in 2006 to make the "Encouragement to Advance" project the first of its kind to be realized at European level.

This 5th edition from the series *cews.Beiträge Frauen in Wissenschaft und Forschung (cews.Contributions Women in Science and Research)* of the Center of Excellence Women and Science CEWS presents the EU project "Encouragement to Advance" together with four additional EU projects funded under the 6th EU-Framework Programme for Research and Technological Development.

Anke Lipinsky and Silke Tölle offer a detailed insight into the structure, content and goals of the CEWS led EU project "Encouragement to Advance" which organized training seminars designed to professionally prepare women scientists for appointment procedures at universities in selected EU countries. Seminars were offered to female post-doc scientists from EU-27 interested in a science career in the Netherlands, Belgium, Austria, Switzerland, the Czech Republic and Germany.

Designed specifically to address the modalities of appointment procedures in various EU countries, the seminars were conducted by an international team of trainers under the direction of Margarete Hubrath, whose article detailing this experience is published in this edition. What becomes clear is that the selection criteria and appointment prerequisites are often much more strongly affected by the cultures found within scientific disciplines than by national realities and conditions. This is particularly the case in natural sciences with good international connections.

The "Encouragement to Advance" project was concurrently both quantitatively and qualitatively evaluated with the aim of ensuring quality as well as for substantiating how it was conducted. Anke Lipinsky gives a detailed pre-

sentation and interpretation of the evaluation design, method and quantitative results. One of the positive results was that approximately 90 % of the participants stated that they would recommend seminars of this kind to female colleagues in similar situations. Continuation and further development of the seminar concept while tailoring it to the appointment procedures in more EU countries could have positive effects on greater participation of women scientists in the European research landscape and for realizing the goals of the Lisbon Treaty.

Silke Tölle explores the results of the qualitative evaluation. Her article also discusses the wishes and expectations that women scientists have regarding such a seminar program, as imparted in problem-oriented interviews. The results reveal certain parts of the seminar in more particular where the continuation of specific measures would merit special attention.

“Does excellence have a gender?” is the question posed by Marieke van den Brink, Margo Brouns and Sietske Waslander, University of Groningen in the Netherlands, within the context of their national research study on recruitment and selection procedures for professorial appointments in the Netherlands. The results show that academic disciplines are gendered in different ways, requiring different measures at the institutional and individual levels.

The article on “ADVANCE,” an advanced training for women in science and research by Liisa Husu, University of Helsinki in Finland, Karin Siebenhandl, Sabine Zauchner and Michaela Gindl, all Danube University Krems in Austria, and Georgi Apostolov, South-West University “*Neofit-Rilski*” in Blagoevgrad in Bulgaria offers a retrospective on an innovative concept. The centerpiece of this mentoring and coaching program is a summer school offered at the Danube University Krems in cooperation with other European universities in Poland, Finland, the Netherlands and Bulgaria.

Helene Füger, University of Fribourg in Switzerland, presents the EUMENT-NET project. This is a European Mentoring-Network, founded in 2007 with support from the 6th EU Framework Programme for Research and Technological Development, maintained by five partners from Austria, Bulgaria, Germany and Switzerland. The author offers an in-depth report on how the network functions, on quality standards of mentoring programs, as well as on opportunities and difficulties of international cooperation within such a network structure.

Also supported by the 6th EU Framework Programme, the PROMETEA project is described in the article “Women in the rat race” by André Béraud, *Institut National des Sciences Appliquées de Lyon* in France. The aim of the project was to develop a better understanding of gender issues in various engineering and

technology research settings. It involved seventeen teams from thirteen countries along with a private company. The experience and recommendations resulting from this project in this special area should receive broad dissemination.

In their article “The voice of women scientists in EU research policy” Pauleen Colligan and Maren Jochimsen present the European Platform of Women Scientists EPWS in Brussels, Belgium. The authors outline the establishment, goals and activities of the Platform as a new strategic instrument in EU research policy. EPWS was established in 2005 with support from the 6th EU Framework Programme and at the end of 2008 took the courageous step to venture its independence.

Starting from the concept of the European Research Area (ERA) and current EU women and science policies, this edition starts with deliberations on central questions of European research policy by Maren Jochimsen and Brigitte Mühlenbruch, EPWS in Belgium. In doing so, gender balance is understood as a precondition for achieving the goals of the Lisbon Agenda and requirements and prominent characteristics of a gender-balanced scientific culture in the European Research Area are outlined. The authors argue that fundamental requirements in this regard comprehend inclusiveness and transparency and emphasize the importance of an adequate evaluation of scientific quality, the social dimension of scientific recognition and diversity and innovation for excellent science in Europe in this context.

This fifth volume in the series *cews.Beiträge* of the Center of Excellence Women and Science CEWS, the first to come out in English, enriches and expands the spectrum of previous editions. As editor of this series I would like to thank all those who contributed to bring this publication about, first and foremost the European Commission. Thank you also to Kleine-Verlag publishers for their patience and excellent cooperation. I hope that the achievements and results acquired through great commitment and presented in this volume find their well-deserved dissemination and implementation in all relevant institutions so that we may get again one step closer to equal opportunities for women in science and research.

Bonn, December 2008
Dr. Brigitte Mühlenbruch

Maren Jochimsen and Brigitte Mühlenbruch

Gender Balance as a Precondition—Requirements for a Strong Scientific Culture in the European Research Area

This contribution is based on two preceding papers given in June 2008 by each of the authors respectively¹ in their capacity as representatives of the European Platform of Women Scientists EPWS. The arguments and ideas put forward therein build on, outline and reflect insights, analyses and ongoing discussions of the European Platform of Women Scientists EPWS in the European research policy context.

I. Introduction

The concept of ERA

In Lisbon in March 2000, the European Council endorsed the objective of creating a European Research Area (ERA) which will deeply root knowledge in society and free Europe's knowledge potential in all its dimensions, in people, infrastructures, organizations, funding, knowledge circulation and global cooperation. The creation of ERA is a central part of the European Commission's Lisbon Agenda aspiring to make Europe the most competitive knowledge-based economy in the world by 2010.

The European Research Area aims at bringing together all of the European Community's resources to better coordinate research and innovation activities at the level of both the Member States and the European Union. This concept was launched with the idea of developing truly attractive opportunities for researchers throughout Europe and means to create a unified area all across Europe to

- enable researchers to move and interact seamlessly, benefit from world-class infrastructures and work with excellent networks of research and institutions,

1 'Shaping the Scientific Culture of Europe', paper given by Maren Jochimsen on 7 June 2008 at the First Annual Conference "Women Shaping Science" of the European Platform of Women Scientists EPWS, Vilnius, Lithuania, 5–7 June 2008, and 'Requirements for a Gender-Balanced European Research Area', paper given by Brigitte Mühlenbruch on 26 June 2008 at the Final Conference 'Supporting Women in Scientific Careers' of the EU projects Encouragement to Advance and Advance, Brussels, Belgium, 26–27 June 2008.

- share, teach, value and use knowledge effectively for social, business and policy purposes,
- optimise and open European, national and regional research programmes in order to support the best research throughout Europe and coordinate these programmes to address major challenges together
- develop strong links with partners around the world so that Europe benefits from the worldwide progress of knowledge, contributes to global development and takes a leading role in international initiatives to solve global issues.

The goal behind a such envisaged European Research Area is to inspire the best talents to enter research careers in Europe, incite industry to invest more in European research, and to strongly contribute to the creation of sustainable growth and jobs. To achieve this goal, the European Commission's intention as formulated in the Lisbon Agenda is to raise the percentage that EU member states should spend on research to 3 % of their Gross Domestic Product (GDP). To carry out work on a thus increased research budget, Europe would need to actively involve an estimated 700,000 additional researchers in its research endeavours.

The contribution of women scientists

The participation of women in science and research and in the research policy debate is not only a fundamental right of women scientists, and therefore a matter of justice, in view of the acknowledged discussion on the value of diversity, it also has to be seen as essential to achieving excellence and innovation in research and to ensure in a sustainable scientific quality. Furthermore, failing to make full use of the available qualified human potential of women scientists is detrimental to economies and societies on the macro level as well as to individual research institutions on the micro level.

Nonetheless, the under-representation of women in science is still significant with regard to decision-making positions in universities, public and private research institutions, industry, and companies to name but a few areas. According to the latest EU statistics, women make up more than 50 % of EU students and earn 43 % of EU doctoral degrees but on average only hold 15 % of senior academic positions. In some countries and in some disciplines, this percentage is even lower. European research and European research policy is losing the potential of highly qualified women scientists.²

2 European Commission, 2006, p. 55.

This is a situation which the European Union admits it can no longer afford and which is detrimental to the achievement of the goals of the Lisbon Agenda and the Agenda's ambitions concerning the fostering of globally competitive European excellence and innovation. To ensure and achieve scientific excellence and technological innovation in the strengthened research effort induced by the Lisbon goals, the European Union must significantly increase the number of female researchers among the estimated 700,000 additional researchers mentioned above. Using the full potential and scientific excellence of women scientists, therefore, is key to the realisation of the European Research Area and the Lisbon goal of Europe becoming the world's most competitive knowledge-based economy.

Women and science policies in the EU

The EU policy on women and science has come a long way since its inception and considerable ground has been covered since the 1990s. Changes and achievements are to be found in many areas. These achievements are the result of more than 15 years of joint efforts on the part of the community of women scientists in Europe and farsighted politicians at national and European level. And they are impressive. They show what the joint endeavour of European women scientists and national and European policy makers have quite tangibly and visibly achieved. They also underline the seriousness of the Commission's endeavours so far.

There have been numerous notable developments in research policy over the last 15 years and a number of actions have been taken to support the promotion of women scientists and strengthen their participation in research and in the research policy process and to foster the integration of the gender dimension in research:

- Women scientists and research politicians have collected and analysed the factors that lead to the under-representation of women in research, they have identified key measures to address the gender imbalance in research, they exchanged, discussed and implemented examples of good practice in the promotion of women scientists, the economically detrimental effects of the loss of human potential have been acknowledged.
- Women are increasingly involved in shaping the scientific agenda as researchers, academic teachers, science policy makers, and in various other ways. From 5–7 June 2008, the European Platform of Women Scientists EPWS held its annual conference "Women Shaping Science" in Vilnius, Lithuania and discussed the participation of women in science and their impact on research and research policy.

- Networks of women scientists, EPWS and those active in the field have long broadened their mandate. They acknowledge that research for innovation and to produce money ranks high on the European political agenda. They acknowledge that researchers are active not only in academia but also in industrial research. Through the policy monitoring of EPWS the community can also increasingly respond to the needs of the policy agenda in Europe.

These foundations have to be maintained, strengthened and built on.

The importance of an encompassing scientific culture

Although major steps in the right direction have been taken and the visibility of the women and science issue has increased, statistical figures and practical experiences show that the job is by no means done and the issue continues to deserve the full attention of all researchers and science politicians. In view of the diminishing interest in science among women as well as among men as well as with respect to the internationalisation of research and global brain circulation, the attractiveness of science and research, not only for women, but as such is at stake. At the same time, the European Research Area's strength will be its ability to educate, attract and retain excellent women and men researchers from a diversity of backgrounds.

This paper argues that whether or not this endeavour will be successful decisively depends on the *architecture of science* and the *scientific culture* that will characterize the European Research Area. It will depend on the set of shared attitudes, values, and goals which the European research community and European research policy makers will establish for Europe and on the social practices and ways in which researchers and employers deal with each other in science and research.

This paper, more particularly, argues that an inclusive, high-quality oriented and innovative scientific culture is key in this context and points out that a strong and coherent equal opportunities policy in research is an integral part in the shaping of an inclusive, high-quality oriented scientific culture of Europe and is therefore a precondition to building a strong and globally competitive European Research Area. The decisions European researchers, employers, politicians and members of society take with regard to gender equality issues, the priorities they set, do not only reflect Europe's women and science policy, but are inherent decisions on the characteristics of the scientific culture which Europe creates for itself. Questions of scientific culture lie at the core of gender equality issues in science, making gender equality issues an inherent

part of the shaping of the culture of science in Europe. The concept of scientific culture, in turn, however, does not only situate the issues mentioned before in their proper context, but at the same time broadens their horizon by understanding them as part of a bigger picture, namely of shaping the preconditions for excellence and innovation in Europe.

In the following, the most prominent characteristics of an inclusive, high-quality oriented and innovative gender-balanced scientific culture will be outlined and reference will be made to some of the key issues which the European Platform of Women Scientists would like to see on the agendas of women scientists and research policy makers in Europe in the years to come.

II. Prominent characteristics of a gender balanced scientific culture

What would such an encompassing, inclusive and gender and diversity-sensitive notion of scientific culture look like? Which contributions would it make to the creation of the European Research Area? Of the many aspects the most prominent will be outlined below.

An encompassing scientific culture for building up a European Research Area would

- acknowledge complexity,
- not restrict academic freedom by classifying research topics into relevant and not relevant and understands gender in research as enrichment not as danger or distortion,
- be careful not to prematurely restrict the pool of those from which to choose its most excellent candidates because they do not have the perfect streamline career pattern or their research cannot be grasped within conventional disciplinary boundaries and expectations and constantly monitors its evaluation criteria,
- acknowledge that it is intransparency that leads to glass ceilings, as contradictory as this may sound, and make transparency its fundamental rule,
- have a constant awareness of the delicate interplay of money, power, and prestige in research decision making and directly addresses structures,
- aim to enhance the attractiveness of science for researchers, students, and society.

An encompassing scientific culture has to acknowledge and constructively work with the fact, that science is the result of a communicative social process and that there are no universal rules and definitions. Also, and most impor-

tantly, the science system itself has no self-regulating mechanism with respect to blind spots in its scientific endeavours nor with regard to structures detrimental to achieving scientific quality. The push for change, therefore, has to come from the outside. Women scientists have to actively shape the scientific culture of the European Research Area, stressing the need for gender-balance and equal opportunities as a precondition to the strength and attractiveness of such a scientific culture.

Acknowledgement of complexity

To ensure the production of knowledge that is in the interest of all European citizens, it is of crucial importance that European research takes account of the gender dimension and the fact that social differences and inequalities between men and women are a key aspect of our societies. The same holds true for policy making: policies that do not address gender run the risk of over-generalisation or under-differentiation, thereby including and excluding men and women in different and inadvertent ways. An encompassing notion of scientific culture acknowledges that the integration of the gender dimension in research is indispensable if scientific results which reflect the whole and go beyond the partial are to be achieved. It also acknowledges that to achieve decisive progress in this respect gender activities have to be mandatory already at the proposal stage of funding schemes. What ever form a respective requirement will take—it needs to be mandatory.

One of the many examples of blindness to the ‘whole’ in scientific studies regards the findings of gender medicine. Predominantly testing medical treatments on male mice as well as male human beings leaves the whole uncovered and—unscientifically—limits the findings to the male adult population—with the result that those medicines are ineffective or even dangerous for women and children. The simplification undertaken in a scientific study should not however lead to the misrepresentation of the overall picture. The endeavour of science and research is to exactly work on blind spots in the attempt to provide us with the overall picture. A scientific system that does not encourage doing so is likely to produce unscientific results—and is far from being excellent.

The same holds true with regard to instruments of science policy. The abolition of Gender Action Plans (GAPs), once mandatory under the Sixth EU Framework Programme for Research and Technological Development (FP6), under FP7, is an example of a process that aimed at simplification but is, ultimately, no to benefit scientific excellence in Europe.

Security of scientific careers

An encompassing scientific culture and a gender-balanced European Research Area have to consider the material as well as the structural preconditions of those it wants to inspire to working in science. It has to argue for and work toward the creation of jobs which in terms of duration and payment allow at least a medium term security and structures that set the frame for at least a medium term planning of scientific careers. It must also counter the existing general insecurity and openness of scientific careers as well as the absence of infrastructures that enable a sustainable work-life balance. It also has to carefully watch and purposefully counteract the impacts of the feminisation of disciplines in this respect and the crowding-out process of women scientists in consequence of a better funded and hence more attractive research system, especially in Eastern and Central Europe, the Baltic State and the Balkans.

Transparency in recruitment processes

An encompassing scientific culture would fully acknowledge the direct impact of transparency in professional recruitment procedures as much as in the granting of research funding on rendering academic freedom inclusive. This would be to the benefit of groups of researchers currently underrepresented and/or working on research subjects and with methods which are 'off stream', high risk, high potential, transdisciplinary. Also here, in the case of absent transparency, the system is unable to view the overall picture, and the push for change has to come from the outside.

Women scientists and farsighted research politicians know that the way forward in this respect has to break with established patterns. Most notably it needs to break with the most fundamental pattern of all which is in place in all countries throughout Europe—no matter how different they are in other respects. An encompassing scientific culture needs to break with the widely established connection that women scientists *equals* teaching *equals* lower pay *equals* less decision making power and overall prestige or in other words: the higher the teaching load, the lesser payment and prestige, the bigger the percentage of women working in the field. This is the pattern the glass ceiling is made of. It is the hardest part to crack. However, as a characteristic of a future excellence and innovation oriented scientific culture of Europe it is totally unacceptable.

The evaluation of scientific quality

For any scientific culture, its system of performance assessment, its review mechanisms and consequently the way it understands excellence, gender mainstreaming and gender balance are important. Four terms play an important role: elite, innovation, competition and excellence.

Provided it is in the interest of society that the best scientists get funding or get an award—who decides who is the best researcher, what is the highest quality project, what is scientific excellence? Which criteria count—and how can agreement be reached on these? Which mechanisms can ensure that the best is winning? Science differs from the Olympic Games, where measurement is likely to be purely objective and not very difficult in quantitative terms. But what is the situation in science?

The assessment of quality of scientific work depends on the judgment of human beings; performance, scientific achievements and results are the only selective moments. Equal opportunities are presupposed. The criteria and the procedures that influence the assessment of scientific work are not purely objective. Instead, they are based on grown ideas and grown structures that must be considered a social construct of those who built the system. When women were allowed into this system certain rules had already been developed which were based on the “normal” male lifestyle.

The criteria used to assess quality of research, therefore, need to be considered not only biased in favour of men, but more precisely towards a certain kind of man that follow an established mainstream. Scientific excellence is inseparable from the social, technical and financial opportunities available in scientific work. Unequal opportunities play an important role in this context. Consequently, the gender bias in current ways of defining and evaluating scientific excellence needs to be genuinely looked at with a view to seeing how a more open and inclusive, gender-sensitive sense of excellence could be created in improving assessments of scientists

A critical and constructive discussion on how to measure scientific excellence is all the more important since—reinforced by the European Research Council (ERC)—on national and on EU level there is currently only one sole criterion for the evaluation of researchers, research proposals and research institutions and for funding, awards, and positions: that of scientific excellence. However, scientific excellence cannot be measured directly and unambiguously. No universal and/or neutral system of measuring excellence exists as the definition of excellence is always based on meritocratic principles related to very specific socio-cultural contexts. Who is ‘excellent’ and what is ‘excel-

‘excellence’ in science is established through a social decision process of various stages—through visible indicators of “quality”, such as publications, social network, behaviour, criteria, such as research agenda, bibliometrics and through procedures, such as gatekeepers, transparency, accountability—and hence is influenced by and dependent on a specific social context. At each of these stages evaluations and decisions take place and different kinds of biases occur, gender bias being one of the most often affecting women researchers. Excellence is a result of the context in which it is evaluated and has to be understood accordingly. As a result, not always the best ideas or the best researchers will succeed in open competition. In consequence, the success of the individual researcher tends to depend on their successful placement in networks, on their language abilities and on non-transparent selection procedures as much as on scientific quality and achievements, which possibly contradicts the spirit of creating innovation by excellence. Excellence is thus the result of judgments by individuals, gate keepers, with varying transparency and accountability.

The current system of research funding and performance assessment with its—on EU as well as on national level has an increasing focus on allocation of funds through competition and an understanding of excellence centring on the researcher’s track record of publications fulfilling a specific set of criteria. This system seems to be to the advantage of an already established group of researchers to which women scientists, highly innovative researchers, researchers from certain disciplines or the margins of disciplines, researchers of diverse ethnic backgrounds or of smaller research institutions rarely belong.

It is in the interest of any future oriented research policy to minimize biases in current ways of establishing excellence by encouraging a revised, gender sensitive notion of excellence as a guideline for future reference—even if this may mean to leave traditional tracks. In this process, a diverse composition of research groups as well as gender awareness could be made a precondition to excellence. Finding fair, objective and stimulating measures for excellence is in the interest of all researchers, research organisations, universities and industries as well as of to society as a whole, because they are the only way to create, identify and maintain excellence throughout Europe.

Diversity and Innovation

‘Innovation’ is one of the central terms of the Lisbon Agenda and has been given an extra boost with the creation of the European Institute of Innovation and Technology (EIT). In the European political discussion, the term is currently largely understood in its most classic sense in terms of innovating to

create a new marketable product. However, the European Platform of Women Scientists has stressed that there is a lot more to innovation as a notion and wishes to see this debate opened up. In the past, EPWS has suggested that innovation should be broadened to not only refer to commodity-oriented innovation but to also include the improvement of societal structures and the creation of social innovation in its scope. Social innovation refers to new strategies, concepts, ideas, processes and organizations that meet social needs of all kinds—from working conditions and education to community development and health—and that extend and strengthen civil society. Innovating processes does furthermore include looking at how changing, updating or modifying processes can better account for gender differences to the benefit of both equality and innovation.

As has been seen in industry, it is highly possible that in science and research innovation might be linked to diversity. Studies show that mixed teams (research teams, panels, evaluation committees etc.) at all stages are very likely to outperform homogeneous teams. Diversity is a vital aspect since diverse workforces bring creativity into research. Groups composed of people of similar ethnicity, gender, education and age are considerably less likely to bring new perspectives and concepts. A recent study published by the London Business School showed that teams of workers come up with the most innovative ideas if they are made up of even proportions of men and women. It found that professional teams with an equal gender split were much more likely to experiment, share knowledge and fulfil tasks, regardless of whether the team leader was a man or a woman.

To reach diversity on research teams not only women and researchers of diverse backgrounds need to be included but a decisive number of them. It is estimated that a critical mass of about 30 % is necessary for women and researchers of diverse background to exert meaningful influence and be able to shape the research design and direction as well as the scientific culture.

Any strategy to increase innovation and research in Europe by promoting scientific excellence, therefore, should encourage an open debate on ‘excellence’ and ‘innovation’ and ensure that all stakeholders, women and men researchers from different ethnic and cultural backgrounds and of different ages be heard in the process.

The social dimension of scientific recognition

Scientific achievements grow in social processes of ascription, recognition and acceptance. They have a social dimension and as such are not free from power structures. The whole process in which acknowledgement is attributed is a matter of culture, European culture, national culture and culture in the scientific disciplines. Scientific culture is still predominantly the culture of men, while this is changing, change has been slow. In a scientific world which, with respect to remuneration and power and prestige, ranks research higher than teaching, and which in medicine, for instance, ranks the treatment of sick people lower than the performance of scientific work in a laboratory, those who are excellent at teaching and those who care more for patients than for mice, for example face a harder task to become part of scientific excellence and to receive scientific recognition. This situation still predominantly affects women.

As pointed out above, therefore, excellence has to be closely connected with diversity. Excellence has diversity as a precondition. To achieve this, is a question of power of definition, too. Only when diversity is accepted as a precondition to excellence can a more open competition take place and the best ideas succeed and the best researchers—female and male and of diverse backgrounds—win.

III. Selected areas for the enhanced promotion of an encompassing scientific culture

As mentioned above, an encompassing scientific culture has to acknowledge and constructively recognize the fact, that science is the result of a communicative social process and that there are no universal rules and definitions. Also, the system itself does not indicate where simplification in scientific studies or intransparency in recruitment processes produce one-sided results or do not always select for the most excellent candidate. In the absence of diversity, the system does not detect nor is able to auto-correct this situation since it is unable to view the overall picture and transcend the risks of self-referential behaviour. Since the science system itself has no self-regulating mechanism to detect blind spots in its scientific endeavours or structures detrimental to achieving scientific quality, the push for change has to come from without. The change and improvement has to come from politics and society and EPWS understands it as part of the Platform's mission to point these areas out and inspire and encourage change.

With regard to the European Research Area and the importance of the role of women scientists in the realisation of the goals of the Lisbon Agenda, the European Platform of Women Scientists more specifically suggests four areas where the shaping of an encompassing culture as outlined above could be practically promoted and which will be briefly outlined below.

European Charter for Researchers and Code of Conduct for the Recruitment of Researchers

As mentioned before, the European Commission addressed key issues of scientific culture when proposing the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers in 2005. Although numerous institutions signed the Charter and the Code overall implementation needs to be encouraged. European politicians created the framework, now researchers on the national and local level have to persistently require and monitor implementation or point out its absence of use. Women scientists have to take active part in this endeavour.

European Research Infrastructures

Another issue which should be on the agenda of women scientists in the future is their active involvement in the shaping of European Research Infrastructures, i.e. the large-scale facilities, major pieces of research equipment or databases and networks that help scientists in their work. Examples include the European Extremely Large Telescope, a European icebreaker for Polar research, a network of clinical research centres and an upgrade of the European Social Survey. Since it takes 4–7 years to develop and build a research infrastructure, the costs of setting up and running these infrastructures are usually too high for one institution or even one country to bear alone. Investments in research infrastructures, therefore, are high, long-term and future oriented benefiting the researchers of tomorrow. As for the first time proposals for social science infrastructures will be called for and financed under FP7, the challenge is open to all researchers and the ideas and needs of women scientists have to enter the discussion on the present European Strategy for Research Infrastructures ESFRI.

Innovation, knowledge transfer and intellectual property issues

The re-launch of the European Research Area in 2005 has a clear focus on research for innovation, money-making, tangible results and with the strong emphasis on improving knowledge transfer between public research and industry. As the EU strives to fulfil the Lisbon Agenda of making Europe the

most competitive knowledge-based economy in the world by 2010, innovation and innovators' research is increasingly gaining prominence.

Increasing access to knowledge by sharing research results and improving knowledge transfer between public research and industry became one of the main objectives in this context.

The European Platform of Women Scientists would like to encourage women scientists to get involved and actively participate in the university-industry knowledge transfer forum to be established in 2008 to give public authorities, universities and other European Public Research Organisations (PROs) and industry a place to meet and co-ordinate their actions.

Public understanding of science

In all of this, the transfer of knowledge between science and society and the dialogue with society are vital. The European Platform of Women Scientists would like to encourage women scientists to join the—so far male dominated—ranks of those active in the field and actively communicating and promoting their research results using their specific communication abilities and making full use of their potential in this respect. Society financially supports science and deserves to be informed on its outcomes. Researchers have to establish societal trust in their activities in order to continue into the future. Engagement in this concerns the attractiveness of research for society, for its female and male current and future researchers.

IV. Conclusion

All those active in the field, whether researchers, employers, or politicians, know from experience that impressive and acknowledged achievements in women and science policy are not to be taken for granted but have to be re-enforced every day. Equal opportunities in science and research still are not self-evident, as the examples of even the most advanced countries in this area show, but continue to face a difficult task. The scientific culture and the architecture of science which women and men scientists and politicians of both genders envision and create in Europe and in the ERA will in the end decide the attractiveness of science and research careers as such and will, therefore, integrally shape the acceptance and future of science in society.

This contribution has argued that the scientific culture deemed indispensable to truly achieve excellence and innovation in Europe and make European

researchers play their role in the global research context should be encompassing and inclusive. Only then can it successfully contribute to reaching the goals of the Lisbon Agenda. Gender equality and gender balance constitute a prerequisite in this endeavour. The task at hand is very much a common endeavour where the participation of all stakeholders is needed. *Women scientists* need to reinforce their participation in the active shaping of such a scientific culture of Europe, get actively involved in research decision making, sign-up for research decision making positions and make best use of the chances offered to them by policy makers and employers. They need to actively contribute to the achievement of the European Commission's target to have at least a 40 % participation of women at all levels of management and implementation of research programmes and to attain a minimum of 40 % regarding the participation of women in panels and consultative committees in the research process.³ *Politicians* and *employers* have to continue to work towards and open options for the participation of women scientists in research decision making. *EPWS* is there to encourage women scientists and act as a structural link between women scientists and research policy makers.

Bibliography

- European Commission, 1999:** Communication on Women and Science—Mobilising Women to Enrich European Research (COM (1999) 76), http://ec.europa.eu/research/science-society/pdf/g_wo_co_en.pdf.
- European Commission, 2006:** Women & Science: Latest Statistics and Indicators—She Figures 2006.

3 European Commission, 1999, p. 11.

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Does excellence have a gender? A national research study on recruitment and selection procedures for professorial appointments in The Netherlands

Introduction

In recent years the measurement of academic excellence and the use of particular performance indicators have been subjects of heated debate in the international academic community (Royal Netherlands Academy of Arts and Sciences (KNAW, 2005)). Academic excellence is fundamentally difficult to define. There is a general consensus that excellence is not a “universal fact” or “natural given” and that it would be misleading to treat it as a simple, easily measurable attribute, such as height or speed (Brouns and Addis, 2004). As a result, it is susceptible to many kinds of bias. Different aspects of the measurement of academic excellence have been criticized by many scholars—for example, the criteria (Rees, 2004), the peer review system (Horrobin, 1990; Jefferson, 2002; Lawrence, 2003; Wennerås and Wold, 1997) and recruitment and selection procedures (Benschop and Brouns, 2003; Cole *et al.*, 2004; Husu, 2000).

In this paper we examine the academic recruitment and selection practices for full professors, the most influential people in academia. The way in which new professors are recruited has far-reaching consequences in terms of the research carried out, what is valued, what paid little attention, and what is left to the “maverick”. There are indications that academic recruitment and selection processes are gendered, from the drafting of the profile (often with a male candidate in mind) and the assessment of (gendered) academic qualifications of applicants, to the interviewing of applicants by selection committees usually made up of male peers with co-optation rights, with sex stereotypes and similar-to-me effects implicitly governing conversations (Benschop and Brouns, 2003; Fogelberg *et al.*, 1999).

This paper explores the recruitment of university professors as a gendered process and is based on an analysis of committee reports at six large Dutch universities ($n=936$). In its report to the dean, the selection committee in most cases provides details of the procedure followed and the reasons for its recommendations. The research took place between November 2004 and June 2005, and our aim was to look at differences in successful applications by male and

female candidates for professorial positions. Our principal question was: Is there a difference between successful applications by male and female candidates for professorial appointments at a general and/or disciplinary level? On the basis of literature research, we have formulated two premises to explain gender differences in the number of recently appointed full professors (see below for an extensive description). Firstly, the nature of the procedures might influence women's chances in appointment procedures. We expect women to be more successful in open competitions for professorships than in more closed and restricted procedures. Secondly, the composition of the selection committee might influence women's chances in appointment procedures. However, we do not know in what way it influences women's chances; the existing literature is not univocal about the advantage for women.

The paper opens with a description of the current state of affairs; we will see that no extensive literature is available on recruitment practices in academia. In the second section, we expand our premises and in the third we discuss the research methodology. We continue by presenting the results of our empirical analyses, revealing the success rates of male and female applicants and testing our hypotheses. We discuss our findings in the final section.

Recruitment and evaluation in academia

Recruitment has been analysed as a key process for understanding the reproduction of gender segregation and discrimination in the labour market and within organizations (e.g. Curran, 1988; Collinson *et al.*, 1990; Harris, 2002; Reskin and Roos, 1990; Teigen, 2002). Recruitment and evaluation procedures for academic positions and grants have also been the object of study (Steinpreis *et al.*, 1999; Wennerås and Wold, 1997; Lindberg *et al.*, 2003). However, few have focused on the actual process of recruiting new staff in order to understand the reproduction of the gender order in academia. Well-known studies, such as that by Wennerås and Wold (1997), have emphasized the outcome of the peer review process, not the process itself. While there have been some studies on selection procedures in academia in The Netherlands, they have focused primarily on the selection interview (Van Vianen, 1987).

Wennerås and Wold's renowned investigation of gender bias in the selection of research proposals and applicants was a starting point for many other studies on academic research evaluation. However, the results of their study have not been confirmed by other research (Welcome Trust, 1997; Boehringer Ingelheim Fonds, 1999). In most cases, success rates are quite similar for men and women. In the research we conducted earlier, we found that even if success

rates are comparable at a general level, gender differences may operate at the disciplinary level (Brouns and Scholten, 1999). A study of the assessment system of The Netherlands Organisation for Scientific Research (NWO), published in 2000, showed that the similarities between the success rates of male and female applicants in fact veiled a surprising differentiation across the disciplines. In some disciplines (the exact sciences), women received remarkably positive evaluations and high success rates. The study showed that not only were these women very well qualified, they also appeared to receive a bonus that was not related to the quality of their work. In a few disciplines (biology and earth sciences), on the other hand, there was evidence of a negative gender bias because we could not find substantial differences in the track records of unsuccessful women and successful men. The study also showed that, while men were assessed according to merit, these findings and correlations could not be confirmed for female applicants. On the basis of this research, we concluded that gender played a role in the evaluation of women and men, although this process operated differently in the different academic disciplines.

Other European research has focused on how the qualifications of male and female applicants were assessed when they competed for positions at Swedish universities (Lindberg *et al.*, 2003). The source material was the written expert assessments of applicants' qualifications and the official records of selection committees. It showed that there were no systematic differences in the use of non-neutral adjectives by the referees. The same measuring rod was used for male and female applicants. However, of the group under study, women made up 22 per cent of the applicants but 31 per cent of the appointed scholars. The conclusion was that the evaluation of applicants in the academic recruitment system was not the critical issue for gender equality in Swedish education. These findings contradict Icelandic research on selection report for full professorships (Thorvaldsdottir, 2004). It showed that female candidates received little attention compared to male candidates, and women's qualifications were named differently than the same qualifications related to men. A clear example could be seen in one of the evaluation reports where the male candidate was said to have been "wrestling with a difficult task" while it was said about the women applicant, that she "had something knitting".

To date, no comprehensive studies have been undertaken of actual recruitment and selection procedures that take into account differences between disciplines or factors such as the number of applicants for each professorship and recruitment potential by gender (Husu, 2000). With this study, we seek to contribute to the knowledge about the measurement of academic excellence, particularly with regard to the recruitment and selection of new full professors,

taking as our starting point disciplinary differences in procedures and female potential.

Nature of recruitment procedures and women on committees

There are many factors that can influence women's chances in appointment procedures. We have constructed two premises on the basis of the currently available research.

Nature of the procedures

First, the nature of the procedures might influence women's chances in professorial appointments. Recruitment procedures can be defined as open (the job is advertised in the media) or closed (applicants are selected by nomination). There has been little empirical evidence to trace the relationship between women's success rates and the nature of the procedures. On the basis of tentative research findings, we would expect women to be more successful in open competitions for professorships than in the more closed invitation procedures (Portegijs, 1993; Academy of Finland, 1998; Husu, 2000; Van Balen, 2001; Benschop and Brouns, 2003).

A study by Van Balen (2001), which compared the positions of women in the higher echelons of three universities in different countries, provides some evidence that a lack of transparency in organizational procedures accompanies low success rates for women. Another study, investigating selection procedures for a prestigious research award in The Netherlands, concluded that the transparency of procedures is critical. The research, which focused on a Dutch university, showed that arts and medicine were the only faculties in which the sex ratio of nominees was comparable to the sex ratio of successful doctoral applicants. These faculties were also those with the clearest reporting on selection procedures, criteria and outcomes (Brouns, 2000). Other evidence of the influence of the nature of the recruitment system upon female applicants has come from Finland. Husu (2000) examined the procedures for professorial appointments in Finland from 1997 to 1998 ($n=179$) and found a clear pattern: women were appointed twice as frequently in open competition as in the invitation procedure.

There has also been some research on recruitment of higher management which is relevant to the present study. Harris (2002) examined the status of women in international management. A key finding of her study was the critical effect of selection systems for international assignments where the pre-

dominant use of closed, informal selection processes was seen to create unintended gender bias in recruitment. The influence of informal processes was evident in many of the directors' responses concerning selection procedures. These included the use of informal networks by either decision-makers or potential applicants in order to secure their desired outcomes. Managers generally had too clear an idea of the person they wanted. Managers who know two people who might do the job well will not stop to ask "is there anybody else?" (Harris, 2002, p. 192).

The advancement of men in closed invitation procedures is probably related to male networks and the mutual support systems of men, the academic sociality of men, and the limited "visibility" of women compared to their male colleagues (Bagilhole and Goode, 2001; Husu, 2000). Visibility and the academic recognition of all potential applicants are the cornerstones of a successful selection process. Not only talent and merit decide who will be nominated for a professorial position; this is also influenced by social capital. In order to distinguish oneself as an academic, publication alone is not enough; publications need to be read, discussed and cited. Publications need personal representation within the academic community. Participation in academic networks is therefore important; having the right connections—both formal and informal—seems to be critical to a successful career path (Kemelgor and Etzkowitz, 2001; Gupta *et al.*, 2004). Women tend to present themselves more reservedly, have different networks and show their ambition in a different way to men (Sools *et al.*, 2002).

A study of higher management positions reports that several directors stressed the importance of reputation in determining outcomes for international manager selection. For them, what was written in the performance appraisal was less important than a person's general reputation (Harris, 2002). Participation in specific networks is not only relevant in itself; the overall range and density of those networks may also be significant for career opportunities. Having a wide range of "weak ties" (Granovetter, 1974) is fruitful for finding out about opportunities. The literature reveals that women experience difficulty in gaining access to such networks in organizations where those in power are predominantly male (Adler, 1993; Rubin, 1997; Van Balen, 2001; Harris, 2002). Women tend to operate in women-only networks, whereas men are involved in male networks, resulting in less influential contacts for women. According to Bagilhole and Goode (2001), this built-in support system favours men, as women are not easily admitted. Open competitions are characterized by transparency and accountability, which counter the power of the old boy network and could indirectly lead to a greater chance of women being appointed.

Composition of the selection committee

The composition of the selection committee might affect women's chances in appointment procedures. A more gender-balanced composition could lead to greater gender awareness and to attention to gender-specific behaviour and perceptions. Women could keep a close watch on unintended differences in perceptions. Nevertheless, women are clearly underrepresented on committees. The *She Figures, 2006*—a publication by the European Commission about women in sciences—shows that the composition of academic boards is rather imbalanced in most European countries. Strong male dominance is evident in the power structures of the sciences—on editorial boards, peer panels and selection committees for professorships. Committees prefer to search for their applicants in circles close to themselves (Khurana, 2002), and this similar-to-me effect can have a negative impact on women's chances in a male-dominated committee or board. Benschop and Brouns (2003) report that several selection committees rejected the occasional woman who applied because the lack of similarity meant that her qualifications and merits were not recognized.

Surprisingly, however, recent research has shown that female academic staff strongly endorse gender-stereotypical perceptions (Ellemers *et al.*, 2004). Faculty members at a Dutch university perceived female students to be less committed to their work, with female staff endorsing these gender-stereotypical perceptions more strongly than men. A second study in Italy replicated and extended these findings. Additional measures supported an explanation in terms of social identity, according to which individual upward mobility (i.e. of female academic staff/faculty) entails distancing oneself from the group stereotype, which elicits stereotypical views from other in-group members.

Other research has added to these findings. Steinpreis *et al.* (1999) conducted a national study on the impact of gender on the review of curricula vitae of job and tenure applicants. It showed that women and men were more likely to appoint a male applicant than a female candidate with an identical record. The findings showed a gender bias with both men and women towards male candidates. There is also evidence of women recruiters being more gender biased than men. Cole *et al.* (2004) examined the effect of recruiter and applicant gender on recruiters' evaluations of applicants' qualifications as reported on actual applicant curricula vitae. While male recruiters' perceptions of applicants' work experiences did not differ according to applicant gender, female recruiters perceived male applicants' *curricula vitae* as reporting greater work experience than those of female applicants. This suggests a need for further research on the influence of the gender composition of committees.

Methodology

The main focus of our research is to examine the differences in success rates of male and female applicants in academic recruitment procedures for professorships. The lack of any empirical studies in The Netherlands or elsewhere in Europe on actual recruitment procedures in academia called for an approach with two subsequent studies. For Study A we collected general information on newly appointed professors from Dutch universities in the period 1999 to 2003. A total of 13 of the 15 Dutch universities provided us with the information requested, including for all new appointments the type of chair (full time or part time, structural or temporary) and the gender of the appointees. We compared these figures with the proportion of female doctorates twelve years ago (National Statistics, CBS). In this way, we were able to examine whether the sex ratio of those well qualified to enter academic positions is in line with the sex ratio of female professors.

Study B consisted of a detailed analysis of the files from selection committees. To test our assumptions, we invited all universities to participate, but due to privacy issues and time scarcity of auxiliary personnel, only six universities cooperated. These six universities represent a mixture of all Dutch universities and include some of the largest (University of Amsterdam), the most prestigious (University of Leiden), and also a university of technology (University of Eindhoven). In total we received access to 936 committee reports covering almost all appointments of full professors at these universities in the period 1999 to 2003.

The data were collected from November 2004 to June 2005. We did not include so-called extraordinary professorships as these are funded in full or in part by external sources and the appointment procedures follow a different course. After data collection, we filtered out the reappointment reports ($n=109$) as these are information-poor (a single candidate, no committee, no competition). Unfortunately, in some cases ($n=145$) only the gender of the appointee was stated, with no information on the gender of other applicants. These cases were excluded from the analysis reported in this paper[1]. All analyses refer to 682 cases with sufficient information. Various written documents were used as data sources: the basic profile, the vacancy announcement, the list of applicants, recommendations from related faculties, the composition of the committee and the final recommendations of one or two nominees to the dean. The reports varied enormously in scope and style: some gave detailed consideration to all applicants for the position and the criteria by which they were measured, while others gave only the name of the person who “was obvi-

ously the most suitable candidate". The reason for the variation in scope and style lay in the requirements which the dean of the faculty or the board of the university places on the committee reports. Some universities and faculties are more strict and accountable than others. Especially in Engineering and Medicine the reports contained minimum information.

To organize the data collected from the documents, we designed an analytic framework which included the following variables: gender of appointee, total number of applicants, gender of applicants, number of applicants interviewed, gender of applicants interviewed, discipline, nature of the recruitment procedure and the number of women on the committee. The analyses were conducted along two strands. First, we determined the success rates of male and female applicants for each discipline. Secondly, we tested our predictions concerning the type of recruitment (open/closed) and the gender composition of the committee. These latter analyses were conducted on an aggregate level; no distinctions were made here between disciplines.

Because most of the files do not contain any information on the actual track records of the candidates, we were unable to reconstruct individual qualifications or make systematic comparisons of the track records of men and women. "Quality" remains unquantifiable in this study. Nevertheless, we were able to analyse the influence of procedural characteristics (open/closed, composition) and the effect this had on success rates for men and women. We assumed an even distribution of qualified men and women, irrespective of procedural characteristics. This allowed us to compare success scores (m/f) in open and closed procedures, and selection committees that are balanced or imbalanced in terms of gender composition. Using this analysis, we can answer the two premises that underpin our research.

We will start the description of findings with the results of Study A.

Professorial appointments in The Netherlands

In 2005 only nine per cent of full professors in The Netherlands were female, a figure which is increasing only very slowly (WOPI, 2004). Two reasons are commonly cited to account for the low number of female professors. First, it is commonly claimed that large numbers of ageing full professors are blocking the upward mobility of young men and women or recent graduates. According to this claim, often cited by top administrators, the current professorial staff reflects the graduation numbers of several decades ago, and the situation will improve over time. According to our data, 1850 new full and extraordinary—

financed by an external party—professors were appointed at Dutch universities between 1999 and 2003[2]. These numbers indicate substantial mobility in the upper echelons and that new positions are available for talented men and women. Our data further shows that only 11 per cent of these new appointments were taken up by women. We may therefore conclude that lack of opportunity is not a sufficient explanation for the slow mobility of women.

A second reason often stated to account for the underrepresentation of women in the higher ranks of academia points to the lack of female potential. In other words, academia is short of women with the required education and experience. Women with a doctorate may be defined as the female potential for a professorship, they comprise the “feeder pool” from which future academics are likely to spring (Zuckerman *et al.*, 1991). We considered women who obtained a doctorate 12 years ago as the potential for new professorial appointments. In contrast to what is commonly claimed, substantial female potential is present in the humanities (28 per cent), social sciences (27 per cent), law (26 per cent) and medicine (21 per cent). Table I gives an overview of the female potential for each discipline. The national figures concerning the female potential were obtained by Statistics Netherlands (CBS, 2004).

We can conclude from the combination of the national data and our own data from Study A that the female potential has been realized, or almost realized, in some disciplines (the social sciences and notably the natural sciences and engineering), whereas in others there is a substantial gap between potential and the proportion of women among newly appointed professors. This is especially true of the medical sciences, law, the humanities and economic sciences. This means that the gender issue in the former disciplines is very different from the latter. Failing to realize the potential could imply a gender bias, perhaps unintentional, in the career paths of academics. In the next section, we present the chief findings of Study B, based on the detailed analysis of files from six universities.

Results: success rates of men and women

Success rates in general

Firstly, we will discuss the success rate of all male and female applicants in general. A candidate is someone who has applied for a position or who has been nominated by related faculties or by a member of the selection committee, and who has notified the committee that he or she is interested in the position. Table II provides an overview of the number of applicants and the num-

ber of appointed professors. The success rates of men and women have been calculated on the basis of the number of male and female applicants.

The overall success rates of male and female applicants reveal a significant gender difference. The figures show that almost one out of three male applicants is appointed, compared to one out of five women. As said, we are unable to relate these findings to “quality” indicators of individual applicants. A more reliable way to examine possible differences in success rates of male and female applicants might be found if we focus our analysis on applicants who have been invited for an interview with the selection committee. After all, these shortlisted applicants passed a first selection and committee members regarded them as serious candidates for the chair.

Table III presents the success rates for shortlisted candidates. Once again, there is a substantial difference in the success rates of men and women. Over 60 per cent of the interviewed male applicants were successful, compared to almost 50 per cent of the female applicants.

We observe striking differences between disciplines: the natural sciences and humanities show an underrepresentation of women, while women seem slightly overrepresented in the social sciences and law. These findings raise issues about possible effects of characteristics of the procedure, which may differ between disciplines. In the next section, we will explore these issues further and take a closer look at differences between academic disciplines.

Differences between disciplines

A closer look at Tables II and III reveals clear distinctions between the academic disciplines with regard to the sex ratio of the applicants (in general and on the shortlist) and the sex ratio in the final appointments.

The high overall success rate of men and women in medicine and engineering (50/49, 43/50) is surprising (Table II). These disciplines often nominate a single candidate who is invited by the chair of the committee. As the specialized fields are rather small, possible candidates for the chair tend to be known and the department feels no need to make the vacancy public. Applicants’ qualifications are presented as a conclusive argument in the report, although the comments on this point are vaguely formulated. The committee’s function consists solely of advising the Board of the University as to whether the candidate is ready to become a professor; in fact, it is a foregone conclusion. The recruitment of professors on the grounds of competence is typically presented as self-evident, although—equally typical—what merit or competence actually means is left unspecified.

There are substantial differences between the success rates of men and women in the economic sciences (11 per cent), natural sciences (10 per cent) and humanities (5 per cent). Men's success rates in these disciplines are higher than those of their female counterparts. Female applicants are surprisingly more successful than men in the fields of engineering and to a lesser extent the social sciences. In medicine and law, the general success rates of men and women are fairly equal.

Considering the applicants on the shortlist (Table III), we can comment once again on the substantial differences in success rates between men and women in the natural sciences (26 per cent), humanities (11 per cent) and economic sciences (6 per cent). The social sciences and law also show a gender difference, this time to the advantage of women. In the fields of medical science and engineering, the difference is minimal.

What can we conclude from these figures? The success rates of male and female applicants differ substantially according to academic discipline. To show the different patterns, we reconstructed the path from potential, to applicants (in general and on the shortlist) and on to the final appointment of professors. Figure 1 shows this "leaky pipeline" for each discipline.

In the field of medicine, the number of female applicants and appointments is low despite a large proportion of female potential. Bearing in mind that the actual recruitment process takes place before the committee is installed, we can assume that women are not sufficiently visible in the academic community to be invited for a professorial post. Once invited to appear before the committee, female applicants have the same chance of being appointed as their male counterparts.

The disciplines of law and the social sciences show a discrepancy between the pool of female potential and the proportion of female applicants. Subsequently, this proportion decreases further in the shortlist and, surprisingly, increases in the final appointments. We can conclude from this that shortlisted women have a better position than shortlisted men. The drop in the proportion of women from potential to the shortlist is also evident in the economic sciences, although here the proportion of women finally appointed is in line with the proportion of women shortlisted.

Female potential is high in the humanities, but falls rapidly as we move towards professorial appointments. While the number of female applicants roughly matches the potential, the proportion of women on the shortlist and in final appointments falls short. This shows a disproportionate drop-out rate of female applicants during the process. The same applies to the procedures in

the natural sciences: while the proportion of female candidates overall and on the shortlist is reasonably in keeping with the potential, the proportion in the final appointments is considerably lower.

In engineering, the proportion of women remains stable throughout the procedure.

What these figures show then, is that success rates of men and women vary considerably across academic disciplines, as do patterns based on a reconstruction of the “leaky pipeline”, following the path from female potential all the way through to female professorial appointments. The question is therefore whether characteristics of the recruitment procedure have an impact on the success rates of women.

Nature of the procedures

We classified the procedures into three categories: open, semi-open and closed. An “open” procedure is one in which a vacancy is advertised in (international) journals, newspapers, on the internet or in other media and anyone with appropriate qualifications and experience may apply. By contrast, a “closed” procedure is one in which the applicants are recruited from informal networks or directly invited to apply by members of the selection committee. If the committee sends the basic profile and the job announcement to related faculties elsewhere, together with a request to nominate suitable applicants, we defined this as a “semi-open” procedure. Following results of earlier studies, we expected “open” procedures to provide the greatest opportunities for the appointment of women.

In the period 1999–2003, the majority (over 60 per cent) of all newly appointed professors at the universities included in this study were recruited in a closed recruitment procedure[3]. In such a situation, there was often no competition between applicants as a single candidate was involved in the selection process. In some academic disciplines (such as medicine, engineering and the natural sciences), the competition often takes place informally, before the chair is vacant. Head-hunters from the university comb the market in search of excellent applicants and are willing to create a chair if they find an interesting or brilliant external candidate or an internal candidate who has attracted the attention of another university or medical centre. Figure 2 shows the distribution of different recruitment procedures by discipline.

Only in the humanities is the majority of candidates recruited through an open procedure. In the social sciences open and closed procedures are applied in roughly equal numbers. The remaining disciplines—engineering (76 per

cent), economic sciences (70 per cent), natural sciences (70 per cent), medicine (64 per cent) and law (60 per cent)—recruit predominantly through informal channels in closed procedures.

Our expectation was that women would have a greater chance of being appointed in open procedures. Table IV shows very small gender differences—women were appointed slightly more often in open procedures—but these differences are by no means significant. The vast majority of male and female professors were recruited in closed procedures (63 and 61 per cent). These figures do not confirm our hypothesis that closed procedures favour men. The inner circles of the “old boy network” seem to be as advantageous for women as for men.

Committee composition

In The Netherlands, the dean is responsible for the composition of the selection committee, although the proposed membership requires the approval of the Board of the University. At most universities, the committee is made up of five to nine people: the chairperson (either the dean of the faculty or the head of department), the director of the research school, a professor in a related faculty, a student, a member of the department (often a professor) and a secretary or personnel manager.

A selection committee is not set up for all appointment procedures; nine per cent of the procedures investigated involved no committee at all. These cases primarily apply to appointments of affiliated, honorary or part-time professorships, or when quick action is needed to appoint a brilliant (international) candidate, in which case the dean seeks direct approval from the Board of the University for the appointment.

Based on the literature, we would expect the composition of the selection committee to have an impact on the success rates of female applicants. Women on the committee may pay attention to gender-specific behaviour and perceptions. Table V shows the number of female committee members by the gender of the appointee. A total of 45 per cent of the committees were strictly male. There appears to be a significant relationship between the number of women on a committee and the gender of the candidate that was appointed ($p < 0.001$).

Our expectation is confirmed by our case results: female applicants have a greater chance of being appointed as the number of women on the selection committee increases. Logistic regression analyses (not shown here) confirm this: the chance of female applicants being appointed increases significantly the more women take part in the selection committee ($p < 0.05$). This conclu-

sion holds true when differences in recruitment procedures and disciplines are accounted for.

It is not evident that the chances of women candidates are a direct effect of the presence of women on selection committees. It is more reasonable to expect that an intermediate variable is responsible for both female presence on the committee and success rates. The culture of the disciplines may well be this intermediate variable. This is a matter for more in-depth investigation in the future.

Implications for women's careers

In this research study, we formulated two premises. First, the nature of the recruitment could influence women's chances in selection procedures. We found no confirmation of the predicted relationship; women were appointed slightly more often in open procedures, but these differences are by no means significant. The inner circles of the old boy network can be as advantageous for women as for men under two conditions. Nevertheless, it seems important for women to make themselves visible, and for scouts to reflect on their assumptions about the "excellent scientist" and the implicit effects of this on the perceptions of men's and women's behaviour and track records. Recruiters should pay explicit attention to the female potential.

Our second premise concerning the relationship between the number of women and the chances of women to be appointed was confirmed. This finding is consistent with other research, which indicates that a predominant male committee can have negative consequences for women due to the "similar-to-me" effect (Bates, 2002; Lin *et al.*, 1992; Latham and Wexley, 1981). However, it is not evident that this correlation is caused by an intermediate variable. This needs further exploration.

The research findings clearly show gender differences in selection procedure outcomes. Although not in all disciplines, we see a disparity in the proportion of male and female applicants who are appointed to professorships and the realization of female potential. How can these findings be explained? Partly by disciplinary differences. One of the largest disciplines—medical sciences, where women make up 21 per cent of doctorates—completely fails to realize female potential. In none of the disciplines does the proportion of female appointments exceed the proportion of female potential, so that relative success in one discipline cannot compensate for poor performance in another discipline. We can conclude that the gender issue in the social sciences is differ-

ent from that in medicine. Perhaps the epistemic (Knorr Cetina, 1999) or organizational culture is different in medicine than in the social sciences, as managerial skills are more important in the former. This could be a negative element in women's decisions to opt for an academic career in the "hard" culture of medicine. We might also expect perceptions to vary among disciplines as to whether women are "true academics" or "academic leaders". Another explanation could be that men are simply more qualified and talented. These aspects require careful attention in future research.

What implications do these findings have for women's academic careers? Academic policymakers and female academics need to realize that academic disciplines are gendered in a different way and that tackling the underrepresentation of women requires a variety of measures, both at institutional and individual levels. In medicine, for instance, women have to become more visible in the academic community. At the organizational level, recruiters need to be aware that women academics often have a different way of promoting themselves (more modest, greater participation in female networks). Male networks are strong and powerful, and the similar-to-me effect could be a disadvantage for women (Bagilhole and Goode, 2001). Although women are being appointed in closed procedures as well as men, accountability is critical. Public responsibility could help to reduce the influence of informal networks and accountability leads to reflection on the presence of women in informal and formal networks. Mentoring systems in which more experienced scholars support women could be very helpful in preparing a next career step.

The fields of law, the humanities, social sciences, economic sciences and natural sciences show a discrepancy between the pool of female potential and the proportion of female applicants and, in some disciplines, the proportion of women appointed. On the basis of our data and analyses, we cannot unequivocally explain why these "pipelines leak". What can be said, though, is that explicit standards applied to a large set of applicants tends to favour objectivity. On the other hand, a caveat is needed against the practice of tailoring the standards for a position to favour a particular applicant. Women applicants should be aware of the criteria used, and explicitly ask for information about them.

In engineering, finally, the main problem lies in the low female potential. This means that women need to be encouraged to pursue academic training in this field.

Based on our data, we would expect that the implementation of very general policy measures targeted at academia as a whole is not the best way to obtain a gender-balanced workforce in the upper echelons in universities. Measures that take into account disciplinary differences seem more promising in the long run.

Figure 1: The proportion of female academics as potential, applicants (general and shortlist) and in final appointments per discipline

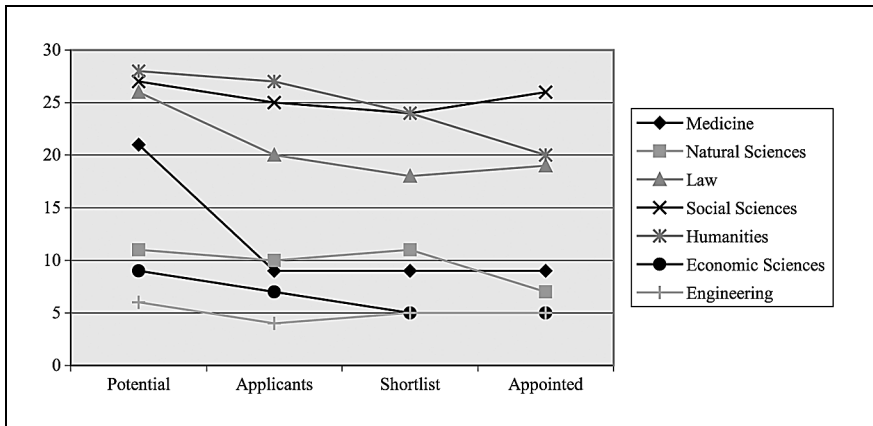


Figure 2: Nature of procedure by discipline

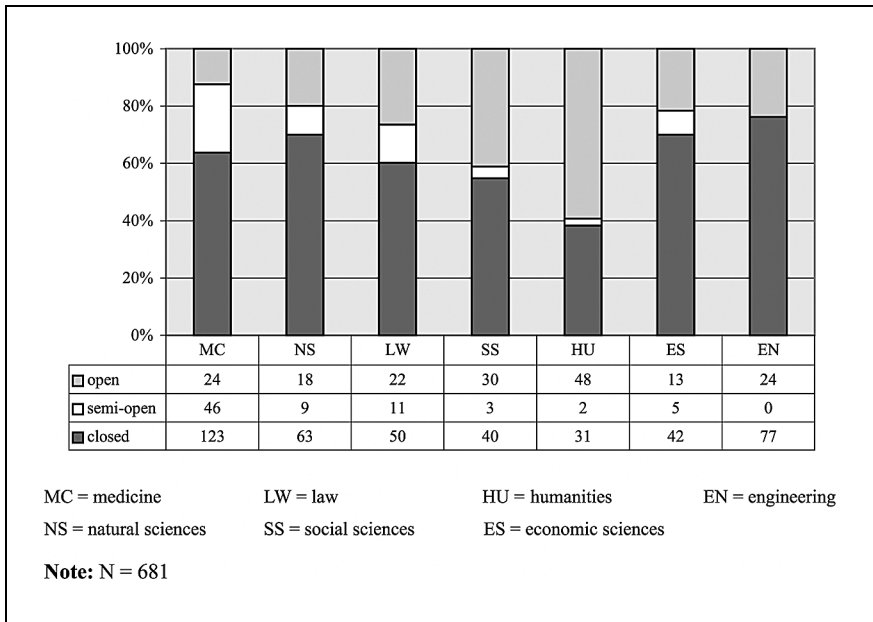


Table I: Female potential and appointments (in percent) in the disciplines

Discipline	Female potential ^a (%)	Female appointments 1999–2003 ^b (%)
Medical sciences	21.1	8.2
Natural sciences	11.0	9.0
Law	26.1	20.2
Social sciences	27.4	27.2
Humanities	27.5	20.2
Economic sciences	9.0	5.3
Engineering	5.7	4.8

Sources: ^a National Statistics (CBS); ^b data collected from 13 universities (Study A)

Table II: Male and female applicants (number and percent of total) and success rates per discipline

	Applicants			Appointments		Success rate		Difference
	M	F	%	M	F	M (%)	F (%)	M/F (%)
Medicine	355	35	9	176	17	49.6	48.6	-1.0
Natural sciences	319	37	10	84	6	26.3	16.2	-10.1
Law	267	67	20	68	16	25.5	23.9	-1.6
Social sciences	260	85	25	54	19	20.8	22.4	1.6
Humanities	421	155	27	65	16	15.4	10.3	-5.1
Economic sciences	176	14	7	57	3	32.4	21.4	-11.0
Engineering	221	10	4	96	5	43.4	50.0	6.6
Total	2,019	403	17	600	82	29.7	20.3	-9.4

Note: N = 682 appointments

Source: Committee reports 1999–2003 (Study B)

Table III: Male and female shortlisted applicants (number and percent) and success rates per

	Shortlisted applicants			Appointments		Shortlist success rate		Difference
	M	F	%	M	F	M (%)	F (%)	M/F (%)
Medicine	234	23	9	176	17	75.2	73.9	-1.3
Natural sciences	138	17	11	84	6	60.9	35.3	-25.6
Law	139	30	18	68	16	48.9	53.3	4.4
Social sciences	119	38	24	54	19	45.4	50.0	4.6
Humanities	142	46	24	65	16	45.8	34.8	-11.0
Economic sciences	86	5	5	57	3	66.3	60.0	-6.3
Engineering	133	7	5	96	5	72.2	71.4	-0.8
Total	991	166	14	600	82	60.5	49.4	-11.1

Note: N = 682 appointments

Source: Committee reports 1999–2003 (Study B)

Table IV: Nature of procedure and gender of appointee

	Open		Semi-open		Closed			
	N	%	N	%	N	%	N	%
Male	154	25.7	69	11.5	376	62.8	599	100
Female	25	30.5	7	8.5	50	61.0	82	100
Total	179	26.3	76	11.2	426	62.6	681	100

Note: N = 681

Source: Committee reports 1999–2003 (Study B)

Table V: Number of female committee members and gender of appointee

	0		1		2		> 3			
	N	%	N	%	N	%	N	%	N	%
Male	283	47.8	209	35.3	87	14.7	13	2.2	592	100
Female	23	26.4	31	35.6	28	32.2	5	5.7	87	100
Total	306	45.1	240	35.3	115	16.9	18	2.7	679	100

Note: N = 679

Source: Committee reports 1999–2003 (Study B)

References

- Academy of Finland, 1998:** *Women in Academia: Report of the Working Group Appointed by the Academy of Finland*, Academy of Finland, Helsinki.
- Adler, N.J., 1993:** Competitive frontiers: women managers in the triad. In: *International Studies of Management and Organization*, Vol. 23, pp. 3–23.
- Bagilhole, B., Goode, J., 2001:** The contradiction of the myth of individual merit, and the reality of a patriarchal support system in academic careers; a feminist investigation. In: *The European Journal of Women's Studies*, Vol. 8, No. 2, pp. 161–80.
- Bates, R., 2002:** Liking and similarity as predictors of multi-source ratings. In: *Personnel Review*, Vol. 31, No. 5, pp. 540–52.
- Benschop, Y., Brouns, M., 2003:** Crumbling ivory towers: academic organizing and its gender effects. In: *Gender, Work and Organization*, Vol. 10, No. 2, pp. 194–212.
- Boehringer Ingelheim Fonds, 1999:** *Boehringer Ingelheim Fonds (B.I.F.) and Women. Figures and Assumptions*, B.I.F., Stuttgart.
- Brouns, M., Scholten, M., 1999:** *Kwaliteit van het oordeel. Een onderzoek naar beoordelingssystematiek van NWO en KNAW (The Quality of the Assessment)*, Nederlands Genootschap Vrouwenstudies, Utrecht.
- Brouns, M., 2000:** The gendered nature of assessment procedures in scientific research funding: the Dutch case. In: *Higher Education in Europe*, Vol. 25, pp. 193–201.
- Brouns, M., Addis, E., 2004:** *Synthesis report on the workshop, Gender and Excellence in the Making*, European Commission, Brussels, pp. 13–32.
- Cole, M., Field, H., Giles, W., 2004:** Interaction of recruiter and applicant gender in resume evaluation: a field study. In: *Sex Roles*, Vol. 51, No. 9/10, pp. 597–608.

- Collinson, D., Knights, D., Collinson, M., 1990:** *Managing to Discriminate*, Routledge: London/New York, NY.
- Curran, M., 1988:** Gender and recruitment: people and places in the labour market. In: *Work, Employment Society*, Vol. 2, No. 3, pp. 335–51.
- Ellemers, N., Van den Heuvel, H., De Gilder, D., Maas, A., Bonvini, A., 2004:** The underrepresentation of women in science: differential commitment or the queen bee syndrome. In: *British Journal of Social Psychology*, Vol. 43 pp. 1–24.
- Fogelberg, P., Hearn, J., Husu, L., Mankkinnen, T., 1999:** *Hard Work in the Academy*, Helsinki University Press: Helsinki.
- Granovetter, M.S., 1974:** *Getting a Job, A Study of Contacts and Careers*, Harvard University Press: Cambridge, MA.
- Gupta, N., Kemelgor, C., Fuchs, S., Etzkowitz, H., 2004:** The ‘Triple Burden’: a cross-cultural analysis of the consequences of discrimination for women in science. In: *Gender and Excellence in the Making*, European Commission, Brussels, pp. 41–51.
- Harris, H., 2002:** Think international manager, think male: why are women not selected for international assignments? In: *Thunderbird International Business Review*, Vol. 44 No. 2, pp. 175–203.
- Horrobin, D.F., 1990:** The philosophical basis of peer review and the suppression of innovation. In: *Journal American Medical Association*, Vol. 263, pp. 1438–41.
- Husu, L., 2000:** Gender discrimination in the promised land of gender equality. In: *Higher Education in Europe*, Vol. 25, No. 2, pp. 221–8.
- Jefferson, T., 2002:** Measuring the quality of editorial peer review. In: *Journal American Medical Association*, Vol. 287, pp. 2786–90.
- Kemelgor, C., Etzkowitz, H., 2001:** Overcoming isolation; women’s dilemmas in american academic science. In: *Minerva*, Vol. 39, pp. 239–57.
- Khurana, R., 2002:** *Searching for a Corporate Savior. The Irrational Quest for Charismatic CEO’s*, Princeton University Press: Princeton, NJ.
- KNAW, 2005:** *Judging Research on its Merits. An advisory Report by the Council for the Humanities and the Social Sciences Council*, Royal Netherlands Academy of Arts and Sciences, Amsterdam.
- Knorr Cetina, K., 1999:** *Epistemic Cultures, How the Sciences Make Knowledge*, Harvard University Press: Cambridge, MA.
- Latham, G., Wexley, K., 1981:** *Increasing Productivity through Performance Appraisal*, Addison-Wesley: Reading, MA.
- Lawrence, P.A., 2003:** The politics of publication. In: *Nature*, Vol. 422, pp. 259–61.

- Lin, T., Dobbins, G., Farth, J., 1992:** A field study of race and age effects on interview ratings in conventional and situational interviews. In: *Journal of Applied Psychology*, Vol. 77, pp. 363–71.
- Lindberg, L., Riis, U., Wallin, C., 2003:** Gender equality in Swedish higher education—a complex issue II, paper presented at the ECER Conference, Hamburg.
- Portegijs, W., 1993:** Sorry dat u gaat (Pity You Are Leaving), Jan van Arkel: Utrecht.
- Rees, T., 2004:** Measuring excellence in scientific research: the UK research assessment exercise. In: *Gender and Excellence in the Making*, European Commission, pp. 117–23.
- Reskin, B., Roos, P. (Eds), 1990:** *Job Queues, Gender Queues. Explaining Women's Inroads into Male Occupations*, Temple University Press: Philadelphia PA.
- Rubin, J., 1997:** Gender, equality and the culture of organizational assessment. In: *Gender Work and Organization*, No. special issue.
- She Figures 2006**, The Women and Science Unit, Brussels.
- Sools, A., Van Engen, M., Baerveldt, C., 2002:** De paradox van ambitie. Een cultuurpsychologische analyse van het vertoog over hogerop komen als manager in een multinational in Nederland vanuit een genderperspectief (“The paradox of ambition. A cultural psychological analysis of the discourse on climbing to a top position as manager in the multinational Netherlands from a gender perspective”). In: *Tijdschrift voor Genderstudies*, 4, pp. 42–55.
- Steinpreis, R., Anders, K., Ritzke, D., 1999:** The impact of gender on the review of the curricula vitae of job applicants and tenure applicants: a national empirical study. In: *Sex Roles*, Vol. 41, No. 7/8, pp. 509–28.
- Teigen, M., 2002:** The suitable few: managerial recruitment practices in the Norwegian state bureaucracy. In: *Scandinavian Journal of Management*, Vol. 18, pp. 197–215.
- Thorvaldsdottir, T., 2004:** Engendered opinions in placement committee decisions. In: *Gender and Excellence in the making*, European Commission, pp. 103–9.
- Van Balen, B., 2001:** *Vrouwen in de Wetenschappelijke Arena. Sociale sluiting in de universiteit (Women in the Academic Arena. Social Closure Inside the University)*, Het Spinhuis: Amsterdam.
- Van Vianen, A., 1987:** *Het selectie Interview, over de rol van sekse-stereotypes (“Amsterdam, The selection interview, about the influence of sex stereotypes”)*, dissertation, Leiden.

Wellcome Trust, 1997: Wellcome Trust Women and Peer Review. An Audit of the Wellcome Trust's Decision Making on Grants, The Wellcome Trust: London.

Wennerås, A., World, C., 1997: Nepotism and sexism in peer-review. In: *Nature*, Vol. 387, pp. 341–3.

WOPI (Higher Education Staff Information), 2004: Numbers of University Staff, VSNU, Utrecht, available at: www.vsnu.nl.

Zuckerman, H., Cole, J., Bruer, J.T. (Eds), 1991: *The Outer Circle: Women in the Scientific Community*, W.W. Norton: New York, NY.

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Anke Lipinsky and Silke Tölle

Appointment-related career promotion at the European level: The European project 'Encouragement to Advance—Training Seminars for Women Scientists'

At the core of the idea of a European Research Area (ERA) is the issue of women and science in Europe. The under-representation of women in scientific decision making positions is preventing full realization of the ERA's potential. The exclusion of women from science, in particular with respect to senior positions, is an unacceptable and unaffordable waste of human resources and a distortion of the relationship between science and society.

According to European policies concerted action thus was—and still is—required at the European and national levels. In the European Commission's Science-and-Society work program 2005 and 2006 a range of policy initiatives and research topics were organized along three axes. "The first aim is to bring research closer to society; the second is concerned with promoting responsible research and application of science and technology; the third seeks to step up the science/society dialogue, and addresses also the role of women in science"¹. The guiding principle of the Science-and-Society work program of 2006 was to stimulate structural links, within the European Research Area, for a more dynamic interaction between scientists, policy-makers and society at large. The program was implemented through a mix of activities such as conferences, seminars, workshops and working groups.

The project "Encouragement to Advance—Training Seminars for Women Scientists" was funded in this work program under the topic of "stimulating the policy debate at national and regional level and mobilization of women scientists" with a clear instruction to promote "the participation of women in science decision-making" and "to stimulate mechanisms for involving women scientists more actively in research management (...) at national and European levels".²

"Encouragement to Advance—Training Seminars for Women Scientists" (ENCOWOMSCI) was therefore conceived and accomplished within this framework. This article provides an insight into the project's context, genesis, objectives and its realization.

1 Science-and-Society work programme, July 2006, p. 3.

2 Science-and-Society work programme, July 2006, p. 19.

Context and Objectives

Between 2002—2006 the European Commission approved a total of 27 projects from funds of the *Sixth European Framework Programme* as *specific supporting or coordinating actions* with the objective of supporting women in science and research as well as investigating the dimension *gender* and its relevancy in research projects.³ European Council resolutions from 1999 and 2001⁴ as well as the European Parliament's resolution in February 2000 on conducting an action plan on the topic of "Women and Science" aimed at "strengthening the position and role of women in science and research"⁵ preceded the EC's approval. From among the four fields focused on developing the European Research Area, the activities covered by "Science and Society," funded with about €80 million, represented the smallest action field. The focus of this item is to make the correlations between science and society throughout large parts of the framework programme visible "through joint reference systems and the development of suitable instruments and concepts."⁶ Parts of the subject of "Women in Science," like supportive measures as "Encouragement to Advance," are important parts of this item.

CEWS started the project "Encouragement to Advance—Training Seminars for Women Scientists," or ENCOUWOMSCI, in October 2006. The offering comprised a series of seminars focused on professionally preparing women scientists from all 27 EU-member states for appointment procedures at universities in selected countries. The European Commission allotted €428,080 for 12 seminars to be conducted in Brussels. The project stretched over a 27 month period. During this time ENCOUWOMSCI focused on preparing women scientists for appointment procedures at universities in the Netherlands, Belgium, Germany, Austria, Switzerland and the Czech Republic.⁷ Women scientists are strongly underrepresented in Grade A⁸ positions in these countries. Accounting for 9.5 % in Austria, 9.0 % in Belgium, 10.3 % in the Czech Republic, 9.2 % in Germany and 9.4 % in the Netherlands, the proportion of women scientists

3 ftp://ftp.cordis.europa.eu/pub/fp7/sis/docs/fp6-sis-project-synopses_en.pdf provides a complete overview of the projects from DG Research: Science and Society.

4 ABl. C 201 from 1999-07-16, p. 1 and C199 from 2001-07-14, p. 1.

5 Europäische Kommission, 2002, p. 6.

6 <http://www.rp6.de/inhalte/thematiken/wissgesell>.

7 The selection was based on the comparability or similarity of appointment procedures in these countries.

8 In evaluating the qualification level the international classifications Grade A, B, C and D were chosen according to statistical publications of the European Commission, 2006, p. 95.

in the highest ranking academic positions is considerably lower than the European average of 15.3 %.⁹

The concept of each seminar, which was held as a four-day event with a professional, international team of trainers, is based on experiences as well as on concepts developed for national seminars as part of the program “Encouragement to advance—Career strategies for women in science.”¹⁰ Designed by CEWS on behalf of the German Federal Ministry of Education and Research, the national program “Encouragement to Advance” was conducted between 2001 und 2005.¹¹ During its two core years (2001–2003) 52 seminars were held for over 700 participants. They were prepared for appointment procedures at universities, universities for applied sciences, and art schools in Germany. Just as in the ENCOUWOMSCI seminars, the participating women scientists represented different disciplines, distributed across the natural sciences and medicine, engineering, as well as humanities, cultural sciences, social sciences, economics and law. In the seminars, representatives of the two main scientific cultures (natural sciences, medicine, and technology & humanities, cultural and social sciences) were grouped together accordingly. The reason for a subject-related division of single events lies in the faculty-specific approaches used in appointment procedures. An additional breakdown of the groups according to the vocational/scientific qualification level, as performed in the national program, was deemed unproductive for the European project due to the lack of comparability with regard to international qualification paths.¹²

At the core of the project are twelve seminars designed to prepare women scientists for appointment procedures in six different European countries, complemented by information on possibilities for research funding. This is further enhanced by offering information on effective networking in science and on the European Platform of Women Scientists EPWS. An informal talk with women experts from one of the target countries who are experienced in appointment procedures is also included.

9 All values are taken from She Figures 2006 and refer to the time of inquiry 2004.

10 Cf. Dalhoff, 2006.

11 Cf. Dalhoff, 2006.

12 For conducting the European project, the qualification level of the women scientists seemed significant solely for the application to participate in the project, as the training program was exclusively designed for appointment procedures, which—with reservations—is only sensible as of a certain level of seniority. A completed Ph.D. or an equivalent degree as well as teaching and research experience was, therefore, considered a prerequisite for participating in the project.

In the seminars, the women attending the program were to develop strategies for strengthening their scientific profile, especially with respect to international research networks and European research funding structures. Thus the project contributes to increasing the share of women in high-ranking positions within the European Union. Guided by professional trainers and supported by experts from the above mentioned countries, participants were to be encouraged to apply for professorships and learned about country-specific differences. An added European benefit was attained by enabling the women scientists to make interdisciplinary and international contacts during the project while at the same time being motivated to engage in transnational projects. Furthermore, the informal information exchange led to a sensitization for mutual chances and problems in the European Research Area. If nothing else, "Encouragement to Advance" sought to increase the tendency for mobility among women scientists in the ERA; encourage them to become more actively involved into the European Research Policy debate; familiarize them with vocational chances in the neighboring countries, and to support them in their career goals.

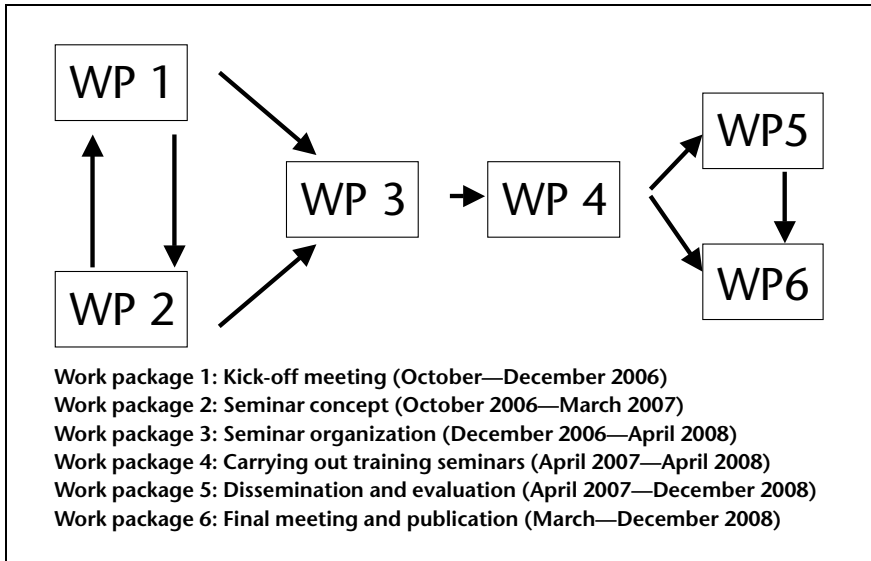
Project Realization

Project Structure

The EU project ENCOUWOMSCI was coordinated by the Center of Excellence Women and Science CEWS in Bonn. CEWS organized all training seminars and conducted the project evaluation. The project follows a tight organizational plan consisting of a total of six work packages, starting with a kick-off meeting with CEWS associates, female trainers and experts, in which further project procedures were agreed.

Following the kick-off meeting in November 2006, work began on fleshing out the seminar concept and the program advertising as part of *work package 2*. Throughout the project various press releases were issued within the framework of the dissemination strategy offering information about the program in general, or about vacant seminar places and opportunities to apply for grants. Additionally, online newsletters made information about the project continuously available. At the start of the project, for instance, it was crucial to make the program known in all the ERA countries in order to attract subject-specific national and international networks with potentially interested women scientists for participation in the program. At the beginning, ads were run in scientific journals in the Netherlands, the Czech Republic, Belgium, Austria, Switzerland and Germany. These were all journals where employment ads listed by research institutions normally appear.

Figure 1: Work packages of ENCOUWOMSCI



Parallel to this, in *work package 3*, the organization of the training seminars was progressing. This involved determining seminar locations in Brussels, reviewing applications and assembling seminar groups. Women scientists holding a Ph.D. for at least four years were allowed to apply for the project by submitting the application form and a letter of motivation. From among the 152 applications submitted, 112 women scientists attended the seminar series. *Work package 4* concerned carrying out the seminars in Brussels between April 2007 and April 2008. In October 2007, CEWS requested a self-financing project amendment comprised of reducing the number of seminars from 16 to 12, issuing grants to women scientists from Central and Eastern European countries, and an extended evaluation with added qualitative interviews. The changeover made sense, because CEWS had the chance to perform the project evaluation in a more comprehensive fashion than originally planned as well as to increase the scope of activities in the dissemination strategy. *Work package 5* involved the dissemination and evaluation of the project. Main evaluation results are introduced in this volume.¹³ *Work package 6* entailed the publication of the project's result as well as organizing and conducting the final conference which took place in Brussels on June 26th and 27th, 2008.

13 For more information about the evaluation see articles by Anke Lipinsky and Silke Tölle in this volume.

Board of Experts

The work of “Encouragement to Advance” at CEWS was accompanied by a board of experts for the entire period from October 2006—December 2008. This included renowned female professors and equal opportunity representatives from different countries: Prof. Dr. Magda Michielsens from Belgium, Prof. Dr. Maria Lukacova from the Czech Republic, Dr. Barbara Hey from Austria, and Elisabeth Maurer from Switzerland.¹⁴ They provided valuable support by bringing along their country-specific knowledge of the academic landscape, their professional experience with appointment procedures and by giving useful, fundamental advice. These experts also helped in advertising the project and securing participants in their home countries by spreading information about the project and the seminar content.

Training Seminars

Twelve training seminars took place in Brussels between April 2007 and April 2008. From among 239 interested women and 152 applications, a total of 112 highly qualified scientists participated in one of the seminars. Out of consideration for faculty-specific differences, seminars were rotated with six seminars being offered for those women working in natural and medical sciences and six for participants from the humanities, cultural studies and social science. There was space for up to 14 women scientists per seminar. The small groups, the fact that only women participated and the subject-specific distribution in the seminars facilitated an intense, confidential and friendly atmosphere, which allowed for personal reflections. The participants were briefed on the specifics of appointment procedures and academic landscapes in the selected European countries. Experts who were familiar with appointment procedures were invited, offering supplementary information and giving an introduction into the academic landscape of their countries. In informal talks in the evening, participants also had the chance to get to know the women experts outside the organized program.

With help from Dr. Margarete Hubrath’s (uni-support, Düsseldorf) team of trainers, the women scientists worked towards an optimal composition of their application documents, their personal appearance in front of an appointment commission, and—using role plays—practiced how to adequately respond to

14 Both CEWS and the scientific consultant and trainer Dr. Margarete Hubrath offered their expertise on appointment procedures and the academic landscape in the Federal Republic of Germany.

delicate questions during the interviews.¹⁵ Through personal consultations with a trainer the women received intensive and individual advice tailored for their particular needs. This gave the participants the opportunity to reflect on their own strengths and weaknesses and to develop further career steps. The afternoon hours of the third and the fourth seminar day were dedicated to the European dimension of science and research. The participants were briefed on research policy in the European Research Area as well as on project and mobility funding possibilities within the *Seventh European Research Framework Programme*. In conjunction with a visit to EPWS, associates held a presentation on the structure of the European framework programme, its funding mechanisms, the general EU policies and guidelines regarding science and research as well as the significance of networking for scientific careers. CEWS associates in cooperation with an EPWS colleague also gave a presentation on the topic "Networking in science".

Communication Platform

An Internet communication platform offered the participants during the whole program the chance to keep in contact after the seminar. The communication platform, which was available on the CEWS-homepage through the end of the project in December 2008, offered open forums accessible to all participants for viewing general information on project contents, such as appointment procedures, design of application documents, mobility matters, finding research cooperation, European research policy, networking in science and on country-specific aspects. It also provided forums for in-depth discussion of seminar topics. In addition, closed forums were available to facilitate the seminar groups to remain in contact.

The communication platform was set up to offer participants, trainers, organizers and members of the board of experts a space for project-related exchange. They used the seminar-related materials found on the platform both shortly prior to and directly following the seminars. Because of the women's unexpectedly low usage of the Internet platform for staying in contact, a final networking meeting in Brussels was planned for all participants intended to give them a chance to renew existing contacts from previous seminars and to establish new ties among participants from other seminar groups. The event at the end of November 2008 concentrated both on networking and the scientists' exchange of their experience.

15 See article by Margarete Hubrath in this volume.

Budget

The project had a total budget of €470,080. Of this total, €428,080 was provided by the European Commission. Part of the agreement on the requested project budget was for the difference to be paid by each participant in the amount of a €250 fee for taking part in the program. Having to pay a participation fee along with concomitant travel expenses represented a financial burden for the scientists from Eastern Europe in particular. To facilitate participation for women from low remuneration countries a self-financing project amendment was requested by CEWS and approved by the European Commission. This amendment meant that grants were issued covering travels costs and seminar fees under certain conditions.

The four-day seminars took place on weekdays and weekends. To avoid placing an additional burden on participants with children, the project offered a flat rate for compensating childcare expenses.¹⁶

Final conference

The joint final conference of the “Encouragement to Advance” project and “Advanced Training for Women in Scientific Research” (ADVANCE) took place on June 26th and 27th, 2008 in Brussels. The conference “Supporting women in scientific careers” was coordinated by Silke Tölle and Karin Siebenhandl.¹⁷ Both “Advanced Training for Women in Scientific Research” and ENCOUWOMSCI are projects funded by the Sixth European Research Framework Programme for supporting women in science and research. ADVANCE offered a training and mentoring program for doctoral candidates and post docs.¹⁸ The experiences made in the seminars of both projects offered an opportunity for taking stock and discussing the programs achievements in a broader context of support actions. The spotlight was on tools for career promotion through encouragement of individual researchers. The concluding meeting of both projects in Brussels did more than just bring together prominent women scientists working on gender and equal opportunities. It enabled participants, experts, organizers, as well as those interested in career-supportive measures for women scientists in general to have discussions on individual work steps during the implementation of a project, good practices and on personal expe-

16 This arrangement was made as a consequence of experiences made during the preceding national project “Encouragement to advance,” when the offer for onsite childcare went unused. Instead, all participants opted for the flat payment for childcare compensation.

17 For further information on the project and the conference see www.advance-project.eu.

18 For more information please see article by Husu, Siebenhandl et al. in this volume.

periences of former participants as well as of trainers and mentors. Fifty participants from 18 countries took part in the conference.

Both conference days saw experts from various disciplines and countries offer insightful views into the situation of women in science and research in Europe. In parallel round table discussions participants discussed various aspects of career promotion for women: professional networks, successful building up and managing career promotion programs, experiences of participants as well as the perspective of the trainers and mentors. The European Commission was represented by Florence Bouvret and Francesca Crippa, who gave a short introduction into the concrete work content of the Research Framework Programmes.

After an introduction to both projects by Silke Tölle (CEWS) and Karin Siebenhandl (ADVANCE), Liisa Husu (Finland), Sociologist at the University of Helsinki, opened the conference with her talk on *Women in Scientific Careers: Current Challenges and Visions for the Future*. She offered an overview on the current situation of women scientists in the European Union, referring to the challenges currently faced in Europe in the area of women's advancement. Calling for a change at universities and in research organizations towards more awareness of gender questions, equal opportunity and excellence, she indicated this could be accomplished by women scientists themselves acting as *agents of change*. Brigitte Mühlenbruch (Germany), vice president of the EPWS and former director of CEWS, called in her address *Requirements for a Gender-Balanced European Research Area* for an inclusive and encompassing science culture in the ERA in which the traditional pattern of supporting someone "equal-like-me" is not awarded with the highest positions in science. Notions of excellence must be tied to the underlying concept of diversity and in this way achieve a balanced distribution of power between women and men in the ERA. The second conference day saw Ene Ergma (Estonia), President of the Estonian Parliament, in her presentation *Women in Science: Status and Remedies* bring the situation of women in science in Eastern Europe, particularly the Baltic states, sharply into focus, drawing parallels between the participation of women in leading positions in politics and science. She spoke against the introduction of quotas, as well as for more transparent rules in recruiting for scientific positions. Julia Kzhyshkowska (Germany), dermatologist and allergist, who serves as research group director at the University of Heidelberg and participated in an ENCOUWOMSCI seminar, reported on the experiences she collected in national and international career promotion programs in *Career Supportive Projects for Women in Science: Interface for the Competence, Self-confidence and Networks*. Julia began by focusing on ENCOUWOMSCI, and she emphasized which aspects of the training were particularly helpful for her.

Subsequently, she referred to her experiences gained in national career supportive programs in Germany. Another ENCOUWOMSCI participant, Alina Ligia Dumitrescu (Romania), researcher at the Institute of World Economy, spoke of her positive experiences with the project. She particularly referred to the special situation of women scientists in Eastern Europe and pointed to the distinct characteristics of their career progression. Marina Calloni (Italy), professor for political and social philosophy at the University Milano-Bicocca and director of the *International Network for Research in Gender*, in the concluding presentation *Life Experiences as a Learning Process and a Resource for Career* offered observations on the problem of under representation of women in science from a philosophical and occupational-biographical perspective. She distinguished between internal barriers, meaning the internal psychological barriers to be dealt with individually, and external, such as the external, structural limits that prevent women from reaching higher positions.

The conference closed out with a talk by knowledgeable experts entitled *Women Scientists in the European Research Area—Barriers and Chances*, which offered advice on future career promotion programs. Maren Jochimsen, Marina Calloni, Ene Ergma, Julia Kzhyshkowska and Alina Ligia Dumitrescu all took part in the podium discussion moderated by Tineke Willemsen and offered their thoughts on obstacles and chances for women scientists in European research and universities.

Evaluation

The evaluation accompanying the project was aimed at investigating and verifying the effectiveness of the project with the individual seminar components, assuring their quality and the implementation of the project goals—such as the encouragement of participating women scientists to take further steps in their careers and establish a consciousness for networking, mobility and funding as a basis for further career options. The project was quantitatively evaluated in three phases accompanied by a fourth phase of qualitative interviews so as to achieve the most thorough and detailed results possible to be used as a basis for adaptation in other contexts. The first phase involved presentation of application materials used by the women scientists including personal information, career to date, experience and networking connections, European projects and funding. This data was used in the quantitative investigation and in connection with subsequent surveyed information. In the second phase of the investigation, on their last day of seminars the participants filled out a written, standardized questionnaire where they evaluated the individual points of the seminar program. Four months after participation, in the third

phase, participating scientists were asked to take part in an online survey regarding possible changes in their work situation, applications for other positions which they may have begun, and once more for an evaluation of the individual points of the seminar program. Qualitative telephone interviews in September 2008 made up the fourth phase, in which a sample of participants were prompted to discuss vocational developments following participation in the seminar and whether and which measures they may have taken with respect to applying, career planning, networking and funding. The ten participants interviewed were asked open questions to complement the quantitative data on evaluation of the seminar program.

References

ABl. C 201 of 16.07.1999, S. 1 and C199 of 14.07.2001.

Dalhoff, Jutta (Ed.), 2006: Anstoß zum Aufstieg—Karrieretraining für Wissenschaftlerinnen auf dem Prüfstand. cews.Beiträge No. 4. Bielefeld: Kleine-Verlag.

Europäische Kommission, 2002: Das sechste Rahmenprogramm 2002–2006. Hin zu einem Europäischen Forschungsraum.

European Commission, 2006: She Figures 2006. Women and Science—Statistics and Indicators.

European Commission, 2007: Remuneration of Researchers in the Public and Private Sectors.

She Figures 2006, Women and Science—Statistics and Indicators.

Internet

ftp://ftp.cordis.europa.eu/pub/fp7/sis/docs/fp6-sis-project-synopses_en.pdf.

<http://www.rp6.de/inhalte/thematiken/wissgesell>.

Margarete Hubrath

On the path to a professorship in Europe— the concept of the training seminars

Preliminary remarks

There are two conceivable strategies for sustainably augmenting the proportion of women in senior positions in academia: “You can either fertilize or you can weed.” (Viktor Smetacek). The former strategy has been pursued by developing training seminars as preparation for application procedures. For eight years now these have been supporting women academics on the path to a professorship in Germany. Therefore, it was possible to fall back on comprehensive experience with relevant training measures at the national level during the preparation of the *Encouwomsci* seminar concept. The basic foundation was provided with the national program “*Anstoß zum Aufstieg*” (*Encouragement to Advance*; German Federal Ministry of Education and Research/CEWS) which was developed in 2001. After the pilot phase it was evaluated and adjusted in certain respects, and in the course of the project it has been more and more finely tuned. In this respect, Franziska Jantzen (Hannover), who has been participating in AzA since 2002, has also made a decisive contribution to its further development. In 2004 we jointly conducted on behalf of the CEWS an internationally oriented training seminar for women scientists in the biosciences and since then we have repeatedly co-operated in conjunction with various career and professional training measures.

Whereas essential parts of the concept had already been developed and it had already been tested once at an international level, assembling an international team of women trainers constituted more of a challenge, as there were effectively no female colleagues in the participating countries who had already gathered experience with training measures focussing on appointment procedures. However, in order to plan training seminars for female researchers from all over Europe with the aim of contributing towards preparation for professorships in a total of six different countries, working with an international team was indispensable in order to ensure that at least three target countries were represented by a trainer in each seminar. Finally, with the aid of various networks we succeeded in assembling an international team of trainers, each of whom contributed very different competencies and qualifications from their respective scientific fields as well as from the area of training and consulting to the seminars, thus making salient contributions towards quality. The team consisted of Franziska Jantzen

(Germany), Prof. Dr. Tineke Willemsen (Netherlands), Prof. Dr. Marie-Therèse Claes (Belgium/Thailand) and Christine Raemy (Switzerland), as well as Mag. Ute Riedler-Lindthaler (Austria) during the pilot phase. At this point I would like to express my heartfelt thanks to all of them for their excellent work.

1. The seminar approach

One essential objective of *Encouwomsci* consisted in improving the starting conditions for highly qualified female scientists in connection with applications for professorships in the six target countries. The seminars were intended to specifically help the participants plan their next career steps and prepare themselves for appointment procedures. At the same time, the seminars were supposed to offer room for reflection on issues of scientific positioning and professional as well as personal further development within the European academic system. In this regard, the international orientation was a good precondition for discussing various aspects of the professional self-image of female researchers at the European level in an interdisciplinary context and for the most part unburdened by specialist competition aspects, as well as for promoting the formation of networks and co-operation partnerships, which was also an important intention.

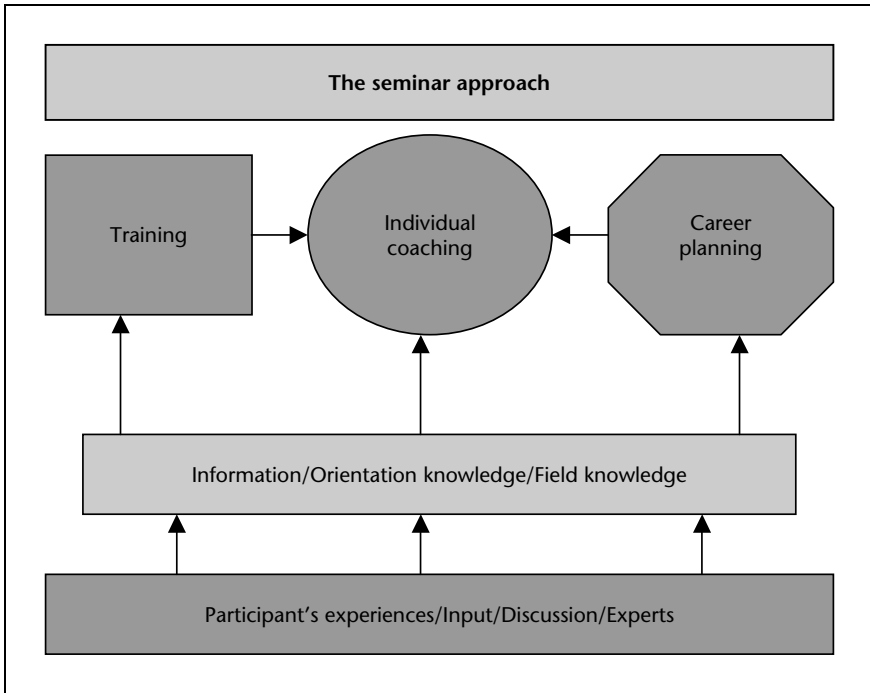
In line with those various objectives, the seminar concept combined learning options at several levels with various method-related formats.

The first day: Information and exchange among colleagues

The prerequisite for a successful application for a professorship is precise knowledge of the process, the individual elements and the “unwritten rules of the game” of appointment procedures in the various countries, because that is the only way that it is possible to effectively prepare for the appointment procedure in a targeted manner. Consequently, in this context the goal was to provide the participants with access to information that is as differentiated as possible. As the corresponding field knowledge has only been available in rudimentary form at the official level up to now, information from the countries was additionally researched and processed for the project in addition to the existing data from the pilot seminar.¹

1 Compilation of the information would hardly have been possible without the support and dedication of the colleagues of the team of trainers as well as the experts from the various countries that participated in the project: Dr. Barbara Hey (Austria), Prof. Dr. Maria Lukacova (Czech Republic), Elisabeth Maurer and Barbara Müller (Switzerland); so I would like to take this opportunity to thank you all once again.

Figure 1: The seminar approach



Furthermore, it was extremely important to incorporate the personal experience of the participants regarding the academic culture in the various countries as an important resource and to make it accessible. As the composition of the seminar groups became increasingly more international, the project offered good preconditions for an intensive exchange of information among the participants about their experiences, e.g. about the advantages and challenges of an internationally oriented academic career or about country-specific peculiarities in the academic culture of various disciplines.

Thus, in accordance with its two-pronged orientation focusing on conveying as well as exchanging information, the first day of the seminar was aimed at achieving two things: as the participants had varying levels of previous knowledge about appointment procedures in the different countries, the objective at the cognitive level was to establish a common information basis for further work during the seminar. Secondly, in light of the heterogeneous composition of the seminar groups with regard to nationality, discipline, qualification phase and age, we attached special importance to promoting a cordial and co-

operative seminar atmosphere through an intensive “getting acquainted” phase and the opportunity for a competition-free exchange of information.

Day 2: Training

The reason for success in academic appointment procedures is usually not only outstanding scientific achievements. A factor that is at least just as important is the convincing self-portrayal of the individual as a promising scientist. Therefore, a second learning field offered the participants the opportunity to practice their appearance before the appointment committee with the aid of video recording and to obtain differentiated relevant feedback. Two central elements of the appointment procedures were the primary focus: the trial presentation or the trial lecture² as well as the interview with the committee. The participants could try out different presentation forms and argumentation strategies in exercises and role-plays in order to enhance their own behavioral repertoire, building on the foundation of their strengths.

Day 3: Individual career planning and strategy development

Finally, the seminar was supposed to offer scope for reflection with regard to the individual career development of the participants. On the third day, they had the opportunity to reflect on their own career planning on the basis of a structured and systematic situation analysis, to formulate goals for their professional development and to devise steps for taking action. This individual situation analysis was supplemented by peer feedback in tandems as well as by the option of individual coaching with one of the trainers.

As was to be expected and as was also desired, the gender aspect was omnipresent as a cross-sectional theme throughout the seminar, so that the special relevance particularly for female scientists was thematized in many contexts. As the exchange of information and networking were an essential objective of the seminars, the concept was purposely designed to dispense with lengthy theoretical discourses on the topic; instead reference was made to relevant studies when necessary.

In the following, I will present some content-related aspects of the seminar in somewhat more detail and will also discuss the experience gained during implementation.

2 As a lecture is not always required in appointment procedures in the Netherlands and Belgium, an alternative option for presenting one's own academic profile was offered.

2. The normative framework: appointment procedures in the various countries

The basis for the seminar concept was the fundamental comparability of the procedures in the participating countries. Thus, compared with the procedures in the Anglo-Saxon higher education system or in France, at first glance the process and elements of the procedures in the Czech Republic, Austria, Switzerland, Belgium, the Netherlands and Germany appear to be quite similar. Nevertheless, there are significant differences between those countries, and the importance of knowledge of those differences for a successful application cannot not be underestimated.

What all of those countries have in common is a highly differentiated organization of the academic system: besides full universities, there are technical universities, universities offering a limited range of subjects (e.g. business schools), universities of applied sciences as well as a large number of specialized research facilities that also advertise professorships. Within the individual countries, additional differentiations result from special federal peculiarities and through various different funding situations (state/private/church-affiliated facilities). The situation with respect to position categories for professors is similar. Even though it is possible to observe a hierarchical classification of positions based on a system equivalent to assistant, associate and full professors in all of the countries, depending on the university the organization of the employment relationships can be handled in highly different ways.

In light of this diversity of potential arrangements and practices, it quickly became evident that one cannot seriously assume that it is possible to make general statements about the appointment procedures in the different countries that are valid for each and every university. From time to time this even resulted in criticism on the part of the seminar participants, some of whom would have liked to obtain even more detailed information about single universities. However, in our view what was more important than an additive accumulation of small pieces of information was supplying the participants with orientation knowledge, which subsequently has to be supplemented by their own research and observations in each specific case. In this context, the international composition of the team of trainers in the seminars proved to be very valuable, seeing as the participants also had the opportunity to ask the trainers questions of current interest after the seminar.

Advertisement of positions

In almost all countries, it is obligatory for professorships to be advertised publicly and at the national level; in Austria they also have to be advertised internationally and in Switzerland that is at least customary.³ The Netherlands is an exception. Only about 40 percent of professorships are advertised publicly there; potential candidates can be approached directly in the other cases. Therefore, it would be especially important for scientists who are specifically interested in a professorship in the Netherlands to maintain a regular presence there at conferences and if possible to already foster co-operation relationships in the run-up phase.

In the last few years it has also been possible to observe a similar tendency in Switzerland, Austria and Germany in the case of professorships that are especially important from the point of view of the university: to an increasing extent, hiring committees are being commissioned with an active search for candidates to ensure that the question of who applies for an advertised position is no longer merely left to chance.⁴

Requirements for an appointment

At the normative level, the requirements for an appointment are largely uniform in all countries. In addition to a doctorate, as a rule the following is demanded:

- outstanding research achievements in the relevant specialist field that should be substantiated by a number of publications and projects that is perceived as appropriate in the specific disciplinary field. The amount of funding that is obtained is also frequently regarded as evidence of the quality of the research.
- in many subject areas experience abroad, which can sometimes be (partially) compensated by intensive and productive international research co-operation arrangements.
- teaching aptitude, academic teaching experience and didactic skills; sometimes also positive teaching evaluations.

It is interesting to note that in most countries—and of course depending on the requirements of the position—evidence of management and leadership competencies, i.e. experience with project and team management or gender

3 In some countries it is already possible to research advertised positions quite well via internet portals, e.g. in Belgium: www.research.be; in Austria: www.researchinaustria.info; in Germany: www.academics.de; in the Netherlands: www.academictransfer.nl.

4 The technical university ETH Zürich, where this procedure has already been practised for quite some time, is frequently regarded as a model in this regard. Cf. Schmitt 2004.

competency, is becoming increasingly more important. By contrast, a special postdoctoral qualification like the "Habilitation" in German-speaking countries⁵ does not exist in the Netherlands and in Belgium.

How individual criteria are then formulated on the basis of these general requirements and how they are discussed with regard to the applicants is invariably determined by the specific interest situations of the faculties and committee members as well as the various disciplinary cultures: for example, the minimum number of articles that is regarded as sufficient for an appointment may differ substantially depending on the discipline.

Process and elements of the appointment procedure

The majority of the universities in all of the countries make use of appointment committees consisting of a majority of professors whose task consists in preparing a proposal for the appointment. In Germany, Austria and to some extent also in Switzerland, equal opportunity commissioners take part in the process in a consulting capacity to various degrees. With the exception of Austria, the committees select the candidates for the hearing directly from the applications that have been submitted. By contrast, in Austria expert opinions regarding the applicants are obtained from external professors, and the committee makes its selection on the basis of those opinions.

The standard program of the hearings includes a scientific talk or lecture which is open to the university public and which is subsequently discussed. The theme of the talk can either be individually chosen or stipulated; alternatively it can be a trial lecture that is expected to be perceptibly more strongly geared to students' expectations. The second main element is an in-depth interview with the appointment committee, during which the future organization of the professorship and co-operation within the faculty is discussed in detail. Dutch universities do not always require a presentation, and even if they do, more importance is frequently attached to the discussion with the committee in the overall evaluation.

This basic program can be supplemented by various additional elements. Occasionally, additional presentations on research projects, concept development for teaching or for new study programs are required. In Switzerland, particularly in the case of high-level positions, sometimes symposia relating to the pre-selection that are open to the university public are held; furthermore, applicants are invited to dine with the committee more frequently than in the

5 However, each disciplinary culture essentially determines whether a 'Habilitation' is required.

other countries. In addition, at some Austrian universities selection elements based on psychological testing methods are used, for example in the form of multiple choice tests in order to compile attribute profiles.

However, the information regarding the appointment procedures in the target countries that have been presented here in extract form only represent one side of the necessary knowledge. They reveal what procedural steps one can prepare oneself for as a rule in the individual countries. But they provide little insight as to what perceptual pattern the evaluation of the candidates may follow in individual cases. Thus, to some extent it has already become evident that the selection criteria focusing on performance parameters are often more strongly determined by the disciplinary cultures than they are by national circumstances. This is especially true of the natural sciences, which are characterized by a high degree of international collaboration. On the other hand, the perception of the personal “suitability” of applicants is frequently dependent on local factors and perceptual attitudes.

3. “Academic tribes and territories”

Consequently, having intercultural field knowledge in many respects is useful for further promotion of one’s own academic career abroad. On the one hand, the point is to observe the formal and informal game rules of the culture of scholarship of one’s own discipline as accurately as possible and to perceive what national peculiarities exist in the specialist area. On the other hand, developing an understanding of the fine cultural differences between individual countries is advantageous. For example, structural attributes that also make themselves felt in appointment procedures at universities include the significance of hierarchy orientation in behavior, the degree of formality with which people interact, the question of how direct communications are allowed to be while still being regarded as appropriate, or also what form of lifestyle is implicitly expected of female colleagues.

As was already mentioned, in order to make this field-specific knowledge accessible and discussable it was immensely important to incorporate the experiences and competencies of the participants in a representative manner. However, from the didactic point of view it was a small challenge to productively handle these complex, interdisciplinary influencing factors for the limited period of interaction in the seminar groups. In this context, the study on “Academic Tribes and Territories” by Becher/Trowler proved to be very helpful, as it is simultaneously differentiated and illustrative in its descriptive levels. According to it, scientific disciplines negotiate their knowledge field, their scope of applica-

tion and their professional practices in a continuous internal process as well as by way of intercommunication and/or demarcation vis-à-vis other disciplines. The primary characteristics include the center of the subject area, the definition of its borders or the orientation of research, e.g. within the spectrum ranging from pure research to application orientation. The relevance of theories, models, quantitative or qualitative methods are negotiated with respect to epistemological aspects and the consensus compatibility of a discipline is put to the test.

For the discussion in the seminar, the most important aspects were the professional practices, i.e. aspects of community life like pecking orders or networks, career paths and communication patterns, as these are directly reflected in appointment procedures. However, in addition to the internal deliberation processes that have been sketched quite briefly, external factors also have an impact on the development of a discipline. Examples that can be cited are stipulations at the research and education policy level,⁶ special aspects at the (national) cultural level as well as direct influences exerted by the respective academic institution.

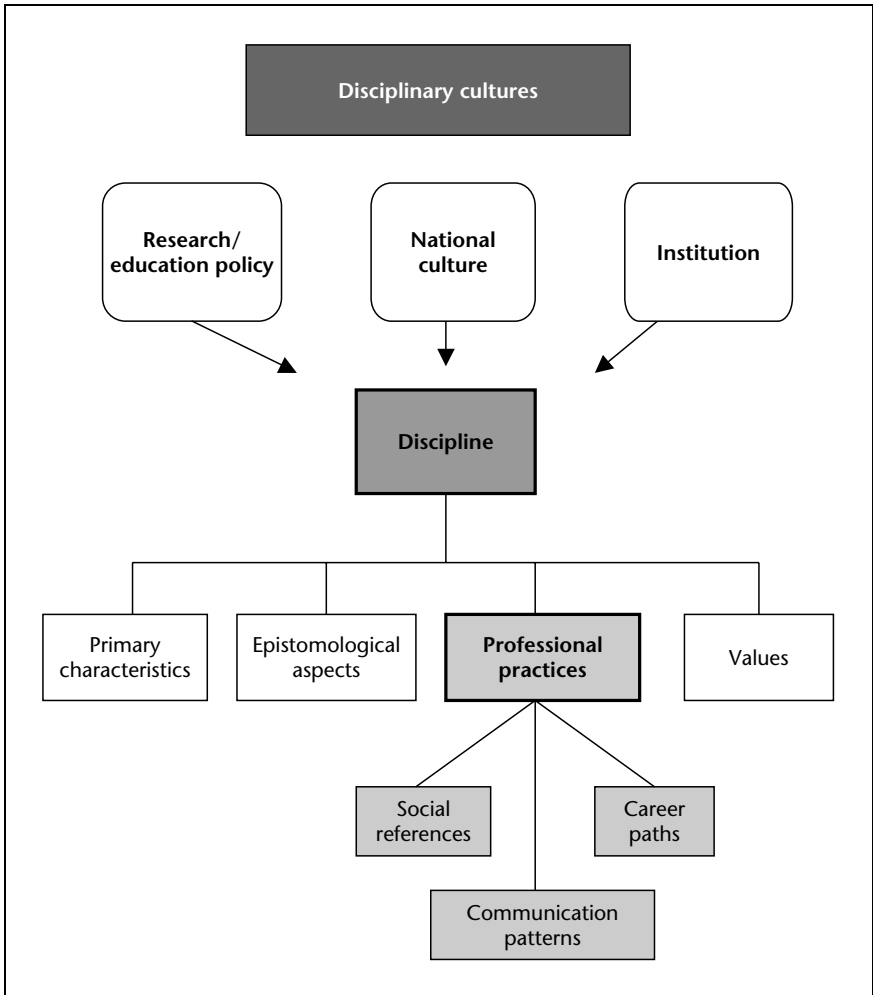
The “academic tribes and territories” model was presented in varying degrees of detail depending on the disciplinary orientation of the seminar group. It supplied the foundation on the basis of which the participants were able to compile and discuss their own experiences and observations from the various countries in small groups at the conclusion of the first day. The following guideline questions were suggested:

- Relation between academic life—private life: Do you have to live “science”?
- How are the relationships between supervisors/young scientists?
- How is the communication behaviour in academic meetings?
- What kind of socialising is expected?
- What are the challenges for female researchers in your country?
- What are the don’ts? What should you better not do?
- And what does one think about colleagues from other countries?

During the presentation of the results of the group work, it was repeatedly a surprise to see how great the “fine differences” are between the cultures of dis-

6 For some time now it has been conspicuous that national as well as European research policies have been displaying a preference for promoting project-related research with an inter- and transdisciplinary orientation. However, up to now this trend has not had any long-term impact on hiring for professorships: as a rule, greater value is attached to specialist relevance than to interdisciplinary character, and the establishment of double professorships with an interdisciplinary orientation, so-called joint appointments, at the University of Vienna is still more or less an exception.

Figure 2: Disciplinary cultures



ciplines and of countries, especially with regard to communication behavior: for example, statements that tend to be neutrally perceived as factually oriented statements in the Netherlands or in Germany can be felt to be inappropriately direct and authoritarian in Switzerland. On the following day, that knowledge formed an important prerequisite for practicing the personal presentation in front of the appointment committee.

4. Training for the hearing

The central focus of the second day of the seminar was the intensive preparation for the hearing. After a unit on the topic of dealing with nervousness and stage fright, the participants had the opportunity to present the introduction⁷ of a talk or a trial lecture or alternatively to present their academic profile in small groups. Subsequently, they were provided with differentiated feedback on their “performance” from the other participants and the trainer, whereby the positive aspects were discussed and development potential and possibilities for improvement were also pointed out. In this regard, the goal was not to inculcate supposedly “exemplary” or “correct” rhetorical techniques and body language on the participants. On the contrary, the goal was individual support aimed at achieving a coherent presentation form which simultaneously suits the individual personality as well as the respective culture of scholarship, and which is based on existing strengths and further enhances those strengths. The presentation of each participant was videotaped and made available to her in the form of a DVD, so that they would be able to evaluate this sequence in a targeted manner again after the seminar and do follow-up work.

Although presentation trainings are offered at many universities, for a large number of the seminar participants in Brussels it was the first time that they were provided differentiated feedback regarding the impression they make.

The second part of the training focused in detail on the interview with the appointment committee, because this element of the procedure often triggers substantial uncertainties among applicants, as it is a situation that one is rarely confronted with in one’s normal routine academic life. In addition, nearly every faculty and every appointment committee develops its own typical practices for the organization of those discussions. Whereas some committees conduct the interview with applicants in a quite unstructured manner—whereby interesting dynamic effects may also result within the committee—in other procedures the committee asks all of the candidates identical lists of questions, taking on various roles.

The range of possible thematic areas is not defined anywhere either. In this area, it is evident that in the last few years the requirements and the spectrum

7 Interestingly enough, the introduction and the conclusion of lectures achieve an especially sustainable effect on the audience. Although both parts only account for about 30 percent of the entirety of a lecture, it is possible to achieve two thirds of the potential overall impact with them. Franck, 2001, p. 43.

of responsibilities for professors has changed and expanded substantially in the European context. Depending on the requirement profile for the position, various aspects, such as leadership experience, can also be discussed besides questions about the specialist profile, teaching philosophy and future co-operation in the faculty.

An essential challenge during the discussion with the appointment committee consists in the contradictory demands that are placed with regard to the role of the candidates. On the surface, it is ostensibly a typical examination situation in which suitability for a specific professorship is evaluated and in which the balance of power is distributed relatively unambiguously. However, at the same time the applicants are expected to present themselves on equal terms as professor-level colleagues that are in a position to represent a discipline independently and develop it further.

In preparation for this part of the appointment procedure, a role-play was conducted in which—depending on the size of the seminar group—one or several participants had the opportunity to subject themselves to questions posed by several “committee members” acting out various different attitudes with respect to the “candidate”. After that there was an additional opportunity to develop argumentation strategies for difficult or unpleasant questions in small groups. In this context, what questions were perceived as challenging differed a great deal depending on the individual. Besides critical questions about supposed gaps in one’s academic biography—“Why have you only published relatively little in the last two years?”—or presumed qualification deficits—“What experience have you had in the area of funding procurement?”, the seminars repeatedly thematized questions about the family situation of the participants—which are essentially not permitted, but which are still asked during appointment procedures anyway: “And how do you intend to balance the requirements of this position with your family obligations? After all you do have two children ...”.

In most of the seminars, the conclusion of this training-oriented day was an informal chat with a professor or an expert on equal opportunity policy from one of the target countries.

5. Individual career planning and strategy development

After two intensive seminar days that offered a wealth of information and training options, the morning of the third day of the seminar was earmarked for providing the participants with an opportunity to individually focus on

their own future career development, before the final part broadened the perspective to highlight European research co-operation. For this purpose, work was done in parallel settings: during the morning each of the participants was able to take advantage of a short individual coaching session lasting 40 minutes with a trainer of her own choice. This offered the opportunity to delve into individual questions that had cropped up during the seminar in more depth in an individual context or to practice one aspect of the presentation once more. Sometimes the coaching sessions were used to develop an application strategy for a specific country, whereby the corresponding coach was then able to convey very specific background information or pointers for designing the application. It was important for the participants to be able to freely choose the theme for the coaching session.

As was to be expected with this type of heterogeneous group, there were also coaching sessions that revealed individual or structural problem constellations that could not even remotely be dealt with within the framework of a seminar or with the options available during a brief coaching session. For example, in the group of Eastern European participants there were several women whose applications for professorships in the target countries probably did not have any great chance of success for various reasons and whose professional prospects were restricted in their own country as well. In those cases, the seminar concept had clearly reached the limits of what it was capable of achieving. For the needs of those participants—who have already amassed many years of research and teaching experience and who are now greatly interested in getting more involved in the Western European research system and in co-operating—it would be necessary to develop a more specifically coordinated seminar concept with a different orientation.

During the coaching sessions, the rest of the group worked on the framework theme of career planning/individual strategy development in various group and individual settings under the direction of a trainer. Mutual inspection and evaluation of the application documentation in small groups proved to be a profitable exercise. In the process, it became obvious what options exist for the presentation of an academic profile by means of application documents and what mistakes should be avoided at all costs.

Furthermore, in order to pinpoint their own co-ordinates the participants also had the opportunity to conduct a systematic analysis of their achievements to date with regard to quantitative and qualitative aspects on the basis of working papers. For example the model of “fields of competency in academia” was used in order to make it possible to describe various key competencies—thematic profile/networking/communication competencies/field knowledge/man-

agement competencies—in a differentiated manner⁸. As was clearly stated, the objective of the analysis did not consist of identifying as many supposed deficits as possible, but rather in taking a first step by perceiving one's own achievements clearly and recognizing them. On the basis of this, the participants were able to identify for themselves the primary fields of activity in which they would like to develop further and to elaborate initial steps towards implementation. This seminar unit concluded with an intensive exchange in groups of two in order to be able to incorporate peer feedback into one's own deliberations and plans as well.

As academic and scientific work in general is regularly characterized by times of high pressure and that pressure often increases exponentially especially during “hot application phases”, the final unit of the first part of the seminar was devoted to stress management. At the same time, after focusing on each participant's own situation during the morning, the exchange of information within the group and the discussion of various coping strategies formed a good starting point for the final part of the seminar, which was organized by the CEWS and which described options for networking especially for women scientists within the European research landscape and for a more intensive participation in EU grant programs.

References

- Beaufäys, Sandra, 2003:** *Wie werden Wissenschaftler gemacht? Beobachtungen zur wechselseitigen Konstitution von Geschlecht und Wissenschaft.* Bielefeld: transcript.
- Becher, Tony/Trowler, Paul R., 2001:** *Academic Tribes and Territories, Intellectual enquiry and the culture of disciplines.* Buckingham: SRHE and Open University Press.
- Enders, Jürgen, 2001:** *Academic Staff in Europe, Changing Contexts and Conditions.* London: Greenwood Press.
- Engler, Steffanie, 2001:** *In Einsamkeit und Freiheit? Zur Konstruktion der wissenschaftlichen Persönlichkeit.* Konstanz: UVK.
- Färber, Christine; Spangenberg, Ulrike, 2008:** *Wie werden Professuren besetzt? Chancengleichheit in Berufungsverfahren.* Frankfurt: Campus.
- Franck, Norbert, 2001:** *Rhetorik für Wissenschaftler, Selbstbewusst auftreten, selbstsicher reden.* München: Vahlen.

8 Cf. Hubrath, 2005.

- Hubrath, Margarete, 2005:** Karriereplanung in der Wissenschaft: individuelle Strategien und institutionelle Möglichkeiten. In: Promotion und Habilitation: Sackgasse oder Königinnenweg für Hochschulfrauen?, Deutscher Hochschullehrerinnenbund, Berlin, p. 74–83.
- Janson, Kerstin; Schomberg, Harald; Teichler, Ulrich, 2007:** Wege zur Professur. Waxmann.
- Müller, Barbara; Obexer, Gabriela; von Salis, Katharina, 2007:** Wer sind die Besten? Chancengleichheit in Berufungsverfahren, Referate/Studien/Diskussion/Materialien. Bern: Schweizerische Eidgenossenschaft.
- Neissl, Julia, 2005:** Gender Proofing des Auswahlverfahrens für ProfessorInnen an der Karl-Franzens Universität Graz. Koordinationsstelle für Gleichstellungsstudien, Frauenforschung und Frauenförderung, Universität Graz.
- Schmitt, Tassilo; Arnhold, Nina; Rüde, Magnus, 2004:** Berufungsverfahren im internationalen Vergleich. Centrum für Hochschulentwicklung, Gütersloh.

Anke Lipinsky

Championing women in Europe's science? Evaluating the European career support program 'Encouragement to Advance— Training Seminars for Women Scientists'

This article delivers an insight into the “Encouragement to Advance—Training Seminars for Women Scientists” project (ENCOWOMSCI). It describes the quantitative evaluation of the project and its components by the women who participated. Data, collected during the evaluation which accompanied the project over a period of approximately one and a half years, contributed to quality assurance of the seminar offering, and to innovative adaptations for implementing the project. The accumulated data offers insights into vocational careers of women scientists and career expectations, describing the contents of the project, the individual seminars and partially demonstrating what the women scientists were able to transfer to their everyday professional life after taking part in one of the seminars organized by CEWS. Our special thanks goes to all 112 Women scientists who not only actively participated in CEWS' seminar offer, but also taking the time to complete our surveys and hence significantly contributed to the project's success.

Among scientific employees in the EU member states, on average, 29 % are women scientists.¹ The share of women in the EU among college or university professorships (Grade A) is only 15 %. There is remarkably low representation of female Grade A professors in Austria (9.5), Belgium (9.0), the Czech Republic (10.3), Germany (9.2), and the Netherlands (9.4).² These countries were defined as target countries for preparation training for appointment procedures as part of the “Encouragement to Advance” project. Annual growth rates for the proportion of women professors amounts to barely above 1 % in most EU-states.³ This growth rate could be positively influenced by a systematic training in application procedures for potential women university professors.

The main hypothesis behind the project and its evaluation was that the participation of women scientists in ENCOWOMSCI during a critical career transi-

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- 1 European Commission, 2006, p. 8. The numbers are based on 2004 survey data.
 - 2 Cf. European Commission, 2006, p. 57.
 - 3 Cf. European Commission, 2008a, p. 157.

tion phase, namely during the application for a full professorship, would support them by simultaneously encouraging them to plan their professional future as a women professor at a university in the ERA (European Research Area). In a narrow sense “Encouragement to Advance” means connecting career- and vocation-relevant contents (training for appointment procedures, coaching, networking, funding by FP7, etc.) with didactically sensible work methods (presentation, group work, roleplay, individual consultations, etc.) integrated in one seminar in order to support highly qualified women with their career transition towards a professorship.

The overall objective of “Encouragement to Advance” was to empower female scientists and stimulate their participation in science and technological development as well as to support a cross-national orientation of female scientists in academic senior positions. “Encouragement to Advance” raised value-added support for women scientists by providing targeted information on appointment procedures, facilitating interdisciplinary and cross-national contacts, and providing advice on sources and funding within Research Framework Programme 7. The program also sought to give background information on the European research policy making process, and thereby support attendees in their becoming more active in the political debate on European research. It was also designed to stimulate their mobility and participation in the European Research Area. The activity addressed female post-doc scientists who did not yet hold a position as a full professor at the time they entered the program. In a four-day international application and career training seminar, attendees were prepared for appointment procedures for academic leading positions, especially chairs at universities and research institutions in the six countries targeted by the project: Austria, Belgium, the Netherlands, Switzerland, Germany, and the Czech Republic. Accordingly, attendees were familiarized with appointment procedures in these neighboring countries.⁴

The following text provides a short description of the methodical approach used for collecting the data presented here. The first section includes demographic background data of the participants, complemented by general information. The second part shows the sample features with respect to mobility inclination. Since the training seminars of “Encouragement to Advance” had an international orientation, the scientists’ inclination towards mobility and mobility planning was a leading emphasis of this analysis. Subsequently, participants outline their previous experiences with formal and informal career advancement tools. These experiences explain to a certain extent the partici-

4 The article by Lipinsky/Tölle in this volume offers a detailed description of project goals and processes.

pants' interest in the Europe-oriented professorship application training program and give some reason to think about advancement desiderata and potential development possibilities for future career advancement tools. The ensuing section takes a look at networking activities and the integration of the participants in their Scientific Communities, thereby bridging the gap between informal factors of career advancement (networking) and the individual evaluation of training seminar components, since networking in science from a formal and informal standpoint was part of the seminars. A sound approach towards vocational networks within the European scientific community is of great importance especially in light of the politically promoted strategy of creating a European Research Area (ERA). Another focus of the presented results is the analysis of individual seminar components, which offers an evaluative comparison of the most significant training topics over a time interval of four months. This is followed by a look at the participants' application activities during the four months between the seminar and the final survey. The concluding part of this article contains a summary of the practical conclusions, an interpretation of the results as well as the limitations with respect to the validity of the findings.

Design of evaluation and methodology, restrictions of interpretation

The evaluation throughout "Encouragement to Advance" is focused on the program participants. The data assessment should offer insight into their wishes and aspirations from the point of applying to their participating in one of the seminars; their assessment of their feeling encouraged and their overall contentment after taking part in the seminar; their appreciation of the usefulness of the program, as well as changes in their professional situation four months after participation.⁵ The purpose of the quantitative evaluation of the project is to demonstrate congruence of the implemented measures with the expected effect for attendees on an individual level. The evaluation encompasses the most relevant success criteria of the project, but also shows background and context information of the core data. Please note that the study results relate to the project sample and cannot be generalized to national or European levels.

5 There are apparently limits to the usage and interpretation of measuring professional advancement four months after participation in a seminar for career support. Appointment procedures for a university chair in the targeted countries often take longer than six months. Nonetheless many attendees reported a change in their professional situation which cannot be measured in terms of factual figures. Please compare sections (v) and (vi) of this article.

All data included in the quantitative survey was collected between December 2006, the earliest date of application, and August 2008, four months after the last event in Brussels. For each participant three data sets, collected at three different times, were used in our project evaluation. The first collection was via the application form prior to acceptance to the project, the second via a pencil and paper questionnaire directly following participation in one of the seminars, and the third through an online survey four months after the seminars.⁶ For each participant the data sets of the different survey times were consolidated in an SPSS file right after the last survey. This allowed for both looking at a sequence for each case, as well as an analysis of the frequencies across all cases for certain survey times. Data was collected via scale values (nominal, ordinal), multiple und simple responses as well as open-ended questions.⁷

The questions on the application form for the seminars were primarily designed to assign the women scientists to a particular seminar while also gaining an overview on their previous experiences with national and international projects, EU research funding, mobility inclination and applications for professorships. The participant application form collected contact data, information about the current vocational situation, information on the scientific career, participation in national and international research projects, on the level of knowledge regarding European policies and political organs and general data important for assembling an appropriately suitable group in the seminars.

The next questionnaire filled out by the participants directly following the seminar was primarily intended to evaluate the entire event while also serving to verify the quality of the seminars and individual training elements. Open-ended questions provided feedback on the course of the seminar, and left room for discussing deficits or places where improvements could be made. Just like on the application form, there were questions regarding networking in science, the participant's integration in the Scientific Community, and on their cross-national mobility experiences and perspectives.

The online survey answered by the participants four months after the event focused on factual and perceived changes in the vocational situation, the scientists' application activities, changes in their mobility perspectives, newly begun activities of a more targeted approach to networking in science and also

6 Sincere thanks go to Martina Schmitz at the Zentrum für Evaluation und Methoden der Universität Bonn, for consolidating the data and conducting the online survey.

7 For method description see among others Mayer, 2004.

on a final evaluation of how helpful the individual seminar components were in practice and everyday life.

Since the beginning of “Encouragement to Advance” in October 2006, we recorded 230 enquiries from interested female scientists from Europe and other parts of the world. Despite the apparently great interest in the seminar offering, only 152 completely filled out applications were received by CEWS for this program. The seminars addressed a fairly specific target group: postdoc scientists with at least four years of research and teaching experience seeking to prepare themselves for an appointment procedure in selected European countries, which yielded a total of 112 women scientists participants in the 12 seminars. A total of 112 applications were used for analysis, with 99 questionnaires received back for the seminar evaluation and a few less for the online survey, which was comprised of replies from 89 participating scientists.

Table 1: Return rates

Survey Instrument	Time	Number	Response rate in percent
Application form	Application for a place in the seminar	112	100
Questionnaire 1	Following seminar participation	99	88
Questionnaire 2	Four months after seminar participation	89	79

Our return rate of 79 % at the time of the final survey can be considered a positive development which demonstrates a high appreciation and obligation on behalf of the participants regarding the seminar offering.

Design of seminar program⁸

Each of the seminars took place in a conference hotel in Brussels. To allow for a smooth arrival on the first day, each seminar started out with a joint lunch, giving the women scientists a chance to settle in gradually. A professional, international team of trainers designed and executed the plan to guide the

⁸ A detailed description of the total project or its course is not given at this point; please see Lipinsky/Tölle in this volume.

group for the following two and a half days. Based on their unique, different, personal backgrounds each of these five trainers covered one of the projects' target countries.⁹ Thus the careful composition of the team under the direction of Dr. Margarete Hubrath and the mutual coordination among the trainers contributed significantly to the seminar's success in a calm and non-competitive atmosphere. At least three trainers with different national backgrounds were part of each seminar.¹⁰ Information on the various appointment procedures in the six target countries and on differences in the scientific and academic cultures was given during the introductory phase.

The second day was devoted to the individual steps of procedures for applying for university professorships. The participants learned about how to deal with stress during the application phase, had a chance to implement an appointment presentation and obtained feedback from the other group members. In the afternoon the training focus shifted to the application itself, including layout, i.e. what was supposed to be conveyed and in what form. Afterwards role plays were conducted to simulate the interview situation in front of an appointment committee. After the interview simulations group members were again given the chance to discuss with their trainers sensible response strategies in these situation and how to deal with "prohibited" or "unfair" questions. The last topic of the day focused on the proper outfit for such an important and tense situation. In a final informal discussion round with an experienced senior scientist,¹¹ seminar participants were given the opportunity to view the situation from the perspective of an appointment committee member.

On the following day each participant was given the chance to partake in a personal, 40-minute confidential consultation (coaching) with one of the trainers. In the meantime, the rest of the group was working out argumentative strategies for the interview in front of an appointment commission, discussing country-specific aspects of the application documents or further steps in their personal career planning. There was a brief intermediate feedback where the trainers concluded their part of the seminar up to this point. To further reinforce the European dimension in the course of the seminar, an infor-

9 Crucial information on appointment procedures and the background situation in target countries was also offered by the board of experts in the project: Prof. Dr. Magda Michiel-sens, Elisabeth Maurer, Dr. Barbara Hey, and Prof. Dr. Maria Lukacova-Medvidova. We extend our thanks to them for their vital contributions which helped make this project successful.

10 Margarete Hubrath in this volume offers a detailed insight into the training contents.

11 Experienced women professors or equal opportunity representatives were invited to informal talks in the evening. They shared information and their wealth of experiences on their vocational situations with the scientists.

mation and training module on research funding in the *Seventh European Research Framework Programme* or a module on developing strategies for networking in science was offered on the afternoon of the third day. On the morning of the next day the women scientists received an in-depth overview of the development of European Research Policy. For this, the European Platform of Women Scientists EPWS gave an introduction into their activities for women scientists and networks among women scientists in Brussels.

Clustered figures and findings

The following presents the analysis of the evaluation data in six topic clusters retroactively sorted and generated from the three survey dates. The first cluster consists of demographic data and other general data concerning the participants collected between time of application and online survey four months after seminar participation. Furthermore, the participants offer information on their previous educational and vocational careers. Mobility plays a specific role in conjunction with international career paths and the Europe-oriented seminar program. That is why in the "mobility" cluster previous mobility experiences are compared with mobility planning for the participants' future vocational path.

The third cluster describes the women's previous experiences with mechanisms supporting their professional progress (career support tools, measures and factors). One important factor for professional success is integration into the Scientific Communities, both at the national and international level. The cluster "networking" demonstrates to what extent the women, by participating in the seminar, have changed their attitudes towards "networking in science" or have made a point of establishing new contacts.

The expectations with regard to the seminar and the evaluation of its individual components are of special significance for the project's success. Therefore, this analysis details which seminar or training components were viewed by the women as especially helpful, what additional requests they mentioned after participating, and how satisfied they were with experiencing the "Encouragement to Advance" program. Finally, we asked the women scientists how active they were in writing applications prior to, and after their participation in "Encouragement to Advance." Since the core of the seminars consisted of a training intended to assist women in their application phase for a university professorship, information on application activities is therefore crucial to determining the success of "Encouragement to Advance," as much as it is a manifestation of the encouragement of the women scientists to apply not just in their home country, but also in other European countries as well as outside Europe.

(i) ***The professional situation of the women scientists and their socio-demographic background and questions of general interest according to program participation***

The advertisement of the seminar as part of the project “Encouragement to Advance” specifically addressed highly qualified women scientists with several years of research and teaching experience following their doctorate. Of the 112 participating scientists, 54 were German citizens.¹² Overall, scientists from 19 different nations participated in the seminars. After Germany, the countries most well represented in the program were Austria and the Netherlands. Of the participating women scientists, 78.8 % lived in one of the “old” EU member states at the time they applied, i.e. when considering participation in the project, while only a total of 19.2 % of the women lived in one of the “new” EU member states or an associated country when accepted to the project.¹³ A total of 33.9 % of the women were working in a country as non-citizens at the time they entered the project.

The women scientists were divided into two groups according to their disciplines: medical/natural science or humanities, cultural studies/social sciences. Two groups of approximately the same size were created based on the women’s own self-assignment. Six seminars therefore emphasized the aspects relevant to natural science/medicine, the remaining six seminars alternately focused on humanities, cultural studies and social science; 56.6 % of the participants decided to attend those for medical/natural science; 43.5 % humanities, cultural studies and social sciences. This marginal difference demonstrated not just a slightly higher participation by women from medical/natural sciences but also showed a better use of capacity for the seminars with this emphasis.

Regarding the seminars with a medical/natural science focus in the appointment procedure training, 48 % of the participants claimed to be from the natural sciences, 38 % from medical sciences and 10 % from engineering and technology. In the seminars with an emphasis on the humanities, social sciences and cultural studies, 51 % of the women stated that their research was in social science, business or law; 46 % in the humanities and arts and 2 % in education science.

The average participant age was 40.1 years. Age distribution as represented in Diagram 1 shows most participants (65 out of 112 female scientists) as being

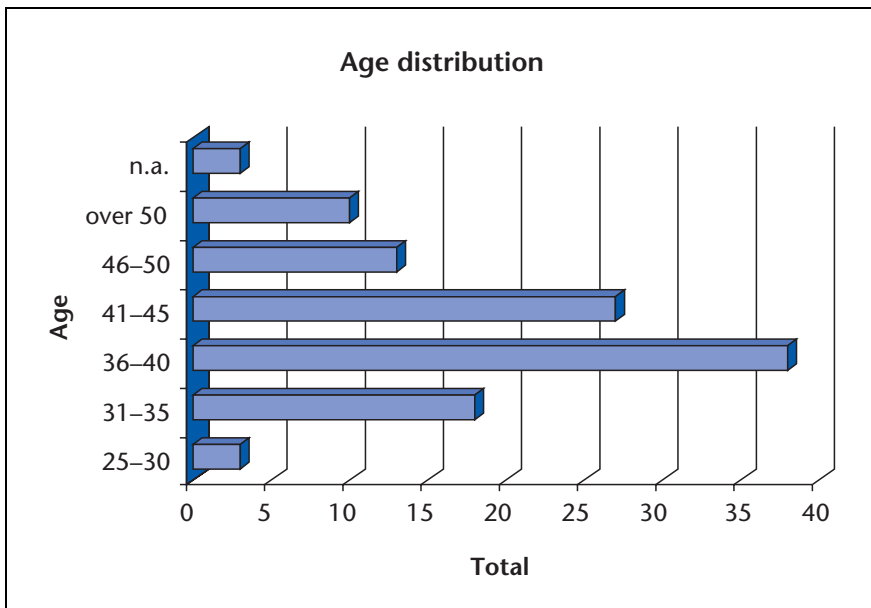
12 Of the predefined target countries (the Netherlands, Belgium, Germany, Switzerland, Austria, and the Czech Republic) Germany represents the largest research and higher education area.

13 This could be, among others, the result of the target countries focused on by the project, only one of which (Czech Republic) entered the EU in the first EU enlargement to the East in 2004 now belonging to the new EU member states.

between 36 and 45 years old. Women between 36 and 40 are strongly represented, only three of the participants were younger than 31 at the time of application for the seminar program.

A total of 60 % of the women scientists in this sample have no children,¹⁴ 35 % have one or two children, and only 5 % have three or more children.¹⁵ The medical scientists and natural scientists twice as often have children compared to their fellow scientists in the humanities, cultural studies and social science. Just under 28 % of the scientists surveyed are currently living in a one-person household, with their being consequently solely responsible for

Diagram 1: Age distribution of attendees



14 Lind/Löther arrived at a comparable result in their analysis of the sociodemographic data of participants of a national appointment procedure training in Germany. Cf. Lind, Löther, 2006.

15 Agnieszka Majcher provides a comparison between the rate of women scientists with and without children in Poland and Germany in: *Seeking the guilty—academics between career and family in Poland and Germany*, in: *Gender career trajectories in academia in cross-national perspective*, ed. by Renata Siemieńska, Annette Zimmer, Warsaw 2007. A study among universities in North Rhine-Westphalia reveals a 2004 childlessness rate among women scientists of 78 %. By comparison the project participants displayed a much lower childlessness rate of 60 %. Cf. Auferkorte-Michaelis, Metz-Göckel, et al., 2006.

their household and household income. Twenty-seven percent of the other scientists were able to delegate responsibilities for household and shopping to another family member. Forty-six percent of the participants confirmed covering a major part of the general household income with their wage.

As seminar participation was specifically advertised to women scientists holding doctorates, which would prepare them for appointment procedures, it should come as no surprise that only one of the 112 women did not have her doctorate.¹⁶ On average nine years time had passed between the time the women received their doctorate and their participation in the “Encouragement to Advance” seminar program. Our sample showed no significant difference here between the natural science and humanities groups. A comparative EU study on occupational and career course in science confirmed the average time frame given here, i.e. the gap of approximately 9–10 years between Ph.D. and the first appointment.¹⁷ The application of women scientists to participate in a training for appointment procedures on average nine years after receiving their PhD fits well with this information.

Diagram 2 shows the professional situation of 112 program attendees at the point of entering the project. Each applicant indicated her current professional position. Twenty-one percent of the participants are employed as assistant professor, adjunct professor, junior professor, or professor per procurationem. Another 19 % self-described their occupational position as lecturer, and the majority of participating scientists (38 %) are working as researchers or as group leaders in research.

(ii) Mobility¹⁸

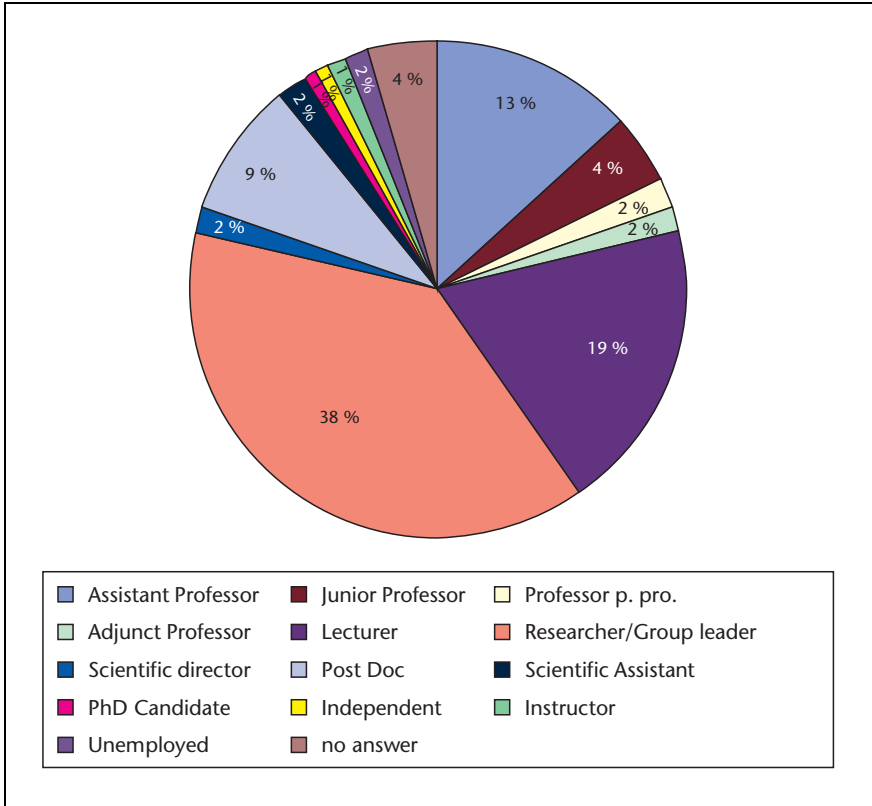
Mobility can be interpreted with respect to various dimensions, which however, can nonetheless be closely connected with one another: Mobility between organizations and cognitive mobility, for example, presents one of

16 In this special case, an appointment even without a PhD was possible and likely based on vocational expertise.

17 Zimmer, Krimmer, Stallmann, 2007, p. 227.

18 Regarding the handling, reliability and validity of the data, questions on mobility tendencies turned out to be not so easy in both the survey and the analysis. For instance, a third of the interviewees are currently living as non-citizens in foreign countries, in addition some women scientists have dual-citizenship or completed their scientific training in a country in which they are currently living and working as non-citizens. These circumstances must be taken into consideration when considering expectations with regard to working conditions in a different country, barriers or factors making researching and teaching in another country attractive.

Diagram 2: Professional situation of attendees entering the project



the foundations for innovation in career research. *“Job mobility between scientific fields and organizations is also cognitive mobility. Academics receive tacit knowledge from colleagues and transfer knowledge to them as well. These cognitive careers provide the ground for scientific innovations.”*¹⁹ In this sense cross-regional mobility may also represent an innovation factor.

Moving to another country for occupational reasons entails chances and risks.²⁰ The European Commission supports researchers mobility in the Seventh Framework Programme through, for example, the Marie-Curie-Actions, which are grants offered to individual researchers allowing them to work at

¹⁹ Kaulisch, Enders, 2005, p. 133.

²⁰ Cf. European Commission, 2008b. Unfortunately the study lacks gender expert knowledge and therefore does not sufficiently consider gender differences in the data analysis.

institutions in another country within or outside the ERA. The Web-Portal EURAXESS²¹ also offers researchers and institutions an opportunity to carry out international personnel or job searches.

With a European-oriented project intended to support women scientists in preparing for application processes and career planning within the ERA one expects that the participants have experience with cross-regional or even international mobility or display some openness to being mobile in the future.

The registration form requested that the participants indicate their first and second preferences regarding which of the “Encouragement to Advance” program’s target countries they would prefer to work in. The women named Germany (43 %) as first, followed by Switzerland (22 %) and Austria (14 %). In succession came the Netherlands (13 %), Belgium (5 %) and the Czech Republic (1 %).²² This is not surprising as Germany’s research and higher education area is the largest and offers the maximum potential in terms of the number of positions available from among the six European locations defined as target countries.

In an online survey four months after the seminar, the women once again offered information about the countries where they could imagine a job in research and teaching. As at the beginning of the program, the Germany topped the list at 76 %²³. The percentages for other countries moved sharply up as well: 62 % of the women replied they could imagine working in Switzerland, 58 % said Austria, 56 % the Netherlands, 34 % Belgium, and 9 % felt they could imagine working as a scientist in the Czech Republic.²⁴ This shows a distinct increase in the respondents’ readiness to move for the benefit of career perspectives when compared with the preferences measured before participating in the seminar.

In total, 69 % stated that they were encouraged towards the country they named as a preferred goal country prior to the seminar. After participating in the seminar, 26 % said they viewed more countries then before as potential

21 See <http://ec.europa.eu/euraxess>

22 One of the mentioned preferred countries is Great Britain. Four percent of the participants replied that they could imagine working in the UK at the beginning of the “Encouragement to Advance” program, although it did not belong to the program’s target countries.

23 As mentioned this may have to do with the large number of potential positions to be filled and also with the background of women scientists of German nationality.

24 As before, the UK is mentioned by the participants as a place imagined for further career steps. Four months after completing the seminar 44 % stated they could imagine working in the UK, 25 % mention the USA, and another 23 % stated France as a potential workplace. Compared to the time prior to seminar participation, the rates clearly changed again.

places to work. Here, a significant difference between the two groups, medical and natural science and humanities, social science, cultural studies, can be observed. In the latter group, 39 % now consider more countries for work than they considered before the seminar participation. Among the medical and/natural scientists the deviation (gain in considered work countries) is not very high at 15 %. On the other hand, 10 % of them state considering fewer countries as work place now as compared to before the seminars. The participants were asked to name which country they would only now consider as a possible next career step directly due to having participated in "Encouragement to Advance," to which 11 replied the Netherlands, 10 Switzerland, 8 Austria, 7 Germany, and 6 said Belgium. It was exclusively the women in natural science and medicine whose replies indicated they could imagine fewer countries as potential places to work after the seminar.

When asked whether they had spent six months or an extended period in a foreign country for study or research purposes, 86.9 % of the participants answered "yes." In the past 49.5 % of those in the natural sciences and medicine spent more than six months in a foreign country for research or study purposes, whereby just 37.4 % of those in humanities, social science and cultural studies stated having done so. What is interesting is that 39.4 % of the latter say they are planning a future research or study period abroad for six months or longer. Those participants from the humanities, social science and cultural studies appear to be slightly more mobile in the pre-professor career phase than before this career phase. However, 40.4 % of those women in natural science and medicine plan to spend a future part of their working life in a foreign country for six months or longer. In this, their current mobility planning for the coming phase of their career lags 9.1 % behind mobility experiences of the past.

In which phase of their career biography did the participants in "Encouragement to Advance" collect most of their foreign country experience? The table included below shows that the participants are increasingly more agreeable to mobility from the beginning of their studies on through to the postdoc phase. While 69 % said that they received no education in foreign countries during the time when they began their studies, only 16 % said this about their postdoc phase. This is worth mentioning because in comparison to other studies, our sample displayed high inclination towards mobility in the postdoc phase.²⁵ Some of the participants (16 %) spent their entire doctoral candidacy phase in a foreign country and 29 % spent their entire postdoc career phase in

25 E.g. compare Zimmer, Krimmer, Stallmann, 2007.

a foreign country.²⁶ The participants in the “Encouragement to Advance” project have in the past already shown themselves as above averagely mobile.

Table 2: Length of stay abroad during individual studies and career segments

	Total in %			
	Under-graduate Phase (before first degree)	Graduate studies (up to MA, Diploma)	Postgraduate/doctoral phase	Post-doctoral phase
Entire phase abroad	3	7	16	29
3 months or more abroad	17	39	34	48
No time of the phase abroad	69	45	31	16

In total, 79.8 % of the participants stated that they planned a stay abroad of six or more months. The women were then asked to assess their expectations connected to working abroad according to four categories. Using a scale, they rated their expectations with respect to working facilities, decision making, income, and responsibilities to be higher/better, unchanged or lower. In total the participants expected (independent of their field), working facilities to be better (54.5 %), income to be substantial (48.5 %), responsibilities to be higher (47.5 %) and decision making to be simplified (39.4 %). This represents the most frequently cited assessments. There were also negative assessments connected with changing jobs to another country. Of the participants responding, 10.1 % estimated their income would sink, 9.1 % expect decision-making to be more complex, 3.0 % say that responsibilities will be less and 2.0 % expect working facilities to be worse than before.

Some participants indicated reasons inhibiting their readiness for mobility, such as that working abroad might have a negative effect on their career. The

26 A study by the Joint Research Centre IPTS from November 2007 done by Philippe Mogueuou and Maria Paola Di Pietrogioacomo in the context of an SSA (Integrated Information System on European Researchers II) showed that on average, only 5.8 % of doctoral candidates possess citizenship from another EU country and 14.1 % citizenship of a third country. Compare JRC-IPTS: Integrated Information System on European Researchers II (Indicators on researchers' stock, career and mobility), 2007, <http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/iiser.cfm>.

most commonly offered reasons for not leaving the country of residence were personal ones (34 responses). Responses also mentioned structural differences as reasons which related to insurance legalities, such as insurance, pensions, etc. Another 10 women mentioned "feeling alienated" as a reason not to leave the current country of residence.

In contrast, 59 of the women scientists participating answered the question as to what would most attract them to a job in another country than where they now live or where they are a citizen, with "career options." Another 45 women answered they would be most strongly attracted by things elsewhere being state-of-the-art in their discipline; while 27 women were attracted by experiencing a different culture, and 16 offered personal reasons as to what attracts them and might positively influence their motivation towards cross-national mobility.

(iii) Career support

Even before participating in "Encouragement to Advance" 19 % of the women scientists had already taken part in national application procedures training. This was equally the case for those in medicine and natural science as for those in humanities, social science and cultural studies.

A total of 47 % of the women scientists stated that during their career thus far they were supported by a mentor in an occupational context; the remaining 53 % responded that they were not. Mentors supported the participants in many aspects. Normally the mentors are in contact with the scientists for professional consultation; for support in acquiring external funding; and to introduce them to scientific networks. According to the women participating: *"Employment during graduate and postgraduate phase, hinting at or 'organizing' my invitation to conferences and congresses, personal advice regarding questions of scientific and career interest;" "Writing letters of recommendation, forwarding job advertisements, editing research proposals, collaborating in a common research project;" "She gives me a chance to be present and visible in the scientific community;" "... offered me emotional and intellectual support through situations of conflict and struggle;" "He invited me to join the editorial board of a scientific journal."* These comments show that a mentor-mentee relationship can offer very personalized career support and be helpful in many ways.

The participants did not just previously utilize only this highly individual and, in most cases, informal form of career promotion, but 60 % percent of the women scientists advanced their job-related knowledge via trainings or seminars on various topics. While 22 % participated in mentoring programs at

universities or research institutes, 17 % indicated having some experience with coaching or supervision. Nonetheless a full 28 % of the women participating stated that they so far had no experience with career promotion tools, and within our sample of these women, this was confirmed by almost twice as many scientists from the humanities, social science and cultural studies as from medicine or natural sciences.

All participants, save 4 %, stated that they have at some point requested job-related support at least once from their fellow students, colleagues, mentors, professional trainers, or others since the time of their studies. Most often (60 %) this was directly following their doctorate, at the beginning of their postdoc phase. Barely over half the women in the project coming from humanities, social science and cultural studies already sought career support or advice (51 %) during the candidacy phase of their doctorate, those in medicine and natural sciences, less so (31 %) already during the same phase.

(iv) Networking and European dimension

The significance of integration in academic networks should not be underestimated as a factor in the traditional course of a scientist's career. Enders finds the reason for this in the highly personalized form of traditional career courses of scientific workers.²⁷

The women scientists who participated in the "Encouragement to Advance" seminars are very conscious of the significance of occupational/professional networks. Of the 112 women, 78 % indicated that they belonged to one or more national, professional associations, with 79 % stating that they were also members of international associations. When asked about how integrated they felt within the scientific community of their specialty, 37.4 % responded that they felt very well integrated. Four months after this statement, only 24 % of the participants felt very well integrated in the scientific community. It could be that opening a view onto a selected internationally arranged perspective of the European research landscape during the seminar somewhat influenced their self-assessment.

Sixty percent of the participants stated that in the months following the seminar they had made new contacts to networks, professional associations or societies or to important persons which could have positive effects on their career development. Of these, 66 % of the contacts were made with the direct intent of having them exert a positive influence on career development. One of the

27 Cf. Enders, Kaulisch, 2006.

women scientists said this about having her goal of making new contacts: "... *contact with people who have better access to funding,*" another described her goals as "*visibility, in terms of future cooperation and regarding the job market.*" Access to research funds, higher visibility in the community as well as finding future project partners are not only the classic goals of structured networking activities, they raise one's own career possibilities in science.

What do the participants of a women-only appointment-oriented career training think about women-only networks in science? For 86 % of the participants, women-only networks or career development tools were seen as differing from mixed networks or programs. The reasons given by the participants for why networks segregated by gender are different vary widely: "*Women-only networks can be more supportive—but only if they are based on notions of solidarity; even more useful are networks based on solidarity and shared thematic interest.*" "*Women-only networks are positive as they highlight the fact that the academic job market is still very unbalanced in terms of equity.*" Another participant viewed women-only networks as a limitation, that they are "*lacking male-female relationships*" and are therefore perceived as unrealistic. Also the effectiveness and strength of women's networks gives rise to doubts, "*Well, they are women only. Less power, more joint support.*"

One of the main objectives of "Encouragement to Advance" was to establish strong cohesion among the women scientists through their common experience of participation in the events in Brussels. This would reinforce the network of contacts among the participants overall as well as those outside their specialty. Therefore we asked the women after the seminar whether they discussed their research work and whether they could imagine working on a joint project with other seminar participants. Of the women in medicine and natural science 31.3 % felt that they could well imagine, or under certain circumstances, well imagine working on a future project with some of their fellow seminar participants. For the humanities and social science and cultural studies this was only the case for 21.2 %.²⁸ We received a negative reply to this question from 44.4 % of the women in the seminar, both branches together. Ample time was provided during the meeting in Brussels for the women to discuss their own research and work topics. Only 12.1 % of participants indicated that they did not discuss the content of their research.

Praise from the participants was offered at many points in the questionnaire for the group atmosphere and the non-competitive cooperation during the

28 Representatives of neighboring disciplines were in the seminar groups but not representing the same specialty.

seminars. We asked the women to speculate as to how many participants they think they will be in contact with 12 months following the seminar, to which 62.6 % answered they hope to be in contact with 1–2 people, followed by 26.3 % who replied there were 3–5 people they hoped to be individually in contact with.²⁹ Four months after the event, 57 % of the participants said they actually had contact again with 1–2 other participants during the last four months, and at the last point of investigation, 45 % of the participants still continue to maintain contact with 1–2 others from the seminar.

The most common communication is via email (96 %), then telephone (17 %) or meeting face to face (13 %).³⁰ Seminar colleagues contacted one another primarily with respect to career strategies (42 %), or to discuss changing jobs (39 %) or about personal matters (36 %). Discussions about scientific contents was given as a reason to remain in contact by 30 % of the respondents, and 19 % said they had exchanges regarding joint projects. Some of the women also mentioned that they invite one another to events and seminars.

To help distribute the women among the seminar groups, we asked first in the application form if they already had knowledge or experience regarding European institutions (European Parliament and European Commission), about political directions in research and educational policy (Lisbon Agenda, Bologna Process), and in which working modes they have been thus far active in European sponsored projects. Of the women participating, 38 % already had made their own experiences with EU projects previous to registering for the “Encouragement to Advance” program. We saw a difference between natural science/medicine and the humanities, social science and cultural studies, as the first fell at 45 % and the latter registered at 29 % in terms of the amount of participants having previous experience with EU projects.

The application form contained eight fields for the participants to give information on their experiences made thus far with, and their knowledge about (i) the Marie-Curie Actions, (ii) European institutions (European Parliament and European Commission) as well as (iii) the two central strategies of the European higher education and research policy. Assessment of the extent of their own knowledge was along a scale with six answer possibilities: *not specified; poor knowledge; little experience and some knowledge; some knowledge and some experience; good knowledge and experience; excellent knowledge and active experience*. In total it can be said that the applicants rated their knowledge about European projects and their functioning as low (little experience and some

29 The projects' networking event was planned and implemented only after this survey.

30 Multiple answers to this question were possible.

knowledge). Only 3–5 % of the participants estimated that they really know about one of the institutions or its workings. However, 15 of the women rated their knowledge of and experience with Marie-Curie Actions as good or excellent. As a source of support the Marie-Curie Actions appear to be well-known among some of the individual researchers of our sample, whereas 21 % of the group felt they were not well informed about MCA.

The participants showed far more familiarity with the Bologna process with 24 women stating they have excellent knowledge and experience, and another 29 selecting “some knowledge and some experience”; the median values on the assessment scale. The Lisbon Agenda, focused on creating a European Research Area was, again, less well familiar to the participants as 62.5 % rated themselves as having “poor knowledge” or “little experience and some knowledge.” In total, the women scientists participating felt themselves to be least well-informed regarding the Lisbon Agenda (33 %), the European Parliament activities (29 %) and the Marie-Curie Actions (21 %).

Table 3: EU-Knowledge

Topic	Marie-Curie Actions	European Commission	European Parliament	Bologna Process	Lisbon Agenda
Poor knowledge	21 %	15 %	29 %	15 %	33 %
Excellent knowledge & active experience	3 %	5 %	4 %	5 %	4 %

Following the seminar just about half the participants (49.5 %) stated having received new information regarding the European research policy during the program, augmenting in particular their knowledge of how they could participate in the Seventh Framework Programme. Only 2 % of the women felt themselves to be uninformed and that they would not know how to prepare something to submit for a European call for projects. A majority (62.2 %) stated that they knew somewhat how they should react to a call for projects within the Framework Programme, and 30.3 % felt they were very well informed on how to attract project funding within the Seventh Framework Programme.³¹

31 The statement is not only related to projects but also refers to applying for grants from the European Research Councils (ERC) as well as the Marie-Curie fellowships.

(v) Seminar contentment with important seminar items³²

The participants were requested to give information on what really attracted them the most in the program description. In addition to a series of suggested answers (multiple answers were possible) the scientists could state their own reasons under “other.” The offer of a simulated interview with an appointment committee was the most attractive at 65.7 % at the time of entering the project, followed by information and advice on application materials set up to apply for a professorship (63.6 %). The information offered on various scientific cultures and the simulated appointment presentation including feedback was viewed as similarly attractive by participants, with a figure of 57.6 %.

Rated very useful (1) in % after seminar	Training topic	Rated very useful in % four months after seminar
66.7	argumentation strategies with the appointment committee	50.0 (-)
66.7	personal consultation with the trainer	55.7 (-)
55.6	information on appointment procedures in general	47.7 (-)
52.5	training of the trial lecture (presentation techniques, body language, etc.)	52.3
50.5	training of presenting one’s academic profile	
50.5	assessment of application documents	38.6 (-)
43.4	career planning and development of further steps	24.1 (-)
32.3	information on EU research framework programme 7	11.8 (-)
32.3	feedback about appearance and right clothing for the interview	34.5 (+)
27.3	information on international research cooperation	16.9 (-)
26.3	building up, locating and actively coping with international networks	12.3 (-)
19.2	training stress management and overcoming stage fright	28.7 (+)
18.2	characterization of scholarship and disciplinary cultures	18.8 (+)

32 For a detailed description of the exact content of the training units carried out by the international training team during the seminar please see the article by Margarete Hubrath in this publication.

Directly following the seminar the participating scientists were asked for their assessment of how useful and helpful parts of the training content and the complete seminar might be for them in the future. A six-step scale (1- very useful, through 6- not useful) was used to measure the evaluations. The following table illustrates which of the essential elements of the seminar were most often highly rated (1- very useful) among the women scientists.³³

This clearly shows that the majority of participants (at 66.7 %) gave the highest marks (1, very helpful) to the role play in training, the simulated interview situation with the search committee and the private personal consultation with a trainer. Over half of the women participating assessed the general information on application procedures, the simulated application presentation, or the presentation of their own scientific profiles, as well as evaluation and consultation regarding their own application materials, as being very helpful for the future.

Four months after the event the women scientists evaluated which parts of the seminar were most helpful to them up to this time. Some retreat was seen in just about all items in the "very helpful" category. It was unequivocally clear that at the time of this survey, just as directly after the seminar, the individual coaching with a trainer showed the most sustainable effect among the participants. The content of "Stress Management and overcoming stage fright" (9.5 % increase), topics surrounding the proper attire for presentations and interviews (2.2 % increase) and the characterization of scholarship and disciplinary cultures (0.6 % increase) all gained in positive assessment in retrospect. The points "training of trial lecture" and "presenting one's academic profile" both fell only minimally in the later assessment from the previous evaluation on the last day of the seminar.³⁴ The rating of all other seminar content declined to some extent over the four month interval.

Our survey showed that, 46.5 % of the women scientists felt that meeting other women scientists during the seminar helped them a great deal. While 40.4 % of those participating found information on the activities of European Platform of Women Scientists EPWS also very helpful. Some of the women enjoyed the atmosphere of the seminars, the group work and felt that the

33 Only those evaluation percentiles with the best grade (1) are illustrated here. This does not imply however, that the items receiving second best grade from the participants were assessed as not helpful.

34 The two points "training of trial lecture" and "presenting ones academic profile" were not handled separately in the online survey, as each participant chose one of the two presentations during the training and so only one of the points could then be evaluated.

competence of the trainers was extremely helpful. The large majority (73.7 %) evaluated the cooperation with the trainers as very comfortable.

The total seminar program, including its individual parts, was rated as meaningful by 81.8 % of the participants, and 18.2 % evaluated the program as, in parts, impressive. The question of whether it was worth participating in the seminar was confirmed by 99 % of the women using a scale from 1 (absolutely agree) to 6 (do not agree), 57.6 %, in fact, confirmed the highest agreement. The participants were equally positive in their replies to the question of whether after the seminars they felt encouraged to advance with their professional careers. The overwhelming majority (94.9 %) of the women were agreeing to the question of whether they felt encouraged by the seminar, 59.6 % of these in absolute agreement.

Directly following the seminar the women were given the opportunity to offer their opinions by answering three open-ended questions about what was missing from the seminar activities, what was unnecessary, and finally, to give feedback and offer suggestions regardless of topic. The participants felt that content was partially missing: *“information on mentoring programs and some kind of rhetoric training”* (oral presentation techniques), *“add a session on mobbing,”* *“more practice on Cordis websites.”* They also expressed a wish to have more time to work in detail on certain issues: *“more about how to deal with international work on a short-time basis,”* *“more time for discussion, application and more time on career planning.”* Some participants criticized that *“no time for sightseeing”* in Brussels was planned into the program while for others Switzerland was clearly not represented well enough.³⁵

Some of the participating women would have preferred to forego *“Stress management,”* *“Clothing issues,”* *“I heard about some EU funding programs before—interesting but more or less familiar,”* *“presentation about networking (important topic but could have been shorter)”* and would have preferred to have more individual time for the coaching-discussions with the trainer. One of the participants said *“It would be very useful to do the training for the Balkans and eastern European researchers. Also take into account atypical careers and provide special consultations for this.”* Her statements offered an important indication of the diverse ways towards qualifications of scientists in European countries.

The seminar offering was rated as having generally met or completely fulfilled participant's expectations to the degree of 90.9 %. Four months after the seminar 83 % of the women confirmed that participation in the seminar was a valua-

35 Due to organizational reasons the Swiss trainer only joined the team of trainers at a later time and therefore was not able to participate in the first few seminars.

ble experience for them and 88.9 % stated they would recommend "Encouragement to Advance" to other women scientists in similar situations.

(vi) Application activities after participation

The great majority of program participants (69 %) are working at a university; only 12 % work for a governmental organization or science foundation and 6 % are working at a private research institute or were looking for work at the time.

The female scientists came to the project from very different backgrounds and work situations. For our sample it was necessary to arrive at job designations that were applicable for more than just one European country. The scientists were equally distributed in describing their situations as *faculty member or associate without contract; scientific associate with temporary contract or financed through third-party funds; assistant researcher or member of a research group; junior professor, senior researcher or head of research group; as senior scientists with temporary contract* or simply "other." Only 4 % were working at the time as *professor with temporary contract*. What was abundantly clear from the survey data was that a minimum of 27 % of the project participants were working in temporary, time limited situations.

The goals of the majority of the women scientists in participating in the project were clearly directed towards a permanent professorship. As a career goal 51 % stated that they wanted a tenured professorship at a university, 22 % said temporary professorship at university or research institute, and 19 % named junior professorship as their next career goal. Only 8 % had no clear goal as they embarked on the program.

The participants were asked about their application activities both before and after the seminar. Some women were already active in this respect and had made some experience, while others had never applied for a professorship at a university before, not in their country of origin, nor in another country. A total of 52 % of the participating women had never before applied for a professorship prior to their decision to take part in "Encouragement to Advance."³⁶ Those women scientists from natural science and medicine who had applied for professorships in the target countries previous to their participation in the project had applied up to fourteen times for vacancies at universities. With the number of applications among those in humanities and social science being

36 The figure of 52 % is comprised of number of applications equal zero (14 %), and the missing replies (38 %) in response to the question "Number of your applications for professorships in total."

up to 60 and in one case 116 applications, they far exceeded the others. During the trainings it became clear that some participants were in the midst of an application phase, so there were cases where it was possible to get into the specifics of the conditions of upcoming appointments. It only appeared sensible to ask again about application activities at the time of the final survey.

Seventeen percent of the women indicated that during the four months following the seminar that the contract conditions of their work situation had tangibly changed. Of this 17 % a majority of 57 % stated that these changes involved improvements in their contractual situation. This improvement was expressed in increased responsibility and income.³⁷ Forty-two percent of the women surveyed stated that their participation in "Encouragement to Advance" had a positive effect on their current working and occupational situation, although this could not necessarily be seen in real, contractual changes.

Of those queried, 68 % stated at the time of last survey that they had sought a new position in the preceding months. There was a significant difference shown here when participants from medicine and natural science are compared with participants from humanities, social science and cultural studies. From the latter, 80 % stated having sought a new position, but only 58 % of those in natural sciences and medicine confirmed this. When it comes to actual application activity those in humanities and social science are more active, with 68 % having stated that they applied for one or more positions; while only 48 % of those women from medicine and the natural sciences stated having done so.

The quality of the positions the women applied for matches entirely with the focus of the training: full professorships (Grade A) (49 %) and associate professorships (Grade B) (43 %).³⁸ The most applications for professorships (Grade A) were in Germany (21 applications), followed by Austria (10 applications) and Switzerland (7 applications). Following participation in the Brussels seminar and the resultant improved knowledge about the appointment procedures in Holland and the Czech Republic, none of the women scientists applied for a professorship (Grade A) in either of these two countries in the months following the event, although after the seminar both of these countries were named as potential places to work. This could be due to the fact that there were no suitable openings in this time period, or that the incomes vary greatly,

37 One mention is applicable with respect to extended scope of decision-making, better research facilities and higher budget.

38 The classification of positions supports the indicators as were used in the She Figures 2006.

e.g. in the Czech Republic they are comparatively low.³⁹ The participants applied for professorships (Grade B, associate professor) another 34 times by the time the last survey was taken in Germany (13), other countries not targeted as goal countries by the project (12), the Netherlands (3), Switzerland (3), Belgium (2) and Austria (1).

The 12 seminars took place between April 2007 and April 2008. Although the length of this time period would usually be sufficient for going through an appointment procedure at a university and, in theory, for being able to view a participant's success with an appointment, a possible success should not really be causally attributed to the scientist's participation in the "Encouragement to Advance" program. The reverse conclusion, i.e. seeking to measure the success of the program in terms of the appointments of participants is, consequently, also incorrect. What can be measured, however, are the data on application activities and the women's subjective feelings of whether they have been encouraged in their career ambitions and planning.

Practical implications, interpretation and limits of explanation

The seminar program "Encouragement to Advance—Training Seminars for Women Scientists" was designed to encourage and support one hundred twelve women scientists from nineteen countries in preparation for appointment procedures at various levels.

The data show that the women scientists coming from the humanities, social science and cultural studies felt the training addressed their needs as much as did those from the natural sciences, medicine and women in engineering and technology. On average nine years passed from the time of preparing for appointment procedures and obtaining their doctorates. The data showed that explicit mobility-oriented career planning among our sample had no influence on childlessness among the women scientists. Results of an earlier sample of women scientists in the same phase of their careers were confirmed. The women who participated in "Encouragement to Advance" showed themselves as willing to be more mobile in comparison to other studies and during the promotion phase as well as afterwards, displayed above average experience in being mobile.

During the survey approximately one third of program participants lived in a country other than that of which they were a citizen. Significantly more of the

39 Cf. European Commission, 2007.

female scientists were inclined to include other countries in their job search following the training than before. The participants said they could imagine accepting a professorship in Germany (76 %), in Switzerland (62 %), Austria (58 %), the Netherlands (56 %), in Belgium (34 %), and in the Czech Republic (9 %). Just 10 % of those in natural science or medicine stated that they would concentrate their searching on fewer countries than before participating in the program.

The women scientists were very cognizant of the significance of scientific networks for raising one's own visibility, for exchanging knowledge and thereby furthering career ambitions. Of the participants, 60 % made new contacts with networks, professional associations in their field and umbrella organizations, societies and persons after the seminar. They tended to view women-only networks as different from mixed, whereby they positively valued the solidarity; the lessened ability to have influence was rated particularly negatively. Four months after meeting in Brussels in person, 45 % of the seminar participants reported maintaining contact with one or two of their fellow women scientists. Approximately one-fifth of these had exchanges on common projects and collaborations.

Trainings and seminars as vocational further education and as support for a career in science were familiar to 60 % of the participants. Of the participants, 19 % already had taken advantage of a national offer for preparation for application procedures. The central elements of the training were evaluated by the participants as helpful overall and useful in practice. The most helpful parts of the seminars were the individual coaching talks with the trainers as well as the role play in front of an appointment committee. This evaluation was confirmed by the scientists by their undertaking new application activities even some time after the event. In connection with the seminar, 69 % of the participants undertook steps towards applying and made efforts to further develop their careers via targeted searching of positions. New occupational challenges were sought especially by women in cultural studies, humanities and social science (68 %), and also 48 % of the women in natural sciences or medicine reported having applied for a position. Almost half (49 %) of all applications from participants in "Encouragement to Advance" aimed at full professorships (Grade A).

The participants, to 90.9 %, felt that the seminar fulfilled their expectations in general or completely. Four months after the seminar 83 % of the women confirmed that their participating in the seminar was valuable for them. Many of the women scientists reported that their participation in the project encouraged them in their individual career planning and advantageously influenced

their own positioning in science even in light of minimal changes in work contracts. An overwhelming number of the women scientists (88.9 %) stated that they would recommend participating in “Encouragement to Advance” to other women scientists in similar situations.

The evaluation results presented here offer some insight into the substance of the “Encouragement to Advance—Training Seminars for Women Scientists” project and its goals and not least its striving to motivate modern internationally-oriented women scientists to seek to raise their occupational chances and to expand their horizons far above the boundaries of their field and their countries. In this the project represents an important step against marginalization of women in science, in particular in leading scientific positions. Further development of the seminar concept and its adaptation to various, distinct types of appointment procedures in European countries could represent a catalyst for highly qualified women researchers in the ERA. The potential of women researchers not following the scientific mainstream, or those doing interdisciplinary research or working in peripheral areas of science, or those women scientists with atypical biographies or working in industrial research should not be doomed to hit the glass ceiling if Europe is to evolve into a competitive knowledge-economy.

References

- Auferkorte-Michaelis, Nicole; Metz-Göckel, Sigrid, 2006:** Junge Elternschaft und Wissenschaftskarriere“ Wie kinderfreundlich sind Wissenschaft und Universitäten? In: Zeitschrift für Frauenforschung & Geschlechterstudien, 23. Jg. H. 4, p. 14–23.
- Dalhoff, Jutta, 2006:** Anstoß zum Aufstieg—Karrieretraining für Wissenschaftlerinnen auf dem Prüfstand, cews.Beiträge no.4, Bielefeld: Kleine-Verlag.
- Dalhoff, Jutta, 2006:** Berufungs- und Karrieretraining für Wissenschaftlerinnen—Ausgangspunkt, Entwicklung und Perspektiven. In: Dalhoff, Jutta, 2006: Anstoß zum Aufstieg—Karrieretraining für Wissenschaftlerinnen auf dem Prüfstand, cews.Beiträge no. 4, Bielefeld: Kleine-Verlag, p. 11–25.
- Enders, Jürgen; Kaulisch, Marc, 2006:** The binding and unbinding of academic careers. In: Teichler, U.: The formative years of scholars, Wenner-Gren international series, vol. 83, p. 85–96.
- European Commission, 2006:** She figures 2006—Women and Science, Statistics and Indicators.
- European Commission, 2007:** Remuneration of researchers in the public and private sectors. http://ec.europa.eu/euraxess/pdf/final_report.pdf.

- European Commission, 2008a:** Benchmarking policy measures for gender equality in science.
- European Commission, 2008b:** Evidence on the main factors inhibiting mobility and career development of researchers.
- Kaulisch, Marc; Enders, Jürgen, 2005:** Careers in overlapping institutional contexts. The case of academe. In: *Career Development International*, Vol. 10, No. 2, p. 130–144.
- Lind, Inken; Löther, Andrea, 2006:** Evaluation der Förderinstrumente Berufstraining und Coaching. In: Dalhoff, Jutta: *Anstoß zum Aufstieg—Karrieretraining für Wissenschaftlerinnen auf dem Prüfstand*, cews.Beiträge no. 4, Bielefeld: Kleine-Verlag, p. 26–87.
- Majcher, Agnieszka, 2007:** Seeking the guilty—academics between career and family in Poland and Germany. In: Siemieńska, Renata; Zimmer, Annette (Eds), 2007: *Gender career trajectories in academia in cross-national perspective*, Warsaw.
- Mayer, Horst, 2004:** Interview und schriftliche Befragung. Entwicklung, Durchführung und Auswertung. 2. Aufl. München, Wien.
- Siemieńska, Renata; Zimmer, Annette (Eds), 2007:** *Gender career trajectories in academia in cross-national perspective*, Warsaw: Scholar.
- Zimmer, Annette; Krimmer, Holger; Stallmann, Freia, 2007:** Women at German Universities. In: Siemieńska, Renata; Zimmer, Annette (Eds): *Gender career trajectories in academia in cross-national perspective*, Warsaw.
- Zimmer, Annette; Krimmer, Holger; Stallmann, Freia, 2007:** *Frauen an Hochschulen: Winners among Losers. Zur Feminisierung der deutschen Universitäten*, Opladen & Farmington Hills.

Silke Tölle

Welcome to normality—career support for women only. The qualitative evaluation of “Encouragement to Advance—Training Seminars for Women Scientists”

This article discusses the qualitative evaluation of the EU project “Encouragement to Advance—Training Seminars for Women Scientists,” a project focused on preparing highly qualified women scientists in internationally oriented training seminars for their applications for a professorship in various European countries.¹ A total of 112 women from 19 different countries participated in this project. The project was initially quantitatively evaluated while the seminars were being conducted. Following the requested project amendment in October 2007, an additional qualitative evaluation was carried out to supplement and extend the quantitative results. The qualitative inquiry was conducted with the intent to gain insight into the prospective professional development of the women scientists particularly with respect to changes following participation in the seminar. Among the major questions being asked were whether participation in the seminars lead to encouraging applications for a chair or engaging in further career-advancing activities, and how the participants assessed individual parts of the program. In addition, the open design of the qualitative interviews allowed for an emphasis on individual aspects not mentioned in the quantitative evaluation but nonetheless highly significant to the scientists.

Method

Survey

The qualitative evaluation should offer interviewees the opportunity to openly report on their experiences and impressions with regard to the seminars and their careers. The problem-centered interview method was used to achieve “the most unbiased capture of individual action, subjective perceptions and ways to process social reality as possible”². Questions suited to generating free narratives presented a space for free narrative styles and subjective assessments

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- 1 For further information on the project see article by Anke Lipinsky and Silke Tölle in this volume.
 - 2 Witzel, 2000, 1.

of the project by participants. An underlying guideline ensured comparability of the interviews.³

Each interview started with a short questionnaire for obtaining the person's demographic data to avoid surveying personal data during the interview, which could disrupt the flow of the response and narrative continuity.⁴ The project applications of the women scientists included personal information, details of their vocational careers, their current work positions as well as their experiences with career advancement and possibilities for European research financing. The information at the time of application was compared with the results of the short questionnaire to get a picture of the current status. The question regarding a possible change in work position was most crucial in the sense that it was the basis for the pre-formulated entry question for generating the narrative reply.⁵ The invitation for free narration reminded the interview partner that the conversation was structured in an open fashion, directing the focus to the survey questions.⁶ Questions meant to generate free narratives were complemented by questions for creating comprehension.⁷ The underlying guideline assured comparability and problem focus of the interviews and offered security in the case of short answers.

Since conducting face-to-face-interviews in the context of a Europe-wide project would have required a considerable amount of time, money and travel, the interviews were carried out via telephone. All of the 112 participants were asked by e-mail to take part in the qualitative evaluation; 27 agreed to give an interview. Based on different criteria (disciplines,⁸ age, children, country of residence, completed academic degree/habilitation) eleven of the participants were contacted and invited to make an appointment. Eleven interviews were held at the beginning of September 2008, ten of which were analyzed and this data serves as the basis for this article. Approximately one week prior to the interviews the interviewer established first personal contact via phone, advis-

3 Cf. Lamnek, 1993; Mayring, 2002.

4 Cf. Flick, 1996. In contrast to Witzel, Flick advocates using the short questionnaire at the end of the interview rather than at the beginning. His procedure was not chosen for this evaluation as the participants' demographic data is crucial both for the course of the interview and the understanding of the biographical information.

5 The interviews start with determining whether the work position has changed or not since participating in the seminar and with a request to discuss the time period following the seminar.

6 Cf. Witzel, 2000.

7 Cf. Helfferich, 2004.

8 The project offered six seminars each for scientists in the natural sciences and medicine, and six seminars for those in humanities and social science, thereby taking into account the differences in the appointment procedures of various disciplines.

ing the participants about the goals of the evaluation, the content and length of the interviews and all data protection regulations. The interviewer's display of scientific interest gave the participants the feeling of being viewed "as experts in their perspectives and actions."⁹ Appointments for interviews were then made. Two participants who could not be reached by phone due to job-related reasons were informed via e-mail.

Interviewee sample

Science and medicine as well as the humanities and social sciences faculties were equally represented among the ten participants interviewed. Six of the women scientists interviewed currently live in Germany, one lives in the Netherlands, and one each in Switzerland, Romania and South-East-Asia. Five of the women are German, the rest are Italian, Rumanian, Spanish, Chinese and Brazilian.¹⁰ All of the women have lived and worked outside their home country during their studies, their Ph.D. or as post-docs. Four of the ten interviewees were born in the 1960's, six in the 1970's, and all ten completed a Ph.D. between the ages of 25–34. Only one woman scientist from the humanities had children (three), whereas three women from the natural sciences and medicine had children (one or two). Six of the women in the sample had no children. Marital status varied with three of the five women from the humanities replying that they were single, and two indicating they were divorced. Of the women in the natural sciences and medicine, two of the five interviewees indicated they were single, and three were married.¹¹

Since participating in the training seminar work positions had changed for five of the ten women interviewed. Two women received chair appointments (at the time of application for participating in ENCOUWOMSCI both women had already applied for these professorships), one participant is currently in Asia as a visiting researcher and two interviewees have accepted other, equivalent positions. Five of the women held the same positions at the time of survey as they had at the time of project application.

9 Witzel, 2000, 11.

10 This proportion also exists with respect to the total number of participants in the project. Fifty-two from among 112 participants were German citizens. See article by Anke Lipinsky in this volume.

11 This individual data is supported by a study as part of the project "Science Career." In a full population survey 2002/2003 the career paths of female and male professors in Germany were investigated. The results showed that 90 % of the male professors were married, whereas among female professors the proportion was only 64 %. Divorce rates among women were higher than those among men. Cf. Krimmer, Zimmer, 2003.

Analysis

The interviews were recorded on tape and later transcribed. Data was analyzed via qualitative content analysis. Inductive category formation served as the main instrument for analysis. The data material collected was screened for assignment to initial categories closely linked to the individual text passages. Further text passages were added to these categories tagged by paraphrases to obtain a set of categories. Thus the data volume was subject to reduction, abstraction and interpretation.¹² The reduction of the material to categories as well as the abstraction allowed better comparability of interview statements. The inductive method of establishing categories directly based on the data material assured an accurate reproduction of the data without distortion by the author's presumptions. The chosen procedure of qualitative content analysis in conjunction with inductive category formation thus allowed for a higher comparability of the interview statements and a closer reproduction of the data material.¹³ Further analytic steps involved interpretation in terms of the questions as well as a quantitative analysis of the frequencies in categories.¹⁴ In the following, some of the frequently mentioned categories are investigated in more detail.

Results

This section will present some of the key aspects of the qualitative inquiry. The interview questions referred to the underlying motivation for the application to "Encouragement to Advance—Training Seminars for Women Scientists," the career development following the participation, experiences with talks in front of search committees, the assessment of the women-only orientation of the training seminar and its individual components and finally wishes for the professional future.

I. What happened after participating in the seminar?

The project objective was to encourage women scientists to apply for professorships and to prepare them for application procedures in different European countries. The quantitative evaluation already demonstrated that a better part

12 Cf. Flick, 1996.

13 Cf. Mayring, 2007; Flick, 1996.

14 Cf. Mayring, 2002.

of the participants felt encouraged after the seminar.¹⁵ One of the goals of the qualitative evaluation was to find out how this encouragement expressed itself among the individual participants. Many factors are involved in cases of successful applications—just the participation in a coaching program is not sufficient grounds for explaining the appointment to a professorship. The project lasted about two years, whereas the application procedures can easily stretch over a longer period. During the qualitative inquiry it was therefore investigated whether the participants engaged in any measures or activities after having completed the seminar, how many applications they had submitted prior to and following the seminar and whether they felt encouraged in general.¹⁶

Encouraged to apply

All ten interviewees reported feeling encouraged to take further career planning steps.

Applications to professorships before and after participation in the project:¹⁷

	Interview no.									
	1	2	3	4	5	6	7	8	9	10
Applications before participation	0	0	0	1	1	2	2	6	10	116 ¹⁸
Application after participation	0	0	1	3	3	4	0	2	4	6

Seven of the ten interviewees had applied for professorships prior to their participation in the seminar, and following the seminar, the same number, seven participants, applied. One woman reported that her first application for a professorship was made after participating in the seminar. The seminars took place from April 2007 to April 2008 and there was only 1,5 years in between

15 See article by Anke Lipinsky in this volume.

16 Measures or attempts involve the joining of networks, taking further steps in career advancement or participating in training and coaching.

17 The figures concern the interviewed sample of participants, not the project's participants in total.

18 The woman scientist interviewed completed her Ph.D. 18 years ago and stated that she has applied 116 times for professorships since that time.

time of inquiry and participation.¹⁹ Over the short duration of the project the interviewees applied intensively for professorships. The participants applied as follows: five women 2–4 times; one woman one time and a second woman six times.

“... and then, after I participated in ENCOUWOMSCI I was (...) a little more confident, because I no longer considered an application to be absurd (...) While even if I was not invited to, I had the confidence to actually apply in cases where I was qualified instead of saying ‘you are just not big enough anyways’ (...) I would say, I was definitely encouraged.”²⁰

“Well, I have applied for four professorships as well as a permanent position as an in-house senior researcher and I got that one. As far as the other four positions are concerned, I was invited for an interview and a decision is still pending. (...) I will continue to apply, and intend to send out two more applications next week.”²¹

Participants developed strategies for career planning and for strengthening their scientific profiles in the training seminars. In the interviews two women reported feeling encouraged by the seminar to think about alternative vocational paths.

“I went and saw Ms. A [one of the trainers in the project] two or three times [afterwards] (...) visualizing with her how I could use my potential for other vocational options just to be open again to alternatives (...). The result is that I am now about to participate in two advanced training programs.”²²

“And then after the seminar I tried to do something different. I tried to practice interviews. I think maybe next time, if I want to change to industry, I do need to do this.”²³

Many interviewees viewed the focus on their strengths and potentials in the training and coaching to be very helpful. For two women this focus led to the conclusion that they might need a vocational reorientation. The better part of the interviewed participants continued to actively deal with their careers following the seminars, feeling encouraged to take further steps towards a professorship.

19 For at least one of the participants there were 17, 16, 14 or 9 months in between their participation in the seminar and the interview, for four interviewees it was 12 months, for two participants 11 months.

20 Interview 5, lines 051–059.

21 Interview 6, lines 028–033.

22 Interview 9, lines 066–071.

23 Interview 1, lines 195–198.

Networking

The importance of scientific and vocational networking, for women scientists in particular, was a major topic on the third and fourth day of the training seminars. Following an introduction into the significance of networking given by a CEWS associate in the afternoon of the third day, some groups visited at the end of their seminar the European Platform of Women Scientists EPWS, which provided information on networking and funding at the European level. As male scientists usually have access to a much tighter network than women scientists,²⁴ the objective was to explain to the participants how imperative networking is. In terms of concrete measures following the seminar, many interviewees emphasized the importance of reviewing application papers, of increased human relations in vocational environments and a heightened appreciation towards establishing new contacts, such as during conferences.

"In terms of networking it is important that when I go to conferences or to seminars, I always try to get an overview of what is going to be presented, and I always try to go and talk to people that could work together with me. And one thing that I really try is to network with people who have a higher position than I have."²⁵

"I became visible and active in the European Union (...). I have more contacts and networking, participation at international events and I became more open to other cultures and countries. I have more contacts and feel more confident and I got personal strength to pursue my carrier goals."²⁶

Five out of the ten scientists interviewed claimed to have an efficient and far-reaching network. For achieving an increased representation of women scientists in higher positions it was considered crucial to point out the significance of this topic during the seminar and to offer a sound introduction. In addition, during the seminar the participants were familiarized with the work of the EPWS as an important networking tool.

Communication platform

The project offered a communication platform on the CEWS-website for the seminar groups to keep in contact and to exchange information, with access restricted to participants. It was closed out on December 31, 2008. All public forums were fully accessible to all participants along with lists of general information on the situation of women scientists of the European Research Area as well as on organizational aspects and training material. In addition, current

24 Cf. Suter, 2006.

25 Interview 10, lines 066–069.

26 Interview 4, lines 053–056.

job advertisements and information on research financing at the European level could be found there. Program participants received access to the communication platform prior to the beginning of the seminar to offer early viewing of information and to connect with other participants. While closed forums were rarely used for exchange, the communication platform was frequently used by the women prior to the seminar for retrieving general information.

"I downloaded and read a lot of material. The platform may be suitable for storing documents, but for me it would have been easier to have had a ZIP folder. That would have saved me one hour of clicking through the menu and I could have downloaded everything all at once. (...) Once I had downloaded all the information I no longer felt any need to communicate which would have necessitated using the platform."²⁷

The participant's statement demonstrates that the communication platform was not perceived as such, but rather as an information pool. Closed subforums offered the participants in the individual seminars to remain in contact with others in the group and to communicate about current developments in a protected space. These closed spaces were not moderated on behalf of CEWS, they were only fed with information on the program and the trainers prior to the seminars. These areas were rarely used by the participants. All interviewees claimed that using the communication platform on a daily basis in vocational and private life required too much time and effort. The results of the qualitative evaluation suggest that the majority of the participating women scientists did not view the forum as an appropriate tool for maintaining contacts. This created a circle whereby nobody used the forum for communicating personal or vocational themes out of lack of impulse to do so, leading to the fact that the apparent non-usage by the others evidently raised the inhibition threshold for using the forum:

"I simply had the feeling that this just wasn't being used all that much. There were somehow two or three contributions, (...) which were already a bit older and nobody responded to them. I myself had written something but then quickly gave up. Of course, giving up myself is not very helpful, that's for sure, but I was not under the impression that there was a lively discussion going on, and that's why I didn't try any longer to encourage others to use the platform."²⁸

This woman scientist showed a reluctance due to being alienated by non-usage of the forum and the other participants' apparent disinterest. The results of both the qualitative interview and the quantitative inquiry suggest that the poor usage of the communication platform was not just caused by time factors, but also by communication-related inhibition thresholds. The poor usage of the platform cannot be explained by the participants' indifference towards

27 Interview 6, lines 213–225.

28 Interview 5, lines 207–214.

maintaining contacts. Various participants kept contact via e-mail; one of the interviewed women scientists stated that in her seminar an e-mail list was passed around and used by the group internally for periodical exchange. This seems to be the exception though. Very frequently, only few group members kept in contact with each other. If contact exists between participants it is of both professional and private nature.

II. Aspects of the training seminars

Already in the quantitative inquiry participants were asked at the end of each seminar via a seminar questionnaire and four months later via online survey, to assess the components of the training seminar program.²⁹ This aspect also had a major role in the qualitative evaluation when determining whether there would be a shift in meaning in the assessment of individual seminar components over the course of time. The results of the repeat inquiry of the program evaluation may serve as an indicator for a component's efficiency. The immediate impressions shortly after seminar participation did not guarantee a sufficient seminar evaluation; a phased survey offered a more differentiated description of the perception. In previous inquiries the individual coaching with a female trainer, the interview simulation and the reworking of the application papers were rated as highly positive. In contrast to the questionnaires, the telephone interviews were openly structured for the participants and no closed questions concerning the assessment of single seminar items were posed.

Interview simulation

When simulating the interview situation with the appointment committee, the group was split in two and a participant was interviewed under the direction of a female trainer, whereas the other women of the group represented the search committee. Strategies for dealing with delicate questions were discussed and practiced. First, the simulation was to prepare the scientists for difficult and personal questions,³⁰ and second, it was to call up the situation in front of a commission from different perspectives. Eight interviewees stated that they

²⁹ See article by Anke Lipinsky in this volume.

³⁰ Parts of the training were delicate and partially what were officially illegal, not allowed questions were asked, such as questions regarding "female" management style or desire to have children as well specific questions which had or have been causing individual participants problems in job interviews.

found the interview simulation to be a very important and helpful part of the seminar, above all other program components.

“What I just found very interesting, was determining the roles of the commission members and what was said; this man has an interest in having his own candidate, I realized that one does not look at a candidate completely unbiased, but that indeed many on the commission already have a predisposition (...) I found that highly interesting and I believe that it helps to prepare for such a situation—that people are simply negative because they do not want me, not because I might actually be unqualified.”³¹

Some of the women had already been invited to interviews in front of a search committee prior to the seminar. In interviews they reported that this simulation would have actually helped them way back, because many of these delicate questions were posed to them.

“What I found very difficult, I applied once when I was pregnant, and the questions posed to me were not posed to others as I learned later. For instance *Can you take stress?* One professor, who himself had three children, asked me: *How do you think you can even manage this job, with three children?* This made me very insecure and I felt I got very defensive which is why I didn’t come across as very confident.”³²

“There were truly questions such as *Why did you choose physics?* and *Why are you here?* and *Why don’t you try to go and work somewhere else?*”³³

Practicing in the group allowed the women to bring in their own experiences. Beyond that, the telephone interview seminar evaluation displayed participants’ high appreciation for the detailed information offered by the training seminar. Individual consultation and assistance with special requests as well as detailed information on special areas were evaluated as a separate aspect of the program as demonstrated by the above statements. The specific exercises which are oriented in real structures and which are confirmed by the participants’ experiences were perceived as especially helpful. Between 9 and 17 months had passed since participation in the seminar and the telephone interview. A comparison with the quantitative inquiry demonstrates that the interview simulation continues to be perceived as a very crucial part. Since open questions were used in the telephone interview, and all interviewees considered the interview simulation as a positive exercise, it can be assumed that due to its concrete relationship to reality and the practical implementation this particular program component is of great importance for the participants.

31 Interview 5, lines 128–141.

32 Interview 9, lines 126–131.

33 Interview 10, lines 083–084.

Application documents

The overhauling and revision of application documents was another important aspect in the training seminars mentioned in every interview. Almost all interviewees indicated that they reviewed and updated their application material after examining them during the seminar.

“I think basically putting together all of this application material is very helpful for applying for an assistant professorship. It was not a determining factor for me to apply, because it belongs to an academic career, but the support received in this course with conceptualizing and designing my application was extremely helpful.”³⁴

“At any rate [the participation in this training seminar] has contributed to improving my application documents. Part of the seminar was also to discuss the application and I think, I would have not been invited for an interview, had it not been for this discussion during the course.”³⁵

Revising the application documents during the training seminar with professional advice was a crucial step in enhancing the women’s confidence. This confidence can be viewed as a precondition for self-reliant and successful application.

Coaching vs. information on the European Union

For organizational purposes the training seminars were split into two units. The first three of the four days the participants spend in small groups with their trainers.³⁶ The intensive work with individual coaching, group discussions and feedback regarding their individual presentations created an intimate and private group structure. On the afternoon of the third day the approach changed—the trainers left and a CEWS associate took over. In the final one and a half days, information on the European Research Area, networking, financing and EU policy was presented. On the morning of the last day, participants visited the European Platform of Women Scientists EPWS in Brussels, where EPWS associates presented their work and discussed funding options. Some participants felt that the informative program was more an addendum to the afternoon of the third day, i.e. they felt it did not really belong to the previous parts of the program.

“It was basically interesting, but too bad that it was attached to the program when everybody is already somewhat tired, so as a result nobody paid much attention.”³⁷

34 Interview 3, lines 057–062.

35 Interview 6, lines 055–057.

36 Depending on the seminar between 5 and 14 women scientists participated.

37 Interview 3, lines 205–207.

"I thought the presentation on EU funding was interesting but it was not really part of the whole concept (...). It is a different topic which should have not necessarily been combined with this program."³⁸

The statements in the telephone interviews revealed that not all participants perceived the training seminar as a unit. Most viewed the personal career coaching during the first three days as highly significant for every woman and therefore as the main course component; the other more theoretical parts with information on networking, funding and on the ERA seemed unrelated. One scientist described the change in her training group as rather abrupt and as ruining the spirit within the group:

"One of the reasons [for frustration in the group on the last days] was that the trainers left and instead these people from the European Union [she refers to CEWS and EPWS] arrived. So we felt like invaded."³⁹

The change in group atmosphere was relegated to just this one seminar group but nonetheless changes in the organizational planning should be carefully designed to ensure the best possible transition from one program component to the next.

Despite the perceived change in the program, both the quantitative and qualitative inquiry revealed that the information on financing options and the European Research Area were assessed as being very important and helpful. In a Europe-oriented training such a program component should not be neglected. The challenge is to plan the course in a way that ensures integrating this part of the program with no further disruption in the group dynamic developed.

III. Frequently mentioned aspects

Another part of the project's qualitative evaluation was investigating aspects which so far had not been reported in the quantitative survey. The women scientists were asked to tell about their subjective impressions and experiences during the project, as well as with respect to their scientific career in general.

38 Interview 5, lines 291–293.

39 Interview 10, lines 101–102.

“I am not alone”

Without being explicitly asked, almost all interviewees mentioned how they appreciated getting the feeling in the training seminar that they were not alone with their situation. The exchange with other women showed that others also had to deal with comparable problems, doubts and thoughts regarding their careers—even when they came from different disciplines.

“Certain obstacles are encountered during the application process, and I learned from others that they encountered the same or similar problems, so these problems don’t have such a discouraging effect as before. One participant reported having received an appointment to a chair. This too is very encouraging. Yes, getting to know these other women who have an equally difficult path, experiencing a certain connection, that one can approach others and rely on them in the future, that definitely gives me a feeling of security.”⁴⁰

For many of the scientists interviewed a crucial element of the four day training seminar was their experiencing a sense of community. Especially those natural scientists working mostly in male dominated areas perceived the exchange among women as relaxing and comforting.

“I really have to say I benefited tremendously just from having had contact with other women and realizing that my situation is not so bad, that there are other women out there, because as a physicist one meets very few other women.”⁴¹

“I work in a mostly male dominated area, and that you are somehow just not the same just does not occur to some. But when I am among women, all of a sudden, I get the feeling like hey, I can actually relax, I am normal.”⁴²

Women scientists are frequently less well integrated into the scientific community of their faculties. This tendency to being more isolated can be seen as early as the Ph.D. program: Male scientists frequently hold a position at the university or at a research institute, whereas women scientists tend to finance their Ph.D. with grants.⁴³ Through this everyday life contact with other scientists at the university, men have a higher chance of being integrated in the scientific community studying their subject, while women frequently feel less encouraged and more isolated.⁴⁴ A study done as part of the project “Scientific Career” reached the conclusion that women professors feel excluded from important informal networks and therefore isolated.⁴⁵ An effective training does take this aspect into account. The exchange with other women scientists

40 Interview 6, lines 085–091.

41 Interview 2, lines 083–085.

42 Interview 7, lines 095–098.

43 Cf. Krimmer, 2003.

44 Cf. Lind, 2006.

45 Cf. Krimmer, 2003.

who find themselves in a similar situation, does indeed put the individual situation into perspective and open up prospects.

Skiping the scientific career

In addition to the feeling of not being alone in this situation, another topic arising as a main theme in the ten interviews carried out was participants who thought about ending their scientific career. Except for one, all participants stated having thought at least once or even several times about switching to another field. This pattern was found among those in natural and medical science as well as those in humanities and social science. The interviewees cited insecurity as a factor among the most frequent reasons for abandoning a scientific career, including limited-term contracts that do not allow any security in their future planning and that flexibility and mobility were constantly required.

"One of the main reasons is that you never know when you can start thinking about having a job for a long time."⁴⁶

"I have had many limited-term contracts, which meant every year a new one, sometimes even two, three times a year. This made my entire life and family planning so difficult, just the fact that you are on permanent probationary time for years. It also put pressure on me, the anxiety about my future, never knowing whether I get my contract renewed or how things continue."⁴⁷

Especially when the person's life-partner also works in academia with limited-term contracts and high mobility demands, this can lead to a spatial separation that may not necessarily have an end in sight.

"Added to that, I don't like to constantly commute from A to B [distance ca. 180 km]. I could very well imagine finding a job in a company close to here and having another child in the near future, so that it will be easier with the kids in the long run to work somewhere here, instead of constantly having this back and forth."⁴⁸

This finding correlates with results from a German study on scientific careers in mathematics and social sciences. The study found that women, more than men, tend to look for vocational alternatives in the non-academic field, as soon as they encounter low career chances or experience personal issues or problems.⁴⁹

The difficulty of reconciling job with family life is frequently given as a reason for low career options for women scientists, although this may not always be

46 Interview 11, lines 269–270.

47 Interview 6, lines 404–409.

48 Interview 5, lines 490–495.

49 Cf. Vogel, Hinz, 2004.

the case.⁵⁰ Only one woman scientist without children who is currently contemplating starting a family, stated in her interview that the reasons for thinking about dropping her scientific career are her difficulties balancing job and family life as well as a lack of financial security.

“At the moment the pivotal factor is that I would like to have children, (...) I am now 35 and have to be financially responsible for these children. It is very difficult for me to find a job which will offer me sufficient income. (...) And that is why I am contemplating working in a non-scientific field, because it is clearly much easier.”⁵¹

The scientist who made this statement plainly has her doubts about a future with a child, i.e. whether she can financially balance career and family life. Of four scientists with children interviewed, two did not mention the problem of balancing work and family as a reason for switching their career. One woman scientist claimed she thought about an alternative job in industry or a longer break following the birth of her first child due to the high time constraints and emotional stress, but has never taken concrete steps to followed through.⁵² One of the four interviewees with children said she had no problems reconciling having three kids along with her career:

“Personally, I never had any difficulties with having had a child, because my boss responded rather positively. (...) On the other hand, I have heard comments myself, such as, if she gets a baby, she won’t be fit for scientific work any longer, she should rather stay at home then. But I never had the problem myself.”⁵³

From among the ten interviewees only one woman scientist who has no children described her concerns about the work/family balance. Women with children did, in fact, experience the phase following the return from parental leave not necessarily as an insurmountable problem, but they did refer to the high psychological stress and time constraints. The qualitative inquiry shows that balancing job and family life did not lead to any of the women scientists with children dropping their careers. A study by Bettina Heintz supports this in that it proved a majority of women decide against a scientific career already before their Ph.D. because of a lack of support and vocational perspectives.⁵⁴ Women dropping out early from science can therefore not be explained exclusively by problems with work life balance.

50 Cf. Lind, 2008.

51 Interview 3, lines 314–319.

52 Interview 2, line 182. The respective woman scientist is now a professor.

53 Interview 5, lines 543–551.

54 Cf. Heintz, 2004.

Summary

All female participants in the telephone interviews claimed to have felt encouraged in different ways and forms after taking part in the seminar. The qualitative evaluation revealed that the better part of interviewees increased their efforts towards applying for professorships directly following the project. As was demonstrated in the qualitative inquiry, the envisioned “Encouragement to Advance” in the project title was largely fulfilled, as the women scientists experienced support for their plans to apply for professorships in various fashions. The seminar topics ensured a focus on individual strengths and goals and that strategies for career planning and enhancing scientific profile were developed. For two of the women interviewed focusing on their own strengths and weaknesses lead to them reconceptualize their future plans as well as vocational reorientation. The participants were also taught the significance and conscious usage of scientific and personal networks. Information on the European Research Area and the research funding structures within the European Union were meant to broaden the participants’ perspectives.

The staggering of the four phases of the evaluation—application form, seminar questionnaire, online survey and telephone interviews—highlighted a certain development in the evaluations of the individual seminar components. The positive aspects of the open-structured question were demonstrated in that the interview simulation was mentioned as one of the premier points by all interviewees.

Another key aspect for the participants was the exchange they had with one another. All interviewees cited the feeling of being a community during the training seminar and stepping out of an occasionally isolated work environment as being highly significant. Meeting other scientists pursuing similar goals who are also familiar with the problems and difficulties was important to the participants, especially in the natural sciences where women are frequently working in male dominated fields. This exchange with one another is not to be underestimated and should be considered in future projects, for instance in discussion rounds on certain topics or in the planning of free time so that participants are able to have an exchange outside of the course structure.

While the compatibility of kids and career did represent a difficult phase for more than a few of the women interviewed, it did not lead to them abandoning their scientific careers. Rather, the problem for women of balancing work and family life frequently postulated in studies and the media has more of an effect on their future planning, such as when thinking about having children.

Balancing family and career is anticipated as being very difficult, which lead one interviewee to have thoughts about dropping her career. The topic work life balance was repeatedly mentioned in the interviews. As ENCOUWOMSCI is a project dealing with preparation for appointment procedures, however, work life balance was no major topic of the training seminars.⁵⁵

Offering training seminars for highly qualified women scientists in the European Research Area is crucial, but not just for personal career development of the participants. Networking at the European level as well as information on appointment procedures in different countries strengthens an inclination towards mobility, thereby reinforcing a European identity. The participants' high positive responses in the qualitative evaluation demonstrate that these kinds of training seminars represent an important and effective career promotion for women, especially when the European dimension is included. A higher representation of women in the European Research Area is closely connected to the need for women to realize and strengthen their potentials and profiles in addition to developing an awareness of how important professional networks are for them. The project pursued exactly these goals and encouraged 112 women scientists over the course of two years to gain an insight into their strengths and to apply for professorships.

References

- Flick, Uwe, 1996:** *Qualitative Forschung. Theorie, Methoden, Anwendung in Psychologie und Sozialwissenschaften.* Reinbeck bei Hamburg: Rowohlt Taschenbuch Verlag GmbH.
- Heintz, Bettina, 2004:** Auftakt. Wissenschaftsstruktur und Geschlechterordnung. In: Heintz, Bettina; Merz, Martina; Schumacher, Christina: *Wissenschaft, die Grenzen schafft. Geschlechterkonstellationen im disziplinären Vergleich.* Transcript Verlag: Bielefeld, p. 19–76.
- Helfferrich, Cornelia, 2004:** *Die Qualität qualitativer Daten. Manual für die Durchführung qualitativer Interviews.* Wiesbaden: VS Verlag für Sozialwissenschaften.

55 In replies to preparations for a networking event at the end of the project in November 2008 which offered all participants a chance for exchange and networking, there was demonstrable interest in the compatibility problem, with 25 % of the replies indicating a desire for a chance to exchange information and experiences on balancing family life and career.

- Krimmer, Holger; Zimmer, Annette, 2003:** Karrierewege von Professorinnen an Hochschulen in Deutschland. In: Zeitschrift für Frauenforschung und Geschlechterstudien 21, Heft 4, Bielefeld: Kleine Verlag, p. 18–33.
- Lamnek, Siegfried, 1993:** Qualitative Sozialforschung, Bd. 2, Methoden und Techniken. Weinheim: Beltz.
- Lind, Inken, 2006:** Wissenschaftlerinnen an Hochschulen: Analyse der aktuellen Situation. In: Dalhoff, Jutta (Ed.): Anstoß zum Aufstieg—Karriere-training für Wissenschaftlerinnen auf dem Prüfstand, cews.Beiträge no. 4, Kleine Verlag: Bielefeld, p. 142–170.
- Lind, Inken, 2008:** Erkundungen in vermintem Gelände: Vereinbarkeit von Hoschulkarriere und Elternschaft I. In: <http://www.scienceblogs.de/for-women-in-science/2008/09/erkundungen-in-vermintem-gelände-verein-barkeit-von-hochschulkarriere-und-elternschaft-i.php>.
- Mayring, Philipp, 2002:** Einführung in die qualitative Sozialforschung. Eine Anleitung zu qualitativem Denken. Weinheim: Beltz.
- Mayring, Philipp, 2007:** Qualitative Inhaltsanalyse. Grundlagen und Techniken. Weinheim: Beltz Verlag.
- Suter, Christian, 2006:** Trends in Gender Segregation by Field of Work in Higher Education. In: OECD: Women in Scientific Careers. Unleashing the Potential.
- Vogel, Ulrike; Hinz, Christiana, 2004:** Wissenschaftskarriere, Geschlecht und Fachkultur. Bewältigungsstrategien in Mathematik und Sozialwissenschaften. Bielefeld: Kleine Verlag.
- Witzel, Andreas, 2000:** Das problemzentrierte Interview. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 1 (1), <http://nbnresolving.de/urn:nbn:de:0114-fqs0001228>.

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ADVANCE—Advanced Training for Women in Scientific Research across Europe A Review of an Innovative Program¹

Introduction

Significant differences exist in the career paths of male and female scientists. Women remain a minority, comprising less than a third of European researchers, and their career advancement is slower. A significant portion of female candidates and researchers drop out along the way, a phenomenon appropriately referred to as the “leaky pipeline.”² This is a syndrome which feeds on itself, since the paucity of females in leading positions, both in academia and industry, results in few role models for ambitious graduate students to emulate. The ADVANCE project (<http://www.advance-project.eu>) addressed the issue of gender equality in science and research in an attempt to make a contribution towards “plugging the leaky pipeline.”

The ADVANCE program sought to promote the participation of women in science and research by supporting female scientists in acquiring research and career management skills along with other tools which will help them build up their careers. The project was carried out under the 6th EU Framework Program (duration 2006–2008) and was coordinated by the Danube University Krems in cooperation with five European universities from Poland, Finland, Austria, the Netherlands and Bulgaria³. Career training, mentoring and coaching activities were used to realize these goals. The program also included enhancing and encouraging networking as an important part of its strategy,

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- 1 The present paper is based on the following Advance project reports: Bammer, 2007; Gindl, Zauchner, Bammer, 2007; Husu, Siebenhandl, 2008; Husu, 2008; Zauchner, Gindl, 2007.
 - 2 Cf. European Commission, 2005; European Commission, 2006; European Commission, 2005.
 - 3 The Advance Consortium: Universität für Weiterbildung Krems (Danube University Krems), Austria; Spoleczna Wyzszy szkola przedsiebiorczyszy i zarzadzania, (Academy of Management), Lodz, Poland; Helsinki Collegium for Advanced Studies, University of Helsinki, Finland; IFZ-Interuniversitäres Forschungszentrum für Technik, Arbeit und Kultur, Universität Klagenfurt, Austria; GGeP-The Graduate Gender Programme, University of Utrecht, the Netherlands; South-West University “Neofit Rilski”, Blagoevgrad, Bulgaria.

targeting female researchers in the pre-doctoral and postdoctoral phase of their careers in natural sciences and technology.

Systematic training for female scientists

The program was made up of two main, closely interlinked parts:

- An international summer school program (track 1) held at the Danube University, Krems, for training in career management skills, essential in an academic or industrial scientific/R&D environment;
- A mentoring and coaching program (track 2) focused on building up mentoring relationships related to professional and personal growth established at all partner organizations.

Transfer Models and Recommendations

The recommendations to transfer the ADVANCE program relate to both the content and topics of the program as well as practical realization and implementation: pedagogy and didactics; roles of and requirements for different participants; contextual conditions, information and evaluation. These are based on extensive evaluation of the program which included the active participation of all ADVANCE consortium partners and participants as well as key-persons.

The main output of this work is the so-called transfer models and recommendations for implementing the ADVANCE program in other European universities and research organizations.

The following presents the concept of the ADVANCE training and mentoring program and the main findings of the evaluation along with recommendations for transferring the ADVANCE concept to other/similar contexts.

The ADVANCE Concept

The ADVANCE approach combines personal, structural and contextual aspects to support the participants in transferring theoretical inputs into their own working context.

In line with the focus on the (often hidden) structures and practices that are causing social exclusion of women in academia and industry, the core issues of the ADVANCE concept was to empower female scientists, to offer them broad access to a better understanding of gender-related structures within the scientific community, and to give them the opportunity to find new options

for acting and succeeding in scientific careers. The new and innovative aspect of the ADVANCE project is that it provides a gender-sensitive training concept focused on evoking sustainable learning experiences by applying a broad variety of didactic methods.

The topics and didactic approaches of the ADVANCE project are based on previous studies which highlighted difficulties and pointed out areas where additional training is needed, particularly in research management.⁴ These studies focused particularly on young researchers who were at the beginning of their independent scientific careers and were based on the American career structures. Based on a literature review⁵ and an expert workshop, organized to evaluate and supplement the predefined topics with respect to a European perspective, both the mentoring concept and summer school program were revised and adapted to European needs.⁶

Mentoring (One-to-One) and Coaching Program

Within the ADVANCE project, the notions of mentoring and coaching are understood in the following way, based on experiences in relevant programs which focus on the enhancement of women's careers, in academia and in other male-dominated contexts:⁷

- Mentoring is a long-term relationship that has both, a personal and a professional dimension.
- This relationship is established between two persons, a mentor and a mentee (one-to-one mentoring).
- The aim of this pairing is to promote the person being mentored, the mentee, in terms of career development, networking, organizational know-how, etc., within the academic and industrial research context.

Distinct from the definition of Mentoring:

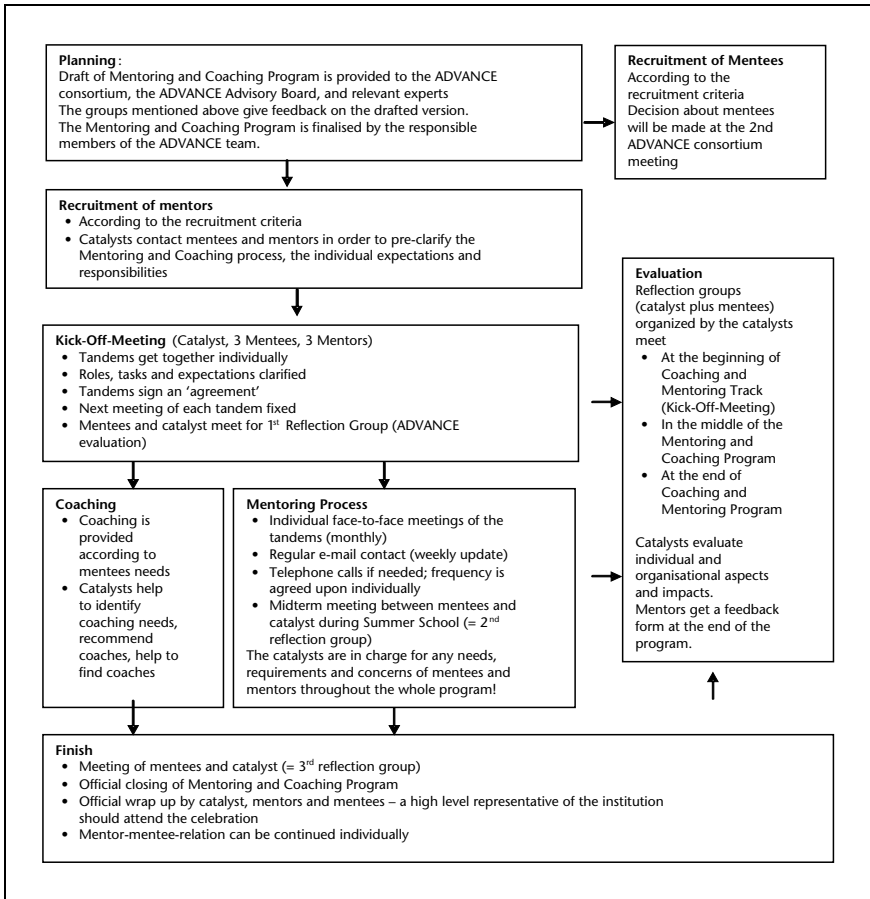
- Coaching is perceived as a short-term relationship.
- Coaching provides a special focus on certain professional or personal issues.
- Coaching can take place both bilaterally (individual coaching) and in small groups (group coaching), and aims at a quick and focused collaboration between the coach and the person receiving the coaching, the "coachee," with the former supporting the latter in developing her own skills.

4 Cf. Howard Hughes Medical Institute, 2004.

5 Cf. Gindl, Hefler, 2006; Dalhoff, 2006, Granovetter, 1995, Hey, Wieser, 2003, Lind, 2003, Zuckermann, 2001.

6 Cf. Zauchner, Gindl, 2007.

7 Cf. Gindl, Zauchner, Bammer, 2007.

Figure 1: Implementation of the ADVANCE Mentoring and Coaching Program

Source: Gindl, Zauchner, Bammer, 2007.

The mentoring and coaching program was fully implemented in each of the six participating universities. At each university a catalyst—a member of the ADVANCE team—was responsible for running the program locally, recruiting both mentors and mentees, and for running the reflection groups with mentees during the mentoring program.

The implementation of the ADVANCE Mentoring and Coaching Program (see Figure 1) started with the recruitment of the three mentees and three corre-

sponding mentors in each participating university in February 2007, concluding in November—December 2007.

Recruitment criteria for mentors and mentees were jointly developed by the consortium.

Recruitment criteria for mentees:

- Female
- Motivation to participate
- Studies in engineering, science, or technology completed
- Career stage: Pre- or post-doc
- Interested in or pursuing a scientific career in academia or industry
- Awareness concerning, or experiences with impediments (age, nationality, disability, etc.)
- Willingness to plan and reflect on one's personal career
- Willingness to work in heterogeneous groups (women from different countries with diverse backgrounds and expectations)
- Willingness to get involved with interdisciplinary approaches
- Willingness to get in contact with various didactic methods (lecture, group work, role play)
- Willingness to reflect on oneself, on one's own situation in the home-institution, on the strategies chosen, on personal perspectives and expectations, etc.
- Willingness to deal with gender issues (reflection of being a woman in academia/research, on the characteristics of a "gendered organization," etc.)
- Member of an ADVANCE partner institution
- Willingness to demonstrate responsibility for maintaining the mentor-mentee relationship (arrange personal and telephone contact, exchange email messages regularly over a nine month period)
- Commitment to participate in the summer school program

18 mentor-mentee pairs participated in the program: three at the Danube University, Krems; three at the Academy of Management in Lodz; three at the University of Helsinki; three at IFZ/University of Klagenfurt; three at the South-West University "Neofit Rilski;" and three at the University of Utrecht. In their professional status the mentors were rectors, directors, research directors, top managers, deans, professors, senior lecturers.

Recruitment criteria for mentors:

- Female or male
- Expert in engineering, science, or technology (professor, top manager, top researcher from industry or academia)
- Excellent national and international contacts and networks

- Similar working field as the mentee
- Willingness to learn from the mentee
- Willingness to reflect on oneself, on one's own situation in the home-institution, on strategies chosen, on personal perspectives and expectations, etc.
- Willingness for and/or experience in the promotion of female scientists
- Willingness to deal with gender issues (reflection of being a woman in academia/research, on the characteristics of a "gendered organization," etc.)
- Ability to discuss gender issues
- Willingness to mentor a pre- or postdoc via personal contact, telephone and e-mail
- Willingness to stay in regular contact with the mentee via personal contact, telephone and e-mail over a nine month period

As shown in Figure 1, at the beginning of the mentoring program, a kick-off meeting was organized to arrive at a common understanding on the mentoring & coaching content and process. During this kick-off meeting mentors and mentees signed a commitment whereby they agreed on mutual roles, tasks and the mode of collaboration. The commitment regulated the details of frequency of contacts, the forms and instruments of contact, the expectations of both, mentors and mentees, and the milestones in order to meet those expectations.

During the program the mentor-mentee tandems had regular, monthly, one-on-one meetings at the respective ADVANCE-institution. The mentees of each partner institution met in small groups, "reflection groups", at least three times during the program. These reflection groups were organized and moderated by the local catalysts. The aim of the reflection groups was to support the individual mentoring tracks throughout the program. This kind of working method received very positive evaluations from both mentees and catalysts across the individual mentoring processes.

Additionally coaching sessions were planned by the local catalysts. This targeted, short-term training was organized on either an individual or group basis so as to complement the mentoring process on topics particularly important to mentees. Thus, the coaching sessions covered additional topics apart from the summer school content, based on the additional needs of the mentees. The training topics covered obtaining funding, personal development, self-confidence, stress management and management skills including time management, leadership skills, team management and project management.

Summer School Program

In summer 2007, all mentees took part in the ADVANCE Summer School, which was an opportunity for deepening and broadening experiences and knowledge gained during the mentoring program. The summer school was at the core of the ADVANCE project. Conducted in English, and widely advertised through the network of the participating organizations and across Europe, it was held at the Danube University, Krems, Austria. To stimulate sustainable learning experiences and especially to guarantee an integration of the career perspectives as developed within the summer school into daily practice, the curriculum was divided into two modules. The first module was the core part, lasting 12 days; the follow-up module took place one month later and lasted 3 days.⁸

The curriculum covered topics highly relevant to those engaged in academic and industrial-based research. Among the topics included were research structures, gender in academia and industry, professional networking, international funding mechanisms as well as flop management. The program also focused on building personal and management skills. Thus leadership skills, negotiating and conflict management, communication skills as well as self-marketing and increasing visibility were included as being essential for women in science and research. One critically important part in this context was the development of a personal strategic career plan involving short-, mid- and long-term perspectives.

While these topics demonstrate the challenges of the course, the ADVANCE project also developed a more innovative style of teaching than many students may be used to.

There were 33 female researchers from both established and new EU member states who took part in the summer school, including the 18 researchers who also participated as mentees in the mentoring and coaching program at the six ADVANCE partner universities. The summer school participants came from a wide variety of disciplines in natural sciences and technology, ranging from physics, mathematics, computer sciences and engineering to the biosciences. Their ages spanned from early twenties to mid-fifties, and they were at varying stages of their own careers from pre-doctoral candidates through post-docs. Participation was free but those involved had to pay their own travel and accommodation, and were welcome to apply for stipends to cover part of those costs.

8 Cf. Zauchner, Gindl, 2007.

Experts as Role Models

To add to this the ADVANCE project invited a number of experts in various scientific fields to speak to students during the summer school and to offer their insights into what it takes to be successful. They talked about their own career paths, life experiences, and the knowledge they had gained from their time in academia and industry so as to highlight good practice and provide the students with positive role models, something recognized as a crucial step in encouraging students to pursue their personal goals.

Didactic Approach

The didactic approach was based on a constructivist concept focusing on learners as experts having individual learning strategies. Didactic methods, like case studies, role games and group interactions should encourage the participants to successfully handle problems on an individual, group and organizational level. The “moderated group” was the key to realizing this constructivist approach. Professionally moderated reflection groups met several times during the program and were positively received by participants. By reflecting on issues and topics from the summer school, sharing opinions and experiences with other group members and providing a link to the ongoing summer school activities, the moderated groups operate with theoretical inputs and active working parts.

Evaluation Strategy and Results

Program evaluation was based on feedback systematically collected at various stages from key participants of the program: catalysts, mentees, mentors, summer school participants and group moderators; using standardized evaluation forms developed specifically for the purpose by the consortium.⁹ Detailed evaluation material was collected and analyzed, and the results were used to further develop the summer school and mentoring concept and to formulate a transfer model and recommendations.

⁹ A graphic presentation of evaluation design is presented in Figure 2.

Material collected

Material collected on the summer school included standardized feedback evaluation sheets with both fixed-answer and open questions concerning the summer school overall, summaries of group discussions by summer school reflection group moderators, and feedback forms from participants concerning individual lecturers. Of the 33 summer school program participants, 31 filled out and returned individual summer school feedback forms.

The standardized evaluation sheets concerning the overall summer school experience focused on organizational issues such as information and practical organization and arrangements; relevance of the program for careers in research in general, and for the participants personally; the program quality, such as lecturers and working atmosphere; success in network building; the importance of the moderated group as a work form; whether the individual would participate in a similar program if a fee was charged and if they would recommend the program to colleagues. Open questions solicited information on the personal highlight(s) for the respondent and their suggestions for improvements.

Material collected on the mentoring and coaching program in each participating institution included summaries of three reflection group sessions with the mentees; feedback from all catalysts and a total of 16 mentors all gathered using a standard form, along with feedback on coaching from some organizations.

Evaluation results

Overall, the participant feedback both on the summer school and the mentoring and coaching program was very positive and indicated that the key program goals had been achieved by supporting participants in acquiring research and career management skills and other tools which help them build up their careers. The program also reached well its intended target group, apart from the industrial research sector. There were 33 female researchers from both old and new EU member states participating in the summer school, including the 18 researchers who were participating as mentees in the mentoring and coaching program at the six ADVANCE partner universities. An overwhelming majority of the summer school participants were employed in academia, with only one in industry; and while there were a few who were employed in governmental research organizations, the remainder were employed in mixed sector settings. Even though industrial researchers belonged to the target group, they displayed little interest in applying for the summer school.

Over half the participants assessed the summer school as having high relevance for research careers, and approximately half of them viewed it as having relevance for their own career. They mentioned that participation in the summer school had increased self-esteem, assertiveness and self-knowledge, generally empowered them and given them energy to pursue their careers and tackle problems, and that they had gained confidence and new skills, or learned to organize, as well as better manage their professional lives. Another indication of relevance is that a clear majority of the participants said they would recommend the summer school to their colleagues. However, a clear majority said they would not participate if a fee was charged and no stipends were available. This might be more of a reflection of the economic constraints facing European researchers in general and the poor availability of funding for this kind of training in most research institutions than an indication of a lack of interest.

Participant feedback indicated that the highlights of the summer school were the career planning modules, moderated groups, and the opportunity to meet role models, as well as having networking opportunities and receiving funding advice. As mentioned before, these were also core parts of the summer school program.¹⁰ The key elements of the summer school pedagogy, the moderated reflection groups which met several times during the summer school and were professionally moderated, were rated very positively by the participants. Success in networking among participants was also rated as fairly good.

Both participants and moderators were also asked for their suggestions on how to improve the program. Suggestions included receiving more training on scientific writing skills and publishing (CVs, applications, articles); on management skills, including conflict management and dealing with difficult situations; information on alternative career paths, industry relevant issues, teamwork, gender issues, and even on how to dress. Some thought there should be more in-depth training on things like career management, career possibilities, dealing with problem situations, and personal development. The moderators suggested adding training on group dynamics in international research groups, international research mobility including contact details of mobility programs, training on international working teams, gender discrimination, assertiveness training, and using electronic technologies in research (i.e. Web 2.0). Feedback on the pedagogy and practical set-up included interest in having the content slightly more differentiated in terms of career phase and making the program more flexible as well as the need for more individual feedback and coaching.

10 Cf. Bammer, 2007; Zauchner, Gindl, 2006; Zauchner, Gindl, 2007.

Overall, the mentoring processes can be seen as empowering. Most mentees were generally satisfied with the program, and some were very satisfied, and the same can be said for how they felt about their mentors. Of course, there were also mentor-mentee tandems where the fit could have been better. The short time frame was also a challenge in terms of developing relationships between mentors and mentees.

The career phases of the mentees and their expectations towards the program varied and so the gains they expected and received were therefore also varied and multiple. Many younger, pre-doctoral mentees expected more concrete career guidance and advice on specific issues such as publishing and teaching, whereas several post-doctoral mentees expected to reflect more deeply on the issues covered and on their career development.

Reflection group as a work method and as an important part of the individual mentoring processes received very positive evaluations from both mentees and catalysts throughout. The local reflection groups met 3–5 times during the program for ca. 90–120 minutes at a time and were moderated by the catalysts. It was obvious that the reflection groups brought a lot of added value to individual mentoring processes. They supported the individual mentoring tracks in profound ways throughout the program. They allowed and encouraged the mentees to compare and comment on each other's experiences, to exchange and reflect ideas on how to solve problems that might arise or to jointly prepare the issues to be taken up with the mentors and how. For some mentees, the reflection group played an almost equally, or even more important role than meetings with their mentor.

Assessing overall the impact of the mentoring program, mentees and catalysts reported that mentees had received support, stimulation and encouragement, gained self-confidence, confidence in their skills and self-knowledge, better understanding of career development and options, and obtained much useful information and guidance on several key issues in academic careers such as career management, publishing and teaching.

Three of the participating organizations reported that recruiting mentors for the program had been easy, whereas three others reported this as difficult or fairly difficult. The commonly held expectation and observation was that the potential mentors were extremely busy professionals, with heavy demands on their time. A major challenge for catalysts of such programs is how to convince busy professionals, who are potential mentors, of the importance and expected rewards of being a mentor. In some cases it was problematic to find mentors who had a good fit with mentee's disciplinary background. The commitment of participating mentees was assessed as high by the catalysts, and

commitment of mentors assessed as high or satisfactory. Time constraints played a major role here.

It was obvious that not only mentees gained from the program. The feedback on the program from the mentors was positive overall. They were happy to be able to help and promote young women in scientific careers in this way. Many mentors also noted how they were not only at the giving end, but had also benefitted from valuable insights themselves and had now been made more aware of problems young and mid-career women are encountering, thus gaining a better view into today's postdoctoral careers. Participation in the program was a learning experience also personally since all were encouraged to reflect on their own career as well and this often opened new perspectives. All but one mentor said they would participate again in a program of this kind. A few mentors were unhappy that time constraints hindered a stronger commitment. Greater variation was found in the assessment of support from the mentors' own organizations, with approximately half of the mentors enjoying strong support, half reported satisfactory support, and two rated the support as scant. Mentoring is obviously not recognized as a valuable professional activity in all participating organizations.

The following issues were identified as critical to the success of the mentoring and coaching program: identifying and recruiting motivated, high-quality mentors; ensuring a good mentor-mentee fit; giving clear guidance, to both mentor and mentee, about mentoring as a work form from the beginning of the program; managing time carefully both at the program level and in individual mentoring processes; and determining the length of the mentoring relationship.

Short-term impact, implementation differences between East and West

The six higher education and research institutions participating in the ADVANCE Program represent five EU countries: Austria, Bulgaria, Finland, Holland and Poland, and have somewhat different profiles. The size and focus of the organizations varies, creating different contexts and conditions in which the program was implemented. Three of the participating organizations are from public multi-faculty universities, one is a university specializing in further education, one is a private university focusing on management, and one an interdisciplinary research centre of a university.¹¹

11 Cf. Husu, 2008.

In general, participation in the program inspired several participating organizations or individuals to plan, establish or widen mentoring programs in their own organizations. Mentors said they would be interested in recommending a mentoring program to their organizations, and some of them worked in organizations already running such programs. The national contexts where the program was implemented varied. Mentoring is a familiar concept in Austria, Finland and the Netherlands, but is new to countries like Bulgaria and Poland in the academic and research contexts.

At IFZ/University of Klagenfurt (Austria), an institution-wide peer mentoring program was started as a result of participation in ADVANCE. This program supports the four ADVANCE mentees and all other interested female colleagues, including the two catalysts. The main objectives of the peer mentoring are networking and exchanges on career planning, work-life balance and how to increase and maintain job satisfaction and motivation. In addition, one mentee continues with mentoring, and is now mentored by one of the catalysts. At Danube University Krems (Austria), all mentor-mentee tandems have expressed interest in continuing their mentoring relationships. In University of Utrecht (Netherlands), no official continuation has been decided but the mentors were open to further co-operation.

The University of Helsinki's (Finland) participation in ADVANCE has resulted in accelerating plans for establishing a mentoring program specifically for women researchers in the university, and this kind of mentoring program has been chosen as a key gender equality action by the Equality Committee of the University for the coming years. The University of Helsinki has been running for several years a general mentoring program available for all staff, both women and men and for both academic and administrative staff.

Two of the mentors from Helsinki also reported plans to start a mentoring program in their own institutes. A mentoring program has been suggested for Biocentrum Helsinki, the home institute of one of the Helsinki mentors. Biocentrum is an umbrella organization within the University of Helsinki including 28 top research groups in molecular biology and molecular medicine. The mentees would be both male and female senior postdocs planning academic careers. Another mentor, a research professor from the Finnish Meteorological Institute, a large sector research institute, has initiated planning of a similar program to run in her institute. The mentees have continued to meet in their reflection group even after the formal end of the mentoring program.

Contrary to many other participating countries, mentoring culture in Bulgaria is a novelty, which meant that implementing the ADVANCE program in Bulgaria met different challenges. Even though there is some supporting of young

researchers by their senior colleagues, it has never been a systematic, purposeful and long-term activity, but only incidental and in most cases quite formal. This especially concerns the support given young female scientists and university professors. Thus the ADVANCE project had a strong impact on introducing mentoring as a new approach towards career development in one of the largest Bulgarian institutions for higher education—the South-West University “Neofit Rilski” in Blagoevgrad, Bulgaria.

The South-West University is a public institution committed to both teaching and research. It offers a wide variety of programs at the Bachelors, Masters and Doctor Levels. Established in 1975, it now has 7 faculties and a college which encompass humanities, social and natural sciences, and technical disciplines. The academic community in the South-West University has never been gender sensitive.

Nonetheless, the ADVANCE project and the mentoring initiative, with its special concern for female scientists and their career advancement, enjoyed strong institutional support. As an example the Rector participated in the program as one of the mentors. This ensured not only greater influence and effects of the project outcomes on academic life but also real changes in the university regulations and procedures, thus creating a proper environment for developing the culture of mentoring.

Although the program ran successfully in Bulgaria, there were certain obstacles that challenged the project management at the university level. The time span (March–November) was not very favorable because it spanned the end of the semester (June), the summer holidays, the start of the new academic year (September) and the university elections (October). Other impediments were the busy workloads of both mentors and mentees engaged not only in research but also with teaching, administrative duties (accreditation at that time, curricula development, etc.) among other things. The major shortcomings during the run of the program were the lack of mentoring culture within the university; misunderstanding the nature of mentoring (especially the differences between supervising and mentoring, research project-career, professional—not strictly professional relations, etc.); financial arrangements (mentors expected to be paid for their support); initiative within the tandems (active mentees and passive mentors, absence of deliberate strategies, unclear goals, etc.); the lack of communication with the other mentees within the program; and the “male” aspect (involvement) in the process of supporting young female scientists.

The South-West University “Neofit Rilski” benefitted from participation in the ADVANCE project in that certain gains were made, such as the establishment of a Gender Studies Center in the university. Extensive networking with simi-

lar bodies at the Bulgarian Academy of Science and the Sofia University “St. Kliment Ohridski” was yet another beneficial aspect of the program. The university is about to start its own mentoring program through the new Gender Studies Center, initially as a summer school, and then later during the academic year in the form of ongoing mentoring sessions.

Transfer Models and Recommendations

The recommendations to transfer the ADVANCE program relate to both the content and topics of the program as well as practical realization and implementation: pedagogy and didactics; roles of and requirements for different participants; contextual conditions, information and evaluation. These recommendations are based on extensive evaluation of the program in which all ADVANCE consortium partners actively took part.¹²

The ADVANCE transfer models are aimed primarily at European universities and other academic and research organizations interested in making a concentrated effort to advance gender equality by providing systematic support for women in research careers. The ADVANCE program can be realized nationally, regionally or internationally, by an individual university or in cooperation with several universities, by one or several countries. Another important target group includes the individuals (academic staff, management and HR staff) and networks within these organizations interested in advancing women’s research careers.

- The first recommendation of the ADVANCE Program is to combine a mentoring program for women scientists with an organized summer school and to also offer additional career coaching according to the needs of the participants.
- The program requires a named coordinator responsible for managing, running and developing the program within the organization.

Transferring the Summer School

- Clearly explain the goals and the vision behind the summer school in advertising and recruitment material.
- Use an application procedure for recruiting summer school participants and to help ensure their motivation.

12 Cf. Husu, Siebenhandl, 2008.

- Organize the summer school in two parts, with enough reflection and application time in between.
- Recruit high-level experts as trainers. See that there is good cultural competence and knowledge of international research contexts as well as language skills in all international summer school arrangements.
- Follow the recommendation to utilize multiple didactic methods in training, including moderated discussions in the same small groups throughout the program.
- Support the training by making relevant reference lists, recommended reading lists and web links available.
- Provide continuity and overview by having one of the summer school organizers present at all training events.
- Make the summer school free of charge to participants. Additional funding should be provided if necessary to cover additional costs (travel, room and board, etc.).
- Carefully define and clearly communicate what responsibilities the participants have and the organizers have.
- Monitor and be sensitive to intercultural problems which may occur in international summer schools. This is the responsibility of the organizers.

Transferring the Mentoring and Coaching Program

- Select only mentees who are motivated and committed. Emphasize that mentees are expected to take an active role in the program.
- Dedicate considerable time and effort to identifying and recruiting good mentors. Use multiple methods to identify good candidates and contact them personally.
- Ensure enough professional distance between the spheres of mentor and mentee to avoid ethical problems later.
- Fix program meeting dates and dates for individual mentor-mentee tandem meetings for the entire program from the very beginning.
- Celebrate the opening and closing of the program with special events for all involved.
- Organize midpoint meetings for all involved, in addition to meetings for just the mentors alone.
- Mentees should be encouraged to take an active role in the mentoring process and to document the lessons learned for later use.
- Organize reflection groups for mentees throughout the program to provide additional peer support and act as a sounding board.
- Collect and analyze systematic feedback to evaluate and improve the program.

Conclusions

The European co-operation within the ADVANCE project brought together countries where mentoring in the university context is more familiar, such as Austria, Finland and Netherlands, with countries where mentoring is more of a novelty, such as Bulgaria and Poland. The different national and institutional settings of the participating organizations helped to highlight and address critical issues in the program and to develop more widely applicable recommendations on how to transfer the program. The diversity of the participating countries and institutions was thus fruitful indeed.

The ADVANCE Summer School and Mentoring and Coaching Program succeeded in providing various types of gender-sensitive and career-relevant support and training for female scientists in different career stages. The program had an empowering impact on the participants. Those involved reported that they gained more motivation and self-confidence, learned various professional and management skills, networking skills, and became more conscious of different aspects and demands in scientific careers, including specific challenges women scientists encounter. One of the factors behind the success was the combination of multiple didactic methods: lectures, group discussions, developing individual mentoring relationships, and possibilities for individual and/or group coaching. The program has also enhanced networking among the participating researchers.

Participating universities were also affected by the program at an organizational level, in part via the senior researchers who participated as mentors. The program has increased awareness in participating organizations and among mentors about the problems women scientists encounter and of the need to organize systematic career support structures in both the pre- and postdoctoral career phases. As a result, several participating organizations are going or planning to start related programs in the near future, which was also one of the project's goals.

References

- Bammer, Doris, 2007:** Detailed Summer School Program, Deliverable 5, Advance Project, available at: www.advance-project.eu [October 2, 2008]
- Dalhoff, Jutta, 2006:** Anstoß zum Aufstieg—Karrieretraining für Wissenschaftlerinnen auf dem Prüfstand. Cews.Beiträge no. 4. Bielefeld: Kleine Verlag.
- European Commission, 2005:** Women and Science; Excellence and Innovation—Gender Equality in Science. Available at: http://ec.europa.eu/research/science-society/pdf/documents_women_sec_en.pdf [Oktober 2, 2008].

- European Commission, 2006:** Statistics and Indicators, She Figures 2006. Available at: http://ec.europa.eu/research/science-society/pdf/she_figures_2006_en.pdf [Oktober 2, 2008].
- European Commission, 2006:** A Wake up Call for European Industry. Available at: http://ec.europa.eu/research/science-society/women/wir/pdf/wir_final.pdf [Oktober 2, 2008].
- Gindl, Michaela; Hefler, Günter, 2006:** Gendersensible Didaktik in universitärer Lehre und Weiterbildung für Erwachsene. In: Anita Mörth, Barbara Hey, Koordinationststelle für Geschlechterstudien, Frauenforschung und Frauenförderung der Universität Graz (Eds.), *geschlecht + didaktik*. [online]. Available at: http://www.uni-graz.at/kffwww/geschlecht_didaktik/#top, [Oktober 2, 2008].
- Gindl, Michaela; Zauchner, Sabine; Bammer, Doris, 2007:** Mentoring and Coaching Program including Implementation Plan, Deliverable 4 and 6, Advance Project, available at: www.advance-project.eu [Oktober 2, 2008]
- Granovetter, Mark, 1995:** *Getting a job—a study of contacts and careers*. Chicago: Univ. of Chicago Press.
- Hey, Barbara; Wieser, Ilse, 2003:** *Potenziale, Barrieren und Chancen. Frauen an der Universität. Projekt-Endbericht*, Graz.
- Howard Hughes Medical Institute, 2004:** *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty*. Maryland: Howard Hughes Medical Institute.
- Husu, Liisa; Siebenhandl, Karin, 2008:** Transfer Models: Recommendations for implementing a Summer School and Mentoring and Coaching program for Women Scientists, Deliverable 9 Advance Project, available at: www.advance-project.eu [Oktober 2, 2008]
- Husu, Liisa, 2008:** Program Evaluation Report, Deliverable 8 Advance Project, available at: www.advance-project.eu [Oktober 2, 2008]
- Lind, Inken, 2004:** *Aufstieg oder Ausstieg? Karrierewege von Wissenschaftlerinnen—Ein Forschungsüberblick*. Bielefeld: Kleine Verlag.
- Zauchner, Sabine; Gindl, Michaela, 2006:** Documentation of Preparatory Workshop, Deliverable 2, Advance Project, available at: www.advance-project.eu [Oktober 2, 2008]
- Zauchner, Sabine; Gindl, Michaela, 2007:** Summer School Curriculum, Deliverable 3, Advance Project, available at: www.advance-project.eu [Oktober 2, 2008]
- Zuckerman, Harriet, 2001:** The Careers of Men and Women Scientists: Gender Differences in Career Attainments. In: Mary Wyer, et al. (Ed.), *Women, Science and Technology: A Reader in Feminist Science Studies* (pp. 302–311). New York: Routledge.

Helene Füger

Perspectives for mentoring in Europe. Achievements and outlook from the eument-net project

Since the 1990's, mentoring programmes have been one of the prominent measures introduced in many European countries to address the issue of gender inequality in higher education and research. The experience of numerous mentoring programmes shows that these offers have been important in providing new and efficient structures of support for women researchers aiming for a career in academia and research. Mentoring programmes also provide the means for confirmed women researchers to act effectively as role models and familiarize a great number of professors with new practices of support for young researchers. By making informal rules and codes of the academic and research career apparent and by offering a forum to discuss them among women researchers and professors, mentoring programmes thus foster dynamics of institutional change favouring gender equality.¹

Yet, at the beginning of the 21st century, a closer look at the situation of many mentoring programmes reveals that, even after years of successful practice, many are not financially secured on a long-term basis. Their position inside the academic institutions often remains precarious. Furthermore, and notwithstanding the apparent popularity of mentoring, in many countries of the European Union, mentoring programmes for the promotion of women in academia and research are still scarce or non-existent.

However, gender equality and the promotion of women's careers are central issues when considering the challenges posed by the aim of an integrated and sustainable European Research Area. If we take seriously the challenges and aims of the European Research Area, it becomes clear that there is ample need to draw upon the experience accumulated by mentoring programmes in different countries, to network them, initiate cooperation and knowledge transfer, and to engage in a debate about the role and potential of mentoring to effectively promote women academics and researchers in Europe.

1 Cf. Müller, 2007.

The eument-net project: partners and aims

The eument-net project has been funded as Coordination action in the frame of the 6th European Framework Programme for Research and Technological Development (FP6). Starting in January 2007, the project phase of eument-net has stretched over 21 months, until September 2008. The project consortium united five partners from four different countries (Austria, Bulgaria, Germany and Switzerland)² and was supported by an advisory board with members from France, Ireland, Slovenia and the UK³. Among the partners, four had longstanding experiences with mentoring programmes for women researchers in their early career, whereas one partner had no prior experience with mentoring.

The *Réseau romand de mentoring pour femmes* (RRM) and *Mentoring Deutschschweiz* (MDCH) are two regional inter-university, trans-disciplinary mentoring programmes, offering one-to-one mentoring for high potential women researchers who are advanced PhD-candidates, in their post doctoral career or Habilitation candidates, and who aim at an academic career. Both programmes have been among the first mentoring schemes set up in 2000 with the financial support of the Swiss Federal Programme for Gender Equality in Higher education, in order to double the number of women professors at Swiss universities from 7 % in 1999 to 14 % by 2006.⁴ Since the outset, the two programmes have cooperated on a national level.

The MuT programme (Mentoring und training), affiliated to Baden-Württemberg's State Conference of Equal Opportunities Officers (LaKoG) was developed as Germany's first mentoring programme for female early career researchers, when it became evident that financial support was not enough as an affirmative action measure. Since 1998, about 650 early career researchers have taken part in the programme that combines Orientation Courses, Informational Ac-

2 In each partner institution a local team cooperated in the project. These were composed as follows: University of Fribourg (Switzerland) : Helene Füger, Muriel Besson; LaKoG/ University of Stuttgart (Germany): Dr. Dagmar Höppel, Christine Brunn, Lisa Peschel; University of Vienna (Austria): Evi Genetti, Herta Nöbauer; University of Berne (Switzerland): Sabine Lask, Louise Graf; Institute of Philosophical Research (Bulgaria): Dr. Nikola Sretenova, , Dr. Ina Dimitrova Dimitrova, , Dr. Rosen Lubomirov Ljutskanov, Dr. Dorothea Angelova, Dr. Christina Ambareva and Dr. Nikolay Obreshkov.

3 Members of the eument-net advisory board were: Prof. Dr. Barbara Bagilhole (UK); Dr. Dagmar Meyer (IR); Prof. Dr. Maca Jogan (SL); Dr. Claire bergman (F).

4 For information see <http://www.crus.ch/information-programmes/egalite-des-chances.html>.

tivities, Individual Counselling, Matching with a Mentor and Networking. MuT has served as a model for mentoring programmes in other German states and abroad and is part of the German network Forum Mentoring⁵.

The University of Vienna was the first university in Austria to organize a mentoring programme for women academics, starting in 2000. Mentoring University Vienna 'muv' is characterized by its structural approach to career development. The formal mentoring scheme for PhD-candidates, post-PhD and Habilitation candidates, is based on cross-disciplinary small-group mentoring. While in its earlier stages muv was funded by the European Social Fund, the Federal Ministry of Education, Science and Culture, and the University of Vienna, it has been completely funded by university financial resources since 2007.

For these partners, the motivation to participate the eument-net project was to reflect their experience with mentoring and their implementation strategy with regard to an evolving national and international academic landscape. The incentive to launch the eument-net project stems from the assumption that to address these issues in a comparative perspective on an international, European level will provide additional insight and perspectives, and help to strengthen the mentoring programmes engaged.

Nikolina Sretenova, the Bulgarian partner from the Institute of Philosophical research from the Bulgarian Academy of Science had had no prior hands-on experience with mentoring young women researchers. Her specific focus in the project was to assess the potential of mentoring to promote gender equality in the Bulgarian universities and research sector, and to work on the transfer of knowledge on mentoring in the wider Europe.

By building a European network of mentoring programmes, the eument-net partners aim was to strengthen existing mentoring programmes in an evolving European Research Area and to promote mentoring as a an effective tool for promoting gender equality in academia and research. At the term of the project phase, such a European network has successfully been established.⁶ In line with the objectives of the eument-net project, the network will promote the advancement of women's careers and position in academia and research by

5 Forum Mentoring: <http://www.forum-mentoring.de>

6 As from the 1st of October 2008, eument-net is established as an association according to Swiss law.

- fostering the exchange of experience and best practice among mentoring programmes;
- promoting quality standards and the role of mentoring for the promotion of women and gender equality in academia and research;
- supporting the transfer of knowledge and expertise, especially in countries where mentoring programmes for women in academia and research are still scarce;
- facilitating cooperation among programmes and the promotion of new mentoring services and activities;
- helping to put mentoring for women in academia and research on national and European science policy agendas.

The present contribution will present the different strands of activity and results of the eument-net project. During the project phase, the partners have organised their work around four lines of action or work packages. The first line of action was dedicated to organise knowledge transfer on mentoring as a measure to enhance the advancement of women scientists and their position in science governance in the wider Europe. The second line of action focused on “setting up a European network of mentoring programmes for high potential early career women scientists in the academic field”. One of the aims defined in this line of action was to establish sustainable structures of such a network. The specific purpose of the 3rd line of action was to “strengthen women as role models through conferences and debates between mentoring programmes and stakeholders in science policy and gender equality”. In the frame of the 4th work package, the partners developed an electronic platform and a database of mentoring programmes as virtual home of the eument-net network.

The different aims of the project phase have been interlinked to a considerable degree, requiring very close cooperation among partners involved in the project. To monitor the progress of the activities carried out in the frame of the eument-net project and to take the necessary decisions regarding the project’s implementation, a steering committee has been set up. The steering committee was composed of one representative per partner institution and the eument-net advisory board.

Exchange of experience and knowledge transfer

The main result of the first line of action is the eument-net guideline manual “Establishing Mentoring in Europe. Strategies for the Promotion of Women Academics and Researchers”.

As preparatory work for the establishment of the eument-net guideline manual, two workshops have been organized for the exchange of experience among partners. For two days each, these workshops have reunited the eument-net partners, members of the advisory board and external experts, under the supervision of professional moderators.

The outline and themes of discussions for the first workshop, which took place in May 2007 in Vienna, have been elaborated by the organising partner muv on the basis of a comparison of the documentation from the partaking mentoring programmes. During the workshop, similarities and differences between the partaking mentoring programme were discussed in detail on three levels: aspects of the programme designs (such as target groups, size and duration, institutions included and personnel involved, but also funding, selection and matching procedures and criteria, goals of the programme, offers accompanying the mentoring process, etc.); the specific contexts and prevailing academic systems and cultures; and the strategies for long-term implementation of the mentoring schemes. The presentations by partners were completed by inputs from external experts and members of the advisory board, and by the discussion of specific topics in three working groups. These working groups focused on the definition of best practice, the conditions of transfer of knowledge, and supporting and hindering factors for the implementation of mentoring programmes. Subsequent discussions generated new insights which provided the basis for the structure and chapters of the eument-net guideline manual, the outline of which has been elaborated by muv after the first workshop and then discussed by all partners.

The second workshop organized in the frame of this first line of action took place in Sofia in December 2007. Organized by the Bulgarian partner, the workshop focused on the specific obstacles to women's careers addressed by mentoring programmes, and on the transfer of best practice examples. During the workshop, the partners discussed the results of the study with Bulgarian women PhD students and early career researchers, presented further below. The workshop also provided the possibility to compare the partners' experience with mentoring in Switzerland, Germany and Austria with experiences from the USA and Bulgaria. Whereas in the USA mentoring is frequently part of the tutorial structures of American universities, Georgi Apostolov presented his experience with implementing a pilot mentoring scheme at a private Bulgarian University in the frame of the FP6 ADVANCE project. This second workshop heightened the awareness on how concepts are shaped by different contexts, thus contributing to the discussion and understanding of processes of transfer of knowledge on mentoring. The second workshop has also provided

an occasion to discuss the first texts of the eument-net guideline manual and to adapt its concept.

As a result, one can say that the workshops organized in the frame of this first line of action can be considered best practice examples on how to organize the exchange of experience and foster the transfer of knowledge between mentoring programmes and stakeholders from different countries and contexts. As such, they will be of benefit also for the future activities of the eument-net association.

The writing and editing of the manual, organised under the lead of the Austrian partner *muv*, spread over more than 9 months. In order to enhance its impact in Eastern European and particularly in Balkan countries, the eument-net guideline manual has also been translated in Bulgarian under the responsibility of the Bulgarian partner Dr. Nikolina Sretenova, a process which required additional considerations on the translation and transfer of concepts. The final product offers guidelines and best practice for establishing mentoring schemes for women academics in Europe. Based upon a systematic comparison between the four mentoring programmes involved in the eument-net project, the case studies presented in the manual give examples of best practice in how to design, implement, and prepare the ground for mentoring programmes under specific conditions at local, regional, and national levels. This approach adopted in the manual provides a valuable basis for transferring expert knowledge on mentoring to countries where there is as yet no mentoring scheme. In the manual, these questions are exemplified in a detailed analysis of the situation in Bulgaria. Finally, the manual also provides a framework for how mentoring schemes can be connected throughout Europe by the trans-national network eument-net in order to realize gender equality in academia more effectively.

Attitudes among Bulgarian women PhD students and early career researchers towards career possibilities and mentoring

The Bulgarian partner's contribution to the first line of action in the eument-net project included a specific focus on the "receptivity" towards the concept of mentoring in contexts where mentoring is not yet known. To this end, Nikolina Sretenova and a team of researchers have conducted an empirical study, based on focus group interviews with women PhD students and early career researchers from various scientific backgrounds and institutions. The study allows an enhanced understanding of the specific obstacles, difficulties

and gaps perceived by women PhD students and early career researchers in relation to the advancement of their academic career⁷.

With 18 % women professors (Grade A), the Bulgarian university and research sectors fare above European average. However, it is considered that the increase in the share of women professors has been favoured by a degradation of work conditions. According to the findings from the survey conducted by Nikolina Sretenova and her team, the main obstacles perceived by women PhD students and early career researchers are related to difficulties in the work environment and work conditions, a lack of dynamics of innovation, and a lack of perspectives for applying research. Women PhD students and early career researchers in Bulgaria also voice a sense of age-related discrimination and institutional obstacles for young researchers. They also express a lack of practical skills necessary to apply to projects, particularly to projects and positions abroad, and a low image of science in Bulgaria. The obstacles spontaneously voiced by the participants in these focus group interviews do mostly not explicitly refer to gender. Yet, the study makes apparent specific obstacles faced by women, such as a lack of female role models, gendered notions of the “successful researcher”, a tendency towards “traditional” role distribution when both partners are engaged in science, and little access to and knowledge about networks of women scientists, but also a lack of awareness of gender related discriminations.

From mentoring, Bulgarian women PhD students and early career researchers expect support to get involved in international projects and to access to international contacts. They also expect an increased visibility and recognition for their research, advice for their career planning, and consultation for practical requirements related with project's preparation and skills necessary to apply for projects, in Bulgaria and abroad. From her study, Sretenova concludes that mentoring seems an appropriate tool to tackle the issues highlighted by the Bulgarian study among women PhD students and early career researchers. The study also raises specific questions and hypothesis for the implementation of mentoring schemes in the Bulgarian context.

The lack of national regulations and policy to promote gender equality in research (gender equality as opposed to an anti-discrimination legislation), the absence of infrastructures such as gender equality offices, as well as the novelty of the instrument explain, according to the Bulgarian partner, why there are no such measures as mentoring for Bulgarian women academics and researchers yet. The study conducted by Nikolina Sretenova provides new data

7 A report on the results of the study on focus group interviews is published on the eument-net homepage.

for the Bulgarian context to make informed decisions when implementing academic mentoring programmes in Bulgaria. It offers also a valuable template for similar explorative studies on the potential of mentoring.

Quality standards for mentoring programmes

The discussions among partners in this first line of action have also served as basis for the definition of quality standards for mentoring programmes promoting women’s careers in higher education and research. They provide a frame for the integration of new members to the eument-net network established by the 2nd line of action of the project. The general way in which the standards are formulated allows for flexible handling of ways in which these standards are met. Thus, they present a basis for further discussion and comparison of best practice examples among mentoring programmes concerned with the promotion of women’s position in academia and research.

The quality standards which have been elaborated in the eument-net project require that the “promotion of women must explicitly be defined as a central aim” to the programme. Programmes must “be part of a wider gender equality policy”, and be “focused on the mentees’ personal and career development”. According to these standards, “mentoring must take place outside hierarchical relationships” and be “based on a voluntary participation and transparent selection procedures”. Programmes must have a “professional coordination (e.g. a paid position) and transparent programme management structures”. There are other criteria, such as “clearly defined target group and criteria for admission”. Programmes must also ensure that the “roles and mutual requirements of mentee and mentor are clearly defined and communicated (specified in a written mentoring agreement)”. They must have a “confidentiality policy, monitoring measures and conduct regular evaluation”. Finally, programmes must include “training activities (related to the mentoring process), and provide the possibility for mentees and mentors to exchange on their mentoring experience”.

Establish a European network of mentoring programmes

The second line of action of the eument-net project phase has been concerned with the elaboration of legal structures for the eument-net network, reuniting mentoring programmes in Europe around common goals and a set of international cooperation activities. In order to assess the landscape of mentoring pro-

grammes and evaluate the expectations towards and the interest in a European network, the partners of the eument-net consortium have conducted two surveys among European stakeholders and coordinators of mentoring programmes.⁸

With a response rate of 21 % from stakeholders, and a return rate of 36 % from mentoring programmes, the survey does not claim to be representative. Nevertheless, the results support some interesting observations and provide a basis for discussion, further initiatives and investigations. Respondents from countries in Southern and Eastern Europe are considerably fewer to say that they know about specific programmes in their countries to promote gender equality in higher education and research than respondents from countries in Middle and Northern Europe⁹. This observation applies as well to the knowledge about mentoring programmes to promote women's careers in academia and research, where differences are even more accentuated.

Whereas the potential of mentoring programmes to promote gender equality is considered high by a large majority of respondents, the main reasons for the lack of mentoring programmes identified by respondents from countries where there are no such programmes are mainly structural, such as: the lack of governmental support; the lack of funding; the lack of support from higher education or research institutions; the lack of institutional structures (on different levels); but as well the novelty of mentoring. Responses to the survey also confirm the high interest in a European network of mentoring programmes promoting women in academia and research. The main expectations towards

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- 8 The survey was composed of two different questionnaires. One questionnaire was addressed to 770 stakeholders in gender equality and science policy from 37 European and associate countries. A second questionnaire was addressed to 109 persons involved in academic mentoring programmes from 15 European and associated countries. The addresses had been collected by the partners of the eument-net project and are mainly based on Internet research. There are important differences in the date collected for the different countries. Accordingly, the lists of addressees were very heterogenous. This may explain the relatively low rate of respondents. It also sets clear limit to the interpretations of the results.
- 9 In order to present reasonable results, two alternative country clusters have been grouped: One cluster ('Old'/'New'/'Other') contains a group of EU members prior to 2006 ('Old'), a group that joined the EU in 2006 and 2007 ('New'), and a group with all residual countries ('Other'). The cluster ('South'/'North'/'East'/'Middle') groups countries depending on the geographical position. South: Cyprus, Greece, Israel, Italy, Malta, Portugal, Spain, Turkey; East: Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia; Middle: Austria Belgium Denmark France Germany Ireland Luxembourg Netherlands Switzerland United Kingdom, North: Finland, Iceland, Norway, Sweden.

and interest in a European network of mentoring programmes are focused on the exchange of best practice, share guidelines and standards, develop cooperation, strengthen women's impact on science policy and widen mentee's network and mobility, and to organise trans-national meetings and seminars.

These results provide evidence that additional efforts are needed in Europe to implement effective instruments for gender equality in higher education and research, and that mentoring programmes hold an important potential to address this issue. The results also underline the interest for a European network of mentoring and support the direction taken by eument-net. For mentoring to deploy its potential, a considerable effort is needed on both European and national levels. The unequal distribution of mentoring programmes indicates that the policy of the European Union plays an important role in addressing this issue.

Defining the structure of the European network and first cooperation activities

Workshops were also used as method to discuss the structures of the European network and to initiate first cooperation activities among involved mentoring programmes. During a workshop organized in Mannheim (Germany) in July 2007 partners compared their integration in and experience with networks, and discussed their expectations towards the future eument-net network, taking advantage from the experiences from experts active in two different European networks, namely Adelheid Ehmke, president of EPWS, and Dagmar Meyer, former head of the Marie-Curie Fellowship Association and member of the eument-net advisory board.

The workshop established a consensus about the need of formal structures (of an association) to effectively pursue the activities started in the eument-net project, integrate new members, become more visible and act towards sponsors and funding agencies. A consensus was also reached on the need of different member categories, so as to respond to the goals that are: exchange of experience, cooperation and transfer of knowledge. Whereas full members were defined as institutions with mentoring programmes that fulfil the eument-net quality standards, associate members can be institutions interested in mentoring to promote gender equality and individuals with specific expertise related to the aims of the network.

Pilot cooperation scheme

Whereas the Mannheim workshop allowed eument-net partners to define the basic lines for the future network of mentoring programmes, it appeared that the definition of a pilot cooperation scheme for international “mentoring exchange” needed more in depth discussion and a detailed understanding on how such a trans-national offer can be integrated and implemented by the partaking mentoring programmes. Among the questions that arouse were: How can we assure that an international mentoring offer completes but does not interfere with the offer of the partaking programmes? How time intensive will the participation be for the coordinators of the cooperating programmes? How should the specific announcement and “matching” procedures be organized in order to allow mentoring programmes with different structures, communication channels and matching procedures to cooperate? Considering these issues, in the wake of the workshop in Mannheim, the work on the pilot cooperation agreement on “international mentoring” was pursued by three among the four mentoring programmes from the consortium.

As a result of these discussions, the three programmes have launched a Short Term International Mentoring Exchange (STIME) as first pilot cooperation activity in April 2008. STIME supports international contacts and networks for women researchers who have been accepted as mentees by one of the partaking programmes, and who have finished their formal mentoring exchange (former mentees), or have not yet started their regular mentoring relationship. The eument-net STIME does not replace regular mentoring exchanges and is limited to a formal duration of two months. It is specifically designed for women researchers who are on a scientific leave, who plan to make their next career step at a new institution or to establish international cooperation, etc. and want a contact person.

By focusing on mentees which are no longer (or not yet) engaged in a formal mentoring exchange within their programme, and by its limited duration, the STIME pilot cooperation scheme has managed to circumvent possible interference with the offer of partaking programmes. The evaluation of first experiences with STIME shows that there is a real interest in such an offer. It also shows that the interest for STIME is in majority directed towards anglo-saxon countries, and only to a lesser degree to other European countries.

The STIME offer should be continued and expanded. It remains to be seen whether offers such as STIME can contribute to foster new forms of mobility for women researchers.

The eument-net association and cooperation statement

A second workshop in this line of action was organised in Brussels, in July 2008. The workshop was dedicated to assess the outcome of first concrete cooperation measures, notably the pilot cooperation scheme and the electronic platform, and to define the possibilities and conditions for the continuation of activities under the umbrella of the eument-net association.

The workshop highlighted the considerable experience acquired during the eument-net project phase in a broad range of activities. These experiences define the distinctive dimensions on which eument-net wants to build its expertise and strategy for the future, and extend its network. A special focus of this workshop was put on advocacy and fundraising strategies for networks promoting women in academia and research, with input and consultation by Maren Jochimsen and Pauleen Colligan from EPWS.

As a result, eument-net partners defined a “eument-net Cooperation Statement” which completes the statutes of the association and outlines in more detail the mission, future activities and offer of the eument-net association. As a second result of this workshop, eument-net partners have drafted a policy document, with recommendations for European and national policy makers, science community, civil society associations, as well as industry representatives. These recommendations also integrate results from activities organised in the 3rd line of action of the eument-net project¹⁰.

Strengthen women as role models through mentoring: debating with women researchers, mentoring and gender equality experts and science policy representatives.

The 3rd line of action pursued during the eument-net project phase was dedicated to strengthening the women academics in science decision-making positions as role models, by disseminating findings and results of the eument-net project at European, regional and national levels, taking into account the specific contexts.

During the 1st year of the project, the main event to disseminate first results of the eument-net project and inform about its aim was the 5th conference on GEHE in Berlin (28–31st of August 2007). The eument-net partners participated in the Workshop-panel on mentoring programmes and organised a meet-

10 The documents are published on the eument-net homepage.

ing for mentoring experts and stakeholders, thus contributing to the recommendations issued after the conference. The GEHE conference provided an important platform for presenting eument-net to a public of specialists and foster contacts with other projects¹¹. To reach out to a larger number of experts and stakeholders, especially from countries of Eastern and Southern Europe and from the Balkan state, two international conferences were organised during the 2nd year of the project phase in Bern (Switzerland) and in Sofia (Bulgaria). These provided additional occasions to debate on mentoring as tool to promote women's careers and to present the objectives of eument-net, while taking into account the specific regional contexts.

Berne conference: the Future of Mentoring in Europe

Under the title "The Future of Mentoring Programmes. Linking Programmes, Experience and People in Europe", the Berne conference proposed to explore the potential of mentoring to promote gender equality in Europe from different angles. The aim of the conference was to present standards for mentoring programmes fostering women's careers in academia and research and to reflect the impacts of specific national contexts and policies on the implementation of mentoring programmes and their integration in national and European networks. 70 participants from 14 countries took part in the conference discussions.

In addition to speakers from the eument-net project, Maya Widmer presented the Swiss Federal Programme for gender Equality in Higher Education and highlighted the role of mentoring in achieving the goal of doubling the share of women professors at Swiss universities. To what degrees these mentoring programmes managed to establish themselves in the Swiss academic landscape remains to be seen when government funding stops in 2011. Christine Kurmeyer presented the experience of the German network ForumMentoring. Among the motivations and benefits for mentoring programmes to join national and international networks, she mentioned the potential of strengthening gender specific offers in an environment that increasingly questions such programmes. Sybille Drack questioned the future of mentoring programmes in the light of the Bologna reform. Drack argued that current changes in PhD training and career models favour forms of support like mentoring. It will be of major importance to benefit from a supportive context, to achieve a

11 Cf. Kriszto, 2008; Fügler, 2008.

sustainable integration of gender specific mentoring programmes into academic and research institutions.

The conference provided a precious platform for an exchange between mentoring and equal opportunities experts from various countries. Among the specific outcomes of the conference are the recommendations which the participants have formulated during debates and reaffirmed at the end of the conference. These recommendations stress the clear need for more exchange of experience, the necessity for networking mentoring programmes, the importance of transfer of knowledge to countries with few or no mentoring programmes, but also the importance to secure funding for national and European networking initiatives and the need for more statistics and longitudinal studies about the effectiveness of mentoring in order to be able to promote mentoring even more successfully.

Foster mentoring schemes in Balkan countries

The second international conference of the eument-net project was organised in Sofia. Under the title "Start-Up of New Mentoring Initiatives for the Balkan Region and Strengthening the Visibility of Women Scientists as Role Models for Early Career Women Academics and Researchers.", the Bulgarian conference pursued two objectives: to disseminate results of the eument-net project towards Bulgaria and the Balkan region; and to build up a regional network of experts and institutions oriented towards support of young women in science through mentoring programmes, training courses or other supporting activities.

The target audience were experienced women academics and researchers (potential mentors), and early career women academics and researchers (potential mentees). These were namely reached through the data-base of women academics which the Bulgarian partner has established in the frame of the eument-net project. Invited to join the dissemination event were also gender experts from Bulgaria, Romania, Turkey, Croatia, Serbia and Macedonia and policy- and decision makers from the respective Ministries of Education and Science, as well as from the Bulgarian Academy of Sciences.

The presentations by eument-net and by three mentees from the pilot mentoring programme implemented in the frame of the ADVANCE project provided the ground for an in depth discussion with participants to the conference on standards and best practice in mentoring, and on different understandings of mentoring as informal practice through supervisors, or as practiced in the

frame of a formal programme. The inputs by governments' representatives allowed to highlight the fundamental role of national governments in providing adequate structures and means to implement efficient gender equality measures in academia and research. During the networking session, stakeholders in gender equality and science policy representatives were asked to share ideas and visions about possible forms for support of young women in science (e.g. through delivering training and coaching courses, seminars, workshops and mentoring schemes), future cooperation and the possibility of launching a "Balkan Association of Women in Science".

The Conference made visible the lack of mentoring programmes or similar gender equality measures in Bulgaria as well as in the other countries from the Balkan region. It also manifested the readiness to work towards a Balkan network of women in science in parallel with local efforts for implementing gender equality measures such as mentoring programmes. According to Nikolina Sretonova, one of the main contributions of the Conference is the idea that it is quite important to develop and introduce *ethical codes* as structural part of the mentoring schemes.

Under the umbrella of the 3rd line of action, eument-net partners have participated at other conferences, and developed plans for future activities aiming at bringing together different actors to debate the potential of mentoring to foster gender equality in higher education and research.

Creating an electronic platform as virtual home of the eument-net network

The 4th line of action of the eument-net project was dedicated to the establishment of the eument-net electronic platform and database of mentoring programmes for women academics and researchers. According to the project, the electronic platform is to provide the virtual home for the eument-net network, and designed to support cooperation among registered mentoring programmes and exchange and dissemination of information and good practice examples. The database is to provide a tool for women academics and researchers to get access to information on mentoring programmes responding to a defined set of quality standards.

The structure and elements of the eument-net platform and database are linked to the activities carried out in the frame of the project. Also, content and structure have evolved at different moments of the eument-net project phase. The activities for the manual have had an influence on the structure of

the access protected platform. While the eument-net manual presents the designs of the mentoring programmes involved in the eument-net project, it does contain specific documents issued by these programmes. These can be found on the electronic platform.

The discussions carried out to define the structures of the European network also had an impact on the concept of the electronic platform. Mentoring programmes which are to be integrated in the electronic platform have to fulfil the eument-net quality standards. They are also expected to become members of the eument-net association. Thus, the scope of the database will be limited to programmes which have registered on the eument-net platform. After a trial phase among project partners, the electronic platform has been launched for the registration of mentoring programmes in April 2008. Notwithstanding the interest expressed by representatives of mentoring programmes at European and international conferences, during the first months, the number of registered programmes has been small, but increased during the dissemination of the eument-net manual.

It is also expected that the establishment of the eument-net association and the publication of its work programme will make it more attractive for mentoring programmes to become member of eument-net, to register on the platform and to actively share in the European network.

Conclusions and outlook

The end of the eument-net project phase represents at the same time the beginning of the eument-net network under its new form of a legal association. The association and its members will be able to draw on the broad range of activities and the accumulated experience and expertise developed in the project. In addition to the specific expertise with mentoring to promote women's careers in academia and research, the eument-net project has allowed to generate added expertise on international cooperation among mentoring programmes, on exchange of experience and transfer of knowledge on mentoring, while taking into account the specific contexts. For the partners involved in the project, this experience has allowed them to reflect upon the praxis in their specific mentoring programme, and come up with new ideas and strategies to enhance their programme's offer and to continually improve its quality.

However, the experience and initiatives of projects such as eument-net will only be fruitful if additional efforts are deployed on the European level and on

the level of national and regional governments to implement effective policies and instruments for gender equality in higher education and research.

During the entire project phase, eument-net has not only deployed important efforts to engage the debate with women researchers, stakeholders in gender equality and science policy representatives in European countries. The partners of the eument-net project have also been thriving to establish links with other European and national networks, pursuing similar aims. It will also be through such collaborations that advocacy for the implementation of policies and instruments for gender equality such as mentoring will gain momentum.

References

- Müller, Franziska; Bachmann, Ruth; Spreyermann, Christine; Rothmayr, Christine, 2007:** Mentoring-Projekte: Fallstudien. Wirkungsanalyse der Evaluation des Bundesprogramms Chancengleichheit von Frau und Mann der Universitäten 2000—2007. Bern: Staatssekretariat für Wissenschaft und Forschung.
- Eument-net, 2008:** Establishing Mentoring in Europe. Strategies for the Promotion of Women Academics and Researchers. Fribourg: eument-net.
- Kriszio, Marianne (Ed.), 2008:** 5th European Conference on Gender Equality in Higher Education. Results and Recommendations, Berlin.
- Füger, Helene, et.al., 2008:** Promoting Women Researchers through Mentoring. Eument-net as a Basis for a European Network of Mentoring Programmes for Women in Academia and Research. In: Grenz, Sabine, et.al. (Ed.), Gender Equality Programmes in Higher Education. International Perspectives, VS Verlag für Sozialwissenschaften, Wiesbaden.

Internet

- <http://www.eument-net.eu>
- <http://www.forum-mentoring.de>
- <http://www.mentoring.unibe.ch/>
- <http://www.philosophybulgaria.org/en/index.php>
- <http://www.unifr.ch/f-mentoring>
- <http://www.univie.ac.at/woman/mentoring/>
- www.lakog.uni-stuttgart.de/mut/
- <http://www.crus.ch/information-programme/chancengleichheit.html>

André Béraud

Women in the Rat Race. Women's careers in technological higher education

This article is based on results from the PROMETEA project which ran from November 2005 through December 2007 and was funded by the European Commission under the 6th EU framework program. The aim of PROMETEA was to develop a better understanding of gender issues in various engineering and technology research settings, including academic, governmental and industrial, and to propose effective measures and recommendations to empower women researchers in their careers. Technologically and economically sustainable development depends on the ability to promote a diverse and creative research sector, which is a key issue both in European and national research policies.¹

We thank all the project partners in the participating countries for all their input. In alphabetical order by country: Austria: Birgit Hofstätter, Anita Thaler and Christine Waechter; Chile: Dámaris Fernández Donoso, Claudia Paz and Sonia Yáñez; Finland: Liisa Husu and Paula Koskinen; France: André Béraud, Anne-Sophie Godfroy-Genin, Cloé Pinault, Yvonne Pourrat, Emilie Saunier, Jean Soubrier and Hélène Stevens; Germany: Jennifer Dahmen, Gaby Hoeborn and Felizitas Sagebiel; Greece: Nikitas Nikitakos and Maria Lambrou; Lithuania: Ala Kovieriene, Diana Saparniene and Virginija Sidlauskienė; Russia: Elena Myasina and Vera Uvarova; Serbia: Jovan Dudukovic, Jelena Jovanovic and Sanja Vranes; Slovakia: Oto Hudec and Natasa Urbancikova; Spain: Carme Alemany; Sweden: Helen Peterson and Minna Salminen-Karlson; UK: Wendy Faulkner, Lisa Lee and James Stewart; at Schlumberger: Pierre Bismuth.

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1 The project involved seventeen teams from thirteen countries and a private company, more information is available on the project website <http://www.prometea.info>.

work package, “transversal analysis” was written under the auspices of Dr. Carme Alemany and Dr. Anne-Sophie Godfroy-Genin. Very often their own words are used in this article. A special thanks to them.

In an attempt to understand the situation of women researchers this article focuses on the state of affairs in higher education, pointing out some key junctures, such as the different steps in a career in higher education, the main problems in getting to the top, the reasons why some women make it and how they manage to do so, and what tools are needed to implement a policy of equal opportunity.

The results have informed the funding bodies, scientific and technological societies, industrial R&D departments and other parties with a vested interest, and have also shown the way towards greater gender awareness and fairness in recognizing scientific excellence in engineering and technology. We hope the results can be helpful to colleagues who desire careers as researchers in higher education. As with many things, being aware of problems in advance can also be a great help in climbing the ladder.

PROMETEA combines different levels of quantitative and qualitative data to study the situation of women researchers: 1) Extant quantitative data at national and European levels, 2) Information on legal and social frameworks in each country and a literature review to understand how gender issues are raised in each specific context, 3) New qualitative research work on the experience of women and men working in engineering and technology research from focus groups and interviews.

The research was organized around four key points of inquiry:

- Gender dynamics of male and female careers
- Differential effect of organizational cultures on male and female careers
- Recognition of excellence in engineering and technology research and the impact on female and male careers
- Identification and evaluation of good practice

The program is presented in the first chapter, providing information on its methodology, context and some general indications. An examination of the reasons why starting and pursuing a career is difficult for women in research follows. A look at how women who get to the top manage their professional and personal lives and some recommendations are subsequently presented. There are reasons to believe the situation can be improved and from an analysis of good practice we shall present some possibilities that may contribute to improvement.

Chapter 1: The PROMETEA program: Methodology and context

It is not easy to directly compare the situation in 13 different countries, especially when the goal is to base a research project on statistical data as well as on what actors feel, what they say about their own lives, and their own experiences.² We believe that a combination of quantitative and qualitative data as utilized in social science can be the only efficient method for understanding the complexity of such a situation.

A—*Methodology*

The project combines three levels of data collection:

- Extant statistical data at national and European levels: number of women employed in research, demography of researchers in SET, vertical and horizontal segregation, etc.³
- Gender Gap index: 2007 score, cf. Global Gender Gap report, 2007.
- percent of Women in Research by sectors, 2003, cf. European Commission, 2006.
- percent of Women in E&T research by field of science, 2003, cf. European Commission, 2006.
- R & D intensity (GERD as percent of GDP), 2005, Key Figures 2007, cf. European Commission, 2007.
- ETAN reports.
- Interesting data are mentioned in the Resolution adopted by the European Parliament *Women and Science*, May 21, 2008.
- Information on national settings: legal and social frameworks, career progression in research, existing bibliography on gender and technology and gender and research, with summaries and comments.
- New qualitative research work on the experiences of both women and men working in engineering and technology research: focus groups and interviews including biographical data with short questionnaires and document analysis.

2 On that difficult and important methodological question see: Pourrat, 2005; Godfroy-Genin, Pinault, 2006; Godfroy-Genin, Sagebiel, 2007.

3 Fortunately we now have lots of quantitative information about women in research. Some of the most important sources are :

Sample

PROMETEA focuses essentially on women who have an engineering degree and are working in technological research as researchers (or academics doing research). In some countries the majority of women involved in technological research are scientists who do not have a degree in engineering. Some women engineers may work in technological research for years but never pass their doctorates and then are not always officially viewed as researchers. Both these categories have been included in the sample when relevant because they represent the majority of women engaged in technological research.

The engineering and technology field has been defined according to existing classifications, even if the border between science and engineering/technology often appears somewhat blurred in many cases.⁴

Sample for interviews and focus groups:

- The sample includes case studies from industrial, governmental and academic research.
- Five sectors are represented: transportation, energy, material sciences, telecom/electronics/ICT and bio-engineering.
- Traditional and non-traditional activities were examined. Non-traditional activities are defined as activities concerned with sustainability, socially and environmentally friendly technology design, user participation and integration in the design process; examples of non-traditional activities include sustainable building or research on renewable energies. Traditional activities include big construction companies, or departments of nuclear energy, etc.
- 83 interviews and 44 focus groups representing 271 persons have been conducted. Among the interviewees, 178 researchers were women, 54 of them (30 %) work in what are classified as non-traditional fields for our project.

4 We refer to the internationally accepted classification Melvil Dewey's Master reference File, file 5 defined as Sciences of Nature, and File 6 Applied Sciences (which includes Medicine and Technology). For a discussion of the boundaries defined by Dewey see: Bertrum, Kaunelis, 1998.

- 24 case studies were investigated:

Total per sector	Higher Education: 12	Governmental: 4	Industrial: 8
Traditional: 16	8	1	7
Non traditional: 8	4	3	1

In this article we concentrate on qualitative material, essentially listening to what women researchers working in higher education and governmental institutions have to say about their lives, professional and private, in relation to their careers.

The 18 partners involved in the study come from 13 different countries, 10 of which belong to the EU. It is not enough to pretend that we have a complete view of the European situation but we do believe it gives a fair idea of what it is, especially considering that we have a good geographical representation (from Greece to Finland) and a satisfactory geopolitical representation, from countries of Central and Eastern Europe (Slovakia, Lithuania) to established democracies (Germany, UK, France, etc.).

There are numerous methodological problems which will be mentioned here but not discussed in detail. One way to address the challenges of qualitative cross comparison is by using mixed methodologies. State of the art techniques were used to explore both extant qualitative and quantitative data. Following this an "iterative mixed methodology allowed a fruitful use of this data to interpret and analyze the new data from fieldwork."⁵

How to define technological disciplines? Classifications for the status of researchers and disciplines vary from country to country and tend to be mostly based on traditional disciplines which do not fit emerging research fields. At the same time, they still represent a strong cultural and intellectual basis which cannot be ignored in understanding research, and the statistical databases that provide a research framework.

How to compare statuses that are differently defined? The status of researchers represents another very intricate issue when studying actual laboratories. As for discipline, status cannot be ignored when interpreting the situation. We observed interconnections between the local culture, the "status" culture, the disciplinary culture, the topic culture, etc. Depending on what classification

5 Godfroy-Genin, 2006.

we give more weight to in the interpretation, our results will stress more or less some aspects of women's situation in research.

How to distinguish technology from science? Many surveys show that the more technological a field is, the less women are engaged in it.⁶ As for the classification issue, old classifications of disciplines still make sense and cannot be completely ignored, but we need to take into account the changes and the actual interconnections.

Women or gender? This project focuses primarily on women researchers. This also includes a comparison with male researchers. The guiding idea is that women are excluded from technology built as a male dominated domain.

B—Context

The following table⁷ gives an overview of some of the elements compared. It indicates the global situation of women in research in the different countries involved in PROMETEA.

C—Comparison of the different countries

The figures in the table might give the impression that the situations vary greatly from one country to another. Listening to women and analyzing the reality of their situation shows that this is not the case; with regard to the situation of women in higher education, commonality seems more significant than differences.

6 A few noteworthy surveys: European Commission, 2006.

7 GGI: World Economic Forum, 2007, <http://www.scribd.com/doc/3217142/Global-Gender-Gap-Report-2007>. The Report examines four critical areas of inequality between men and women: 1. Economic participation and opportunity—outcomes on salaries, participation levels and access to highly-skilled employment 2. Educational attainment—outcomes on access to basic and higher level education 3. Political empowerment—outcomes on representation in decision-making structures 4. Health and survival—outcomes on life expectancy and sex ratio The Gender Gap Index assesses countries on how well they divide their resources and opportunities among their male and female populations, regardless of the overall levels of these resources and opportunities. By providing a comprehensible framework for assessing and comparing global gender gaps and by noting those countries that are role models in dividing these resources equitably between women and men, it serves as a catalyst for greater awareness as well as greater exchange between policymakers. Cf. European Commission, 2006; National commission for Scientific and Technological Research, Scientific and Technological Indicators, 2006; Institut de la statistique du Québec, 2006; RTD info- Spécial Issue PC7, 2007, http://ec.europa.eu/research/rtdinfo/special_fp7/fp7/05/article_fp730_fr.html; European Commission, 2007.

Across the various countries studied one sees different legal and social frameworks, different prestige of the research sector, and various levels of gender awareness. Among the different disciplines and sectors one finds different cultures. However, it would be almost impossible to link any discourse to any setting (except maybe business versus academic or governmental settings). In fact, researchers experience very similar concerns in all settings. Despite the huge differences which can be observed across countries, disciplines, etc., in reading the transcription of an interview without any biographical information, it would be difficult to precisely guess the setting where it took place. Our first results confirm what the literature says in ALL countries just as our colleagues C. Waechter, A. Thaler, L. Husu, F. Sagebiel, J. Dahmen pointed out in their papers delivered at the 5th European Conference on Gender Equality in Higher Education,⁸ the problems are basically the same everywhere. Nevertheless, PROMETEA offers some new information and results on the situation of women researchers in engineering and technology.

The impact of societal changes was mentioned in all interviews. To various extents, depending on the country, men appear relatively open to new gender roles while women want to achieve career and family goals and feel no obligation to choose between the two. Work-life balance is considered essential by both men and women researchers. Many of them define career as achieving a satisfying work-life balance and working in something self-fulfilling. This is particularly true for women researchers who mentioned family issues more often. There is no open resistance to gender issues (in Europe) during interviews, but if there is no open opposition, there is still resistance, often expressed through humor and jokes:

“Actually, taken as a fun-factor, it [gender] is a permanent topic in our office. [...] I have no problem with that. My boss once said, ‘We did the project even though there was a woman involved.’ He meant it as a joke; it eases up the atmosphere a lot. I can laugh about it. And it also is some sort of being nice to each other.”⁹

At the same time, the research environment is quickly changing into a more competitive and faster world, and this tendency is accelerating with the reforms initiated by the Bologna process; even if the Bologna process requirements have been over-interpreted in many countries.¹⁰ Researchers reported that an absence of three to six months can be fatal in some fields, as they change so fast. This situation is critical for young women during the time they

8 Fifth European Conference on Gender Equality in Higher Education, [http://www2.huberlin.de/eq-berlin2007/Book %20of %20Abstracts.pdf](http://www2.huberlin.de/eq-berlin2007/Book%20of%20Abstracts.pdf).

9 Interview in Austria

10 National Unions of Students in Europe, 2005, http://www.bologna-bergen2005.no/Docs/02-ESIB/0505_ESIB_blackbook.pdf.

Table 1: Women in research in selected countries

		percent of women in research in:												
		Fr	Austria	Chile	Finland	Germany	Gr	Lithuania	Russia	Serbia	Slovakia	Spain	Sweden	UK
CGI		0.6820	0.7060	0.6482	0.8044	0.7618	0.6640	0.7238	0.6860	PDi	0.6797	0.7444	0.8140	0.7440
Higher Education		34	30	30.6	53	25	37	49	PD	40.4	41	38	44	37
Public		32	35	P Dis	41	27	39	50	43.2	43.6	45	45	36	32
Private		20	10	PDi	18	12	35	37	PDi	PDi	31	27	25	P Di
percent of R D in the GNP		2.13	2.40	0.70	3.43	2.51	0.61	0.76	1.17	1.17	0.51	1.12	3.86	1.73
Women Grade A in engineering and technology		6.50	3.70		6.30	3.80					6.60		7.10	4.90

are pregnant and in some countries cannot enter laboratories for safety reasons (in Austria or Sweden for example). In that case, paradoxically, a long maternity leave is not a chance for women.¹¹

All researchers reported increasing requirements: more publications, more mobility, more contracts, more applications, greater workload, etc., while at the same time there are proportionally less permanent positions available, poor salaries (depending on country and discipline), and less security with an uncertain job perspective, longer time to get tenure, etc. The situation is better where research in the industrial sector is developing, but it becomes critical where the investment in industrial research is slowing down, such as in France, as experienced by young PhDs. Some young researchers in France were very depressed about their career perspectives; one of them summarized the situation: “*My future as a researcher? ANPE.*”¹² This competitive atmosphere is combined with the usual challenging agenda of women’s research careers and, of course, makes things worse.

Chapter 2: Persistent problems

1. According to the numbers, at the A grade level in the countries represented in the PROMETEA project, women researchers represent at the most 6.8 % of professors (in Slovakia). This is to say that women who are, in any case, a minority at that level in higher education,¹³ are even less present in engineering and technology.¹⁴ The fact remains that general opinion considers men to be more suitable for engineering and technological sciences because they are seen as more resistant to stress and thus fit for leadership positions. Other women think that female engineers are less competent than male engineers (case studies in Russia). These opinions suggest a certain lack of professional self-confidence among women, which was also noted in several other case studies (UK and France) and is clearly linked to the in/visibility paradox. Qual-

11 ‘You can’t work in the laboratory when you are pregnant and if you are on parental leave for a year and then have another child, you are absent from the laboratory almost for four years, of course it has an effect on your wage development and on how you develop professionally. It would be strange if it didn’t.’ From focus group Sweden.

12 ANPE is the National Employment Agency where unemployed people are registered and helped. Quotation from an interview with a young researcher in technology in France.

13 The % of women among University Professors (Grade A) in EU 25, all disciplines, is 15 % in 2003, from 13 % in 1999. European Commission, 2006, p. 55

14 Natural sciences: 11,3 %, Medical Sciences: 15.6 %, Agricultural Sciences: 14.9 %, Social Sciences: 16.6 %, Humanities: 23.9 %, cf. European Commission, 2006.

itative¹⁵ and quantitative studies show that even today masculine definitions of engineering determine the organizational culture and restrict women's feeling of belonging to the profession.

2. The second stereotype that remains strong is part of the above, that men are considered to be more stress resistant and thus fit for leadership positions. These stereotypes are so strongly ingrained in engineering workplaces, that some women in a focus group even agree that the personal features of men are more suitable for leadership (case studies in Lithuania). Similarly, one of the Swedish women engineers interviewed, describing the culture at her workplace, emphasized that some of the women in the office where she worked considered it obvious that her colleague, a male engineer (with a doctorate), should become a manager in the future, while they never thought of her for the position (case studies in Sweden).

One of the consequences is that women must perform better as was reported in various case studies. Some said that, had they been male, they wouldn't have had to be constantly proving their worth. Probably, they would have been able to dedicate less time to studying, thus having more time for their private and social lives. Some even note that becoming strong, effective leaders would have taken less of an effort, if they had been men.

The professional requirements are definitely higher for women in technology research fields. As some interviewees pointed out, women engineers often need to be twice as good as men in order to get noticed in a professional setting. One said:

"the vice-director was always a man, as far as I know. Yet I think there are a lot of women who could do this job, but they had no chance to get there" (German case study).

This is a prime example of the glass ceiling which exists in engineering research environments.

3. Gendered division of labor in engineering research organizations exists everywhere. Several case studies show that women engineers feel they do more administrative work than their male colleagues. For instance, when men present a research project women end up planning the work, calculating the budget, justifying the expenditure and doing many other assignments. Instead, when women are the ones presenting a research project, they never ask men to help with administrative tasks. This gendered work division is observable also at the PhD level, where female engineering students complain about having to

15 Cf. Bagilhole, Goode, 2001. .

carry the responsibility for the material organization of the laboratories, and keeping the logbook and records of the research work (putting instruments away, photocopying results, updating reports, binding the results when the work is done, etc.).

Academic interviewees from France, Lithuania, Russia and the United Kingdom stated that a heavy teaching load and additional administrative tasks keep them from concentrating on their research work, thus greatly hindering their engineering careers. They report being burdened with extra organizational work, which their male colleagues are never bothered with, like booking the flights for the research group members to attend a conference.

4. There is clearly a pay gap in higher education even if it is not as pronounced as in industry. In some countries (Lithuania, Chile, Russia) the low salary was mentioned as a hindering factor. Young women and, even more so, young men, do not want to choose a research career because they can make a much better living doing something else. Chilean researchers stated that, had they been male, they probably would not be working in a university, since wages are low and "men need to earn more." They also note that teaching combined with research is considered an activity that is more fitting for women.

Some women mentioned having more than one job in order to pay the bills. In Russia, for example, because of low salaries many teachers have to be employed in several higher educational institutions simultaneously. Obviously, this can be a major obstacle to a career. Men leave research and go into business where they can earn more money. It seems academic research is becoming a feminized area where the vertical gender segregated labor market becomes effective.

5. The discrimination process identified in engineering workplaces is clearly detrimental to motivating female staff and might help explain why many appear to lose interest in their careers and lack ambition as compared to their male colleagues. Nevertheless, the majority of women engineers are satisfied with the work environment even if smaller acts of discrimination were perceived. Cooperation was one of the most often mentioned key words, but also its opposite: competition. The competitiveness of organizations' culture in engineering research varies from country to country and also between the cases, and women engineers perceive different types of competition among institutes of higher education.

Playing down or ignoring any discrimination when describing the work environment could be explained by their refusing to be recognized for being women in a male domain like engineering research and they would rather refer to it as

a gender-neutral environment. Moreover, their minority situation could explain the tendency to analyze problems as personality conflicts instead of gender differences. Their male colleagues say they do not discuss this subject because it is not a problem; it is a topic for joking and humorous chat during coffee breaks or after work talk over a drink. Only in countries where men accept sharing the family burden to some extent (i.e. northern European countries) do men engineers acknowledge the existence of gender problems in combining family and work, taking parental leave or measuring the pay gap between women and men. The age of persons interviewed and the countries considered make a difference: younger men are more willing to declare that they are ready to take care of kids, to be involved in the housework, and to stop working for a while after a child is born.

6. Women engineers face an in/visibility paradox: they are invisible as engineers but highly visible as women. This creates issues for women engineers rarely faced by their male colleagues.¹⁶

Being visible as women means they have sexual visibility and are more likely to experience sexual harassment. This surfaced in an interview with one woman engineer (BUS Serbia) whose superior made advances towards her during a business trip. Other similar cases have also been noted in PROMETEA research.

The predominantly male environment means that women engineers are less free than men to establish professional contacts and to knit relations in order to participate in professional networks. After work, contacts and meetings for dinner or a drink are traditional occasions where connections between network members are strengthened, as confirmed by many male engineers. This statement makes clear that women are not easily introduced into male networks even if they affirm that their exclusion is not related to gender issues but due to family duties. The “*family obligations*” that the majority of men and some women indicate as the reasons explaining the impossibility of women to join male networks—could be the apparent reasons or the “*visible reasons*” which can be noted in relation with their sexual visibility. In fact, being visible as a woman and invisible as an engineer could interact with “*self exclusion*” from male networks and could explain why women engineers play down the phenomenon of their sexual visibility.

7. The personal/professional life balance remains a major problem according to women researchers. This aspect of inequality has been well-studied and analyzed. Work-life balance is especially important in the technology sector which

16 Faulkner, 2007 .

is plagued by a culture of long hours, high expectations of availability and a culture of “presenteeism.”¹⁷

These demands are particularly difficult on women whose commitments outside of work for taking care of children or elderly relatives are generally greater than they are for men. There are also stereotypes that impact the masculine workplace culture of the technology sector like the tendency found throughout the PROMETEA cases to see women as primarily concerned with children and men as the family breadwinners. All case studies indicate that family responsibilities and childcare rest predominantly with the women and there are very few differences found among the various countries. In many countries the consequences of this situation on women’s careers are considered a women’s issue. Nevertheless, it seems that in Russia, Lithuania and Slovakia women still face societies where the thinking remains locked in terms of gender roles within society: childcare and motherhood still remain connected with female qualities and characteristics. In these countries women are seen as mothers first and not as qualified researchers by their male colleagues. One comment:

“In the first place we have our family issues and only then can we start dealing with our personal issues such as a career” (Russian case study).

And the assessment from a female Lithuanian engineer:

“If a woman wants to have special achievements in the sphere of technological sciences, she has to be free from family trouble.”

Problems also emerge with respect to maternity/paternity leave as many companies see breaks in general, not only parental leaves, as having a negative effect on careers. Two barriers to accepting paternity leave can be directly seen. First, it is clear that in cultures where a woman is seen as the main caregiver parental leave does not become an issue for both parents and discourages men from taking responsibility. Second, there are very few incentives for men to take paternity leave. Indeed, most arrangements and plans are even financially disadvantageous towards men. This factor should not be overlooked, especially in a context where men are seen as the family breadwinners.

However, childcare is not the only care responsibility women may face. Care for dependent elderly and other members of the extended family and social network may also put strain on women. One interviewee described her sense of being caught between caring for children and parents, something that was increasingly common for what she called “*the sandwich generation*” (UK case study).

17 Thaler, Wächter, 2005.

Another problematic theme for women with family responsibilities is business travel or being absent for a long period abroad; the expectation of long hours and availability are especially difficult for those women who have major domestic responsibilities.

The culture of availability and of “presenteeism” found in engineering research workplaces penalizes women with family responsibilities in particular. This situation explains why they are more likely to opt for positions that either do offer them, or are perceived to offer greater flexibility even if the job is less interesting, or if they have lesser career opportunities.

8. Gendered excellence is an important problem which has also recently been investigated. The absence of women from at least four key areas shows that excellence is defined by men to their advantage. Technological and engineering research is heavily male-dominated and, as expected, the arenas of excellence in technological research even more so. It becomes clear when observing the gate-keepers of these arenas, who defines and decides excellence.

Comparable data from PROMETEA countries and from different fields of technology was often difficult to obtain, sometimes due to differences in national research systems, or unavailability of, or problems in access to, gendered data. The fuzzy boundaries between technological and engineering research towards other disciplines (for example, natural sciences, physics and medicine), and the increasingly interdisciplinary and international research activities complicated data gathering and analysis even further.

But, whatever the difficulties and the limits of our study, PROMETEA collected valuable, detailed data on the gendering of arenas of excellence, including data from a few non-EU countries such as Russia and Serbia, where, unlike from the 27 EU members, this kind of data is not easily available. As expected, only few women were identified among those who either award excellence in technological and engineering research and as different gate-keepers, as well as among those who are identified as excellent in various arenas in this field. A handful of women were found to have proceeded to a top gate-keeper position in the arenas of excellence explored by PROMETEA. It is noteworthy that many of these top positions were found in the highest management of national research funding organizations.¹⁸

0 A few examples of such top positions: In Austria, the Vice President of the Austrian Science Fund (central Austrian body to promote basic research); in Chile, the Chair of CONICYT (Chilean Research Council) and the Chair of the Science and Technology Fund Board; in Finland, the Chair of the selection committee of the world’s largest Technology Prize, the Millennium Award and the previous Chair of the National Research Council for Natural Sciences and Technology; in France, the director of Agence Nationale de la

The data obtained on evaluators of research applications and success rates was fragmented. In no country where gender data on evaluators was obtained did the proportion of women among evaluators exceed 30 %.

In the publishing arena, top international engineering journals were found to be produced mainly by male editorial staff. Only 9 % of the editorial staff of the top nine international engineering journals was female, and none of the top journals had a female editor-in-chief. In the international top journals in computer science, however, the situation was better, where two out of 11 editors-in-chief were women, and 15 % of the editorial staff. The situation in national journals, if published, is much the same. In Chile, some national journals had a female editor, as did a few Russian journals.

Analysis of prizes and awards shows that no female engineering and technology researcher has ever been awarded a major international technology prize thus far. The very few women who have been awarded prizes in this category were mostly from biological sciences. Gate-keepers of the large international prizes are nearly exclusively male. However, the Millennium Prize Foundation, awarding the world's largest technology prize recently appointed the first woman to chair its selection committee, and the three US-based "Nobel prizes of engineering" all have two or three women on their selection committees.

Information on the proportion of women who apply for, or are awarded patents was not available from most of the countries. In Russia, Serbia and Spain, the national PROMETEA teams in co-operation with the national patent authorities monitored patent statistics from a gender perspective, and in Finland, Sweden and Germany, there were results of some earlier studies on this issue available. In Finland, 6 % of patents were awarded to women from 2001–2005, in Germany 9 % in 2003, in Russia 4 % in 2005, in Serbia 11 % on average from 1996–2006. In Spain the proportion of women among patent awardees was on average 11 % in 2001–2005.

Recherche; in Russia, the Assistant Manager of Russian Fund for Theoretical Research; in Slovakia, the Vice President of the Slovak Research and Development Agency; in Sweden, the Deputy Director General of the Swedish Research Council and the Deputy Director General of the Swedish Governmental Agency for Innovation Systems; and in the UK, the Chairperson of the Engineering and Physical Sciences Research Council.

Chapter 3: Why do some women make it to the top?

One might think that women who rise to the top did not experience any type of discrimination. This is not the case; some describe precisely the sorts of difficulties they went through. One German woman declares:

“The biggest hindering factor has been men. I have to say this quite strongly, my male colleague hindered me. They have a quite different social background, they have a different way of communication and they have the old boys’ network. I never got any contracts of some institutions because I did not belong to the network.”¹⁹

Gender dynamics in technological research was explored via three questions:

- Do they think their careers would have been different if they had been male?
- Did they ever discuss gender issues at work?
- How do top women explain their success?

3.1 *Do they think their careers would have been different if they had been male?*

Half of the top women said—many without much hesitation—that their careers would have been different if they had been men. Among them were all the Nordic (Swedish and Finnish), Chilean and Spanish top women but only two women from former socialist countries (Russia and Slovakia). The majority said that being a woman had slowed down their career and created more obstacles. The Spanish top woman stated:

“I’m sure my career would be very different if I were a man. I would have been full Professor for many years. I would have been promoted to rank A a long time ago. Nevertheless, it is not special in Engineering, in Law it is the same, in Mathematics it is the same, in Physics it is same ... equality in the university environment is exceptional and all women who work in the university know this situation very well. Nevertheless there are very few women who want to fight against it. In Engineering we are so few women! ... and many are depressed.”

The Russian head of a laboratory said:

“My career could be formed differently if I were a man, especially my progress in career growth. I haven’t realized myself completely maybe because of my gender.”

Their high position does not exclude gender discrimination. More than half of the top women discussed their career obstacles in gender terms, describing, for example, gender discrimination experiences in recruitment and advancement, exclusion from male networks or credibility problems.

19 This chapter comes largely from the internal report by Liisa Husu.

3.2 *Did they ever discuss gender issues at work?*

Most of them answer negatively; they do not discuss those issues, i.e. “not at all,” they explain that they could be viewed as a threat by their male colleagues, they speak of “envious male colleagues.” Among some other top women, however, there is quite a bit of discussion of gender topics. For a few, promoting gender equality is also part of their work tasks. Some top women said they were not interested in talking about gender issues at work, whereas some others said they “could not do without it.” We must realize that resistance to gender equality goals and good practice exists in most institutions. Resistance has been found coming from both men and women.

Gender awareness in engineering research is overall not very well developed. Many men believe that discrimination does not exist any more; most of them simply do not want to discuss it, but joke about it. This is traditional and not surprising. What is surprising and in some ways amazing is the fact that some women resist gender issues being raised or resist taking part in an initiative designed for women for a number of reasons. One is the perception that supporting women is inevitably linked with positive discrimination policies. The presumption is that women engineers are getting into the profession and being promoted because they are women and not because they are good enough. Another reason for women’s resistance is that many women do not want to be part of women-only groups for fear that this will be seen as setting them apart from their male colleagues, and so potentially create barriers between them.

Many women and men resist gender diversity and equality measures because they are content with the status quo and/or do not see a “gender issue.” They comment on and perceive the situation not in terms of gender, but individually; this way of thinking protects the norms in a male dominated environment.

An amazing fact is that the opposition to equality measures is commonly voiced even in organizations not practicing any kind of positive action. It is also common to find the belief, especially amongst men, that positive discrimination exists where it does not. It seems likely that much of the resistance from men is, at best, an excuse for their not being more supportive of women’s career progression and, at worst, a veil for hostility to women entering and progressing in engineering research at all. One must keep this psychological bias when a policy is designed and enforced.

3.3 *How do top women explain their success?*

The most striking commonality in the demographic background of the top women sample was their family status. An overwhelming majority of these top women lived with a partner and a majority of them had children, typically more than one child, either living with them or grown up. Only three top women out of 28 did not have children and all of those lived with a partner. There were thus no top women in the sample who did not either have a partner or children.²⁰

What appeared to be crucial for reconciling demanding research work and family was not whether the women had children but rather how family obligations and childcare was arranged and managed in practice, sometimes also how the birth of children was planned. It was important what kind of and how much support could be mobilized for childcare, from partners, parents, larger family, networks of friends, societal provisions and institutional arrangements for child care. Support from the private sphere, especially from the partner or husband, was frequently mentioned as very important. Fathers, mothers, uncles, sisters, brothers, broader family and friends also provided support for many top women in their career. This support took many forms, from encouragement to advance, adjustment into international career moves to day-to-day sharing of household tasks and childcare. Many top women reported various kinds of strong support from their research environments, beginning early in their career. However, there were also others who described the support they had received from colleagues or superiors as rather scarce. Only a few top women stated having not met any obstacles.

Hard work was among the most frequently mentioned factors in explaining their success. It was striking that such inborn characteristics, often linked to excellence, like exceptional talent, brilliance or intelligence as prerequisites were hardly mentioned by the top women, whereas many of them emphasized various acquired professional qualities such as thorough professional competence and training, knowing and mastering one's field. Good managerial and organizational skills were also stressed by many. Ambition, motivation, curiosity, initiative, thirst for knowledge, were considered important. Self-confidence and self-esteem, energy and strength, stamina, perseverance and stubbornness, not giving up were also mentioned frequently. Social skills towards students and colleagues, networks, right connections, role models, and men-

20 Such a finding is a surprise because lots of studies have established that women at the top very often do not have children and/or do not have a partner. Regarding that fact we do not have any explanation for that point. Cf. Cornet, Laufer, Belghiti-Mahut, 2007.

tors were considered important. A minority mentioned that they had been supported by mentors. The role of luck and serendipity, being in the right place at the right time or not being in the wrong place at the wrong time was also noted. While many rank-and-file interviewees thought that to get to the top one need necessarily make a lot of sacrifices, except for the Spanish women, none of the other top women mentioned this.

Internationally, the situation of women in technological research was considered quite similar everywhere: men dominate the field and women are in a minority position. Still some countries were mentioned where women were supposed, in the view of outsiders, to do better. For example, many non-Nordic top women thought that Nordic countries were more gender equal, whereas many top Nordic women themselves had much more critical views on this. Similarly, a top Chilean woman with a lot of international experience saw the situation in her own country worse than elsewhere, even though the situation was thought to have improved there.

The fields of technological research where women stand the best chances for making a career were considered to be fields which are not so male-dominated, where there are already more women studying and doing research, such as chemistry and bio-engineering. Medical engineering, industrial engineering and management, fields of engineering with an “art fit,” were also mentioned, as well as new, emerging fields more generally. Fields considered as hardest for women to make a research career were those fields with traditionally heavy male domination, and traditional engineering fields, such as mechanical engineering and electrical engineering, as well as traditional industrial research. Some top women completely rejected the idea of comparing engineering fields in this way and did not see one field as harder than the other for women to advance.

The conclusion we can propose at this point considering the understanding we now have is that there is no one way for women researchers to make it to the top but several paths which can be followed, whereby the strongest common factor is the support a woman can obtain from people around her, both in her private life and in her professional life; people make the difference.

Chapter 4: What can be done?

From the study and in particular from the analysis of good practice, we can present some recommendations. None of which is sufficient and no one can pretend that one measure or the other should come first; each situation has to

be analyzed, and accordingly, measures have to be defined, put into practice under the responsibility of a designated person, presented and explained to the members of the institution and evaluated permanently.²¹

4.1 Career development and support

Because there are multiple factors inhibiting women's career progression, a package of measures is needed to redress the situation. The Spanish Optima program provides a good model here. A recurring theme is the need to *empower* women engineers in their careers, through access to key resources—guidance, advice, skills, networks, role models, etc.—and through confidence building. Many of the measures investigated in this connection can be effectively applied to men as well as women; indeed, this is likely to reduce resistance to gender equality and diversity measures amongst staff (male and female alike).

Junior researchers need encouragement, guidance and support—especially in getting their research careers established, and in career planning and management. We recommend:

- The plans from the Finnish funding body and German research institute offering *prizes* for outstanding contributions by junior researchers should be emulated elsewhere.
- Special plans should be introduced to give junior researchers a “leg up” in the grant application process.
- Structures should be established to ensure that all junior researchers have early career guidance on career options available and on strategies for managing their chosen careers.
- Various measures should be in place to help junior researchers gain visibility in relevant networks (e.g. mentors, conference funding, etc.).

Access to research funding is a crucial resource in public sector engineering research and needs to be made more equitable, for junior researchers and for women more generally. In particular, we recommend:

- Special plans should be introduced to support junior researchers in the grant application process, so as to redress a system that favors established researchers.
- Ensure that all academic staff is provided time for research, by improving workload management, and to ensure that female research staff are not disproportionately burdened with administrative and/or teaching duties.

21 The persons responsible for this chapter in the Prometea program were: Dr Wendy Faulkner, U. of Edinburgh, Dr Carme Alemany, CEDIS, Barcelona.

- Specific measures are needed to increase the proportion of women receiving research funding. The package of measures implemented by the Finnish Research Council's Equality Plan appears exemplary in this regard and ought to be widely adopted.

There is a need for ongoing career support for men as well as women, recognizing the career management needs of staff at different stages. We recommend:

- Recognition, through a variety of measures, of the importance of confidence building, as well as skills building, for empowering women engineers in their careers.
- Recognition of the often critical role played by line managers and mentors in helping (or hindering) women's careers in engineering research. Line managers need training on how to be effective in staff development: e.g. to conduct regular staff appraisals in an appropriately supportive manner.
- Measures are needed (at organizational level and, where necessary, also at national and EU levels) to tackle the all too common career dead ends facing women in public sector engineering research: being overburdened with teaching duties, and being stuck with fixed-term temporary research contracts.
- Recognition of the need to value the different contributions made by different members of staff, to understand the various ways in which they can have a successful career, and to appropriately reward the range of roles and careers that contribute to engineering research.

Good mentors, where they exist, are key contributors to the career progression of women in engineering research. Among other things, mentors can serve as valuable role models in building successful careers and help to overcome the difficulties women often face in accessing informal networks dominated by men. We recommend:

- Mentors need to be systematically available to all, with the option for staff to choose their mentors.
- There is probably a case for giving women staff access to both male and female mentors. The latter can be facilitated through the creation of internal women's networks.
- Mentors should be given training in the kind of guidance needed and in the various roles they can play.

We recommend that engineering research organizations should:

- Ensure clear and fair procedures for promotion.
- Provide adequate information and guidance to ensure that no employees miss out.

Dual career arrangements are a relatively innovative attempt to address a real issue. In practice, however, they tend to reproduce inequality within couples.

We recommend the rolling out of such schemes, but with the following caveats:

- The framing of dual career schemes needs to be more explicitly egalitarian: it should presume that one partner's career is necessarily, or always, "leading" the other's.
- Where, one partner's career is subjugated to the other for a period, in the interest of the organization, there should be compensation for any lost opportunities (e.g. for promotion and posting) resulting from it.

Sustained efforts are needed to increase the supply of women entering engineering research, as well as improving their retention and progression. We recommend: Engineering research organizations should extend school and university promotion and recruitment programs.

4.2 Work-life balance

The difficulty of balancing work life and life outside of work, personal life, especially family responsibilities, is a major issue for most women, not only in higher education but everywhere. There is, in addition, a strong "business case" for improving work-life balance and a range of flexible work practices, both formal and informal, have been introduced in an attempt to achieve this: flexible scheduling, remote working (telecommuting), compressed hours, "contracted" hours, and part-time work. Although flexibility is widely appreciated, there are some very real limitations to the actual impact of such measures on work-life balance:

- In and of itself, flexible working does not tackle the long hours culture so endemic to engineering research in practice; it can even tend to extend the "cult of availability."
- The implementation of flexible work practices is often heavily dependent on individual managers' commitment to improving work-life balance; there is a clear need for senior staff to lead by example if significant change is to be achieved for all.
- Flexibility, especially part-time work, is often seen as only relevant for women, because childcare in particular is seen as a women's issue rather than everyone's issue.
- Reducing the unduly long hours that are worked in the sector requires a major shift in organizational practice, and organizational change is always difficult.

With these issues in mind, we recommend that organizations:

- Offer a variety of flexible practices to fit the needs of different staff, teams and organizations.

- Where appropriate, reduce some of the optional status of work-life balance measures; the message has to be that a poor work-life balance is bad for the organization and that overly long working hours are unacceptable!
- Improve implementation of work-life balance policies—by promoting and monitoring the uptake of flexible work practices, and by raising awareness of the business benefits of improved work-life balance.
- Make more efforts to win the commitment of line managers and senior staff to improving work-life balance—including their commitment to reducing the number of hours worked—so that they are willing to change organizational routines as needed and willing to lead by example, with they, themselves, making use of flexible work options.
- Challenge the cult of availability with respect to remote working options: give clear guidelines that working from home is not an opportunity for calling up staff at home; also change the image of working from home—it is real work but managers and colleagues must respect the boundaries between work and home.
- Normalize practices that ensure respect for normal working hours—leave on time, no meetings after 4 pm, etc—thus enshrining support for parents and at the same time challenging the expectation of long working hours.
- Promote part-time work as a positive option for all, not just women/mothers, by encouraging men and women without children to apply and by addressing ways in which even senior roles can be accomplished part-time.

4.3 *Family-friendly policies*

Although there is statutory provision and protection in all countries for women during pregnancy through the time when their children are still very young, this is clearly not sufficient: PROMETEA research for Work Package Three confirms that having children continues to have a detrimental impact on women's careers in engineering research. We recommend the following changes and improvements in existing good practice.

Attitudes towards pregnant women are very negative in some engineering research organizations, which can exacerbate the potentially negative consequences of having children on women's careers. Since society as a whole needs children, and since most men engineers are also parents, such negative attitudes must be challenged at all levels. Parental leave falls disproportionately on women: only in the Nordic countries is paternity leave commonly fully utilized. We recommend efforts to normalize fathers' involvement in the early care and development of their children (e.g. encourage parental leave planning with both parents before and after the birth of a child). Financial incen-

tives for men to stay at home with young children should be the same as for women, making it financially attractive for either parent to stay at home. There should be no career penalties for taking time out to look after children, that is, periods of parental leave should be taken into account when reviewing progression and achievements, and promotion criteria should, where appropriate, be adjusted accordingly.

There is often an unnecessary loss of talented women researchers in engineering after they have children. A package of measures is needed to encourage and support women to return to work following maternity leave, including:

- Measures to make pregnant women feel valued and wanted (staying in touch, but also financial incentives, etc.).
- Mechanisms to help women on maternity leave stay in touch with developments in the field and in the department/organization.
- Measures to support the needs of parents with young children (childcare, flexible working, etc).
- Within the organization, promote role models of women who have successfully combined family and career, and encourage supportive networking around this.

Working parents need adequate and affordable childcare arrangements. In the absence of appropriate state provision, we recommend:

- Subsidized childcare places for all staff.
- Real options for emergency cover as needed.
- Encourage recognition of the demands of parents who have children: e.g. make it acceptable for staff to bring children to work when no other back up is available.
- Take account of childcare issues when requesting staff to travel or be available out-of-hours.

Travel and job mobility—both requirements in engineering research—pose difficulties to pregnant women and parents of young children. Whilst welcome on one level, policies which exempt women from travel in such circumstances carry penalties in terms of lost visibility in wider research networks. We recommend the development and diffusion of policies to:

- Develop creative ways to enhance the visibility of pregnant women and parents of young children who are unable to travel.
- Provide the necessary financial support to enable parents of young children to travel or take up jobs abroad or involving a house move, by taking their families with them.

4.4 *Promoting effective good practice*

Arguably the single most important finding of WP6, in terms of its policy significance, is that having a set of good policies—which on paper at least address the key issues of career support, work-life balance and being family-friendly—does not in itself guarantee that good practice is happening on the ground. Good policies only have an impact if they are effectively promoted and implemented. This demands real commitment to equality and diversity, backed up by proper resources and embracing the need for culture change on many fronts; and it demands a commitment to learning how to do and improve on good practice in this area, including a recognition of the need to put in place a range of follow through measures to ensure that good policies do indeed become good practices.

The two checklists below represent a practical distillation of the implications of these conclusions, which we hope will prove a useful tool for employers wishing to make progress in their work on gender equality and diversity in engineering and technology research.

Measures to promote gender equality and diversity in general

- Concerted and creative promotion of the “business case” for gender equality and diversity intervention including widespread dissemination of data on gender inequality in the organization.
- Explicitly framing these efforts in the context of wider equality and diversity aims.
- High level and visible support from the top of the organization for improving gender (and other) equality and diversity in the organization. This should include a dedicated person, with clear authority, taking overall responsibility for equality and diversity.
- A commitment to addressing ways to integrate equality and diversity measures into the organization’s core activities.
- Recognition that this includes better management training on a number of fronts, and that this is good for everyone!
- Ongoing programs for gender and diversity awareness, training, etc, which all staff are required to attend periodically.
- Mechanisms to reward (especially) good practice and make it more visible so others can learn from it.
- Systematic monitoring of the organization’s overall progress towards gender equality goals, as well as regular efforts to solicit qualitative feedback from staff to identify issues inhibiting or supporting women’s careers in engineering research. (All such evidence must be analyzed, disseminated and acted upon!)

Measures to promote effective implementation of specific policies

- Targeted publicity to ensure awareness and encourage greater uptake of specific measures.
- Identification of any existing practices that need to be changed to facilitate or support uptake of specific policies (e.g. Friday departmental meetings).
- Training and policy awareness sessions about specific measures, to help individuals and their managers understand the thinking behind the policy as well as their rights and responsibilities (e.g. with respect to parental leave or remote working).
- Training of line managers in specific techniques or procedures as needed (e.g. in constructive staff appraisal methods) to ensure that the resources and awareness are in place for effective implementation on the ground.
- Encouragement and support for leading from the top.
- Systematic efforts to evaluate the impact of specific measures, feeding results back to staff as well as to those charged with developing good practice.

Conclusion

PROMETEA research highlights the urgent need for stronger evidence for underpinning the promotion and further development of good practice in support of women in engineering and technology research. The scarcity of relevant evidence cannot be understated. The lack of systematic and sustained monitoring and evaluation of good practice in this area is surprising. Obviously it is critical that organizations generate systematic evidence on the impact and effectiveness of the various measures used. This must include the collection of qualitative feedback from staff as to what is or is not working on the ground. There is a need for scholarly (published) research to analyze, in a detailed and rigorous manner, what it is that makes some policies and practices effective and others not, and to widely disseminate the lessons learnt across a range of organizations. This is a key recommendation from PROMETEA.

The impact of the social and historical context on careers should be investigated further. Obviously, the experience of a researcher in his or her fifties or sixties has been very different from the experience of one in their twenties or thirties. The first steps in careers were much easier (even if women were a small minority) during a sort of “golden age of research” in the 1960s and 70s, when lots of new universities and centers were created. The interviewees from this generation describe an easy and natural career progression, and strongly

believe that good results automatically bring recognition and interesting positions. The only decision they had to make was to decide to what extent they wanted to be involved in research when it required more commitment than what they had expected. The experience of the young researchers is totally different in the current times of uncertainty. In some countries, they have the impression of living in a sort of “dark ages,” facing a precarious job market and poor career perspectives; this is especially the case in France and Russia. As we have noticed in our study concerning the situation of top women, some scientists have benefited from the changes, but in many cases, this is also a source of trouble. In that difficult context, there is a risk of backlash for women researchers, or they could become the winners among the losers, as happened in some eastern European countries. The ENWISE report summed up the situation perfectly “Even though this change affected male and female scientists equally, the consequences of the transition have left women scientists in a more vulnerable situation. The prospects of young female scientists are very bleak due to the unavailability of funding, the rigid patterns of promotion and recognition, and the lack of appropriate welfare policies, all of which are potential causes of brain drain.”²²

We have to take into account the fact that not all careers are equal nor should they be. From our interviews on what “career” means for researchers, it is clear that there are different ways to make a “good” career. We identified several types of “good” careers. The issues raised by the diversity of successful profiles is not to force every researcher to adopt the “classical” one as represented here by what we called “top women,” but to be sure that nobody is forced or blocked in one of those careers against his/her will. We need to investigate the proportion of men and women in each profile, and try to understand the mechanisms which push somebody into one career or the other.

It must be constantly kept in mind that there is resistance to an equality policy. One way to deal with resistance is to make the equality policy available “to all.” This may be particularly appropriate in the case of many of the policies designed to support career planning and management. The Swedish Good Practice case explains how, by opening the career planning program to men and women, where it was previously women-only, they have made it gender neutral. The “for all” approach is highly appropriate not only for dealing with resistance on the ground where a policy is unfair towards either sex, but also because it avoids insulating issues too much. In this way, providing support for all is both good for everyone and more likely to lead to culture change

22 Cf. European Commission, 2004; <http://ec.europa.eu/research/sciencesociety/women/enwise/pdf/enwise-report3.pdf>.

throughout the organization. Hearts and minds have to be won. People have to be convinced that there is a need for gender equality and diversity measures. Stereotypes have to be “deconstructed,” data has to be gathered in order to prove there is a problem and to show the nature of the problem.

Ultimately the point is to know if there is a will to change things and to give women researchers in technology a fair chance to make a career and to contribute to collective progress.

References

- Bagilhole, Barbara; Goode, Jackie, 2001:** The Contradiction of the Myth of Individual Merit, and the Reality of a Patriarchal Support System in Academic Careers: A Feminist Investigation. In: *European Journal of Women's Studies*, Vol. 8, No. 2, pp. 161–80.
- Carpenter, Mary Wilson, 1996:** Female grotesques in academia: ageism, anti-feminism, and feminists on the faculty. In: Clark, et al. (Eds.), *Antifeminism in the Academy*. New York, London: Routledge.
- Carter, R.; Kirkup, G., 1990:** *Women in Engineering: A Good Place to Be?* London: Macmillan.
- Cornet, Annie; Laufer, Jacqueline; Belghiti-Mahut, Sophia, 2007:** GRH et genre. Les défis de l'égalité hommes-femmes. Paris: Vuibert.
- Dercourt, 2004:** Les flux d'étudiants susceptibles d'accéder aux carrières de recherche, EDP, Paris: Académie des sciences.
- European Commission, 2000:** *Science Policies in the European Union. Promoting Excellence through Mainstreaming Gender Equality. A Report of the ETAN network of Women in Science.*
- European Commission, 2005:** *Key Figures. Towards a European Research Area.*
- European Commission, 2006:** *She Figures. Women and Science Statistics and Indicators*
- Eurostat, 2003:** *Women in industrial research. Analysis of statistical data and good practices of companies.*
- Faulkner, W., 2007:** Nuts and bolts and people, Gender-troubled engineering identities. In: *Social Studies of Science*, 37(3), pp. 331–56.
- Glover, Judith, 2002:** Women's employment in the sciences in Europa. In: *Journal of Women and Minorities in Science and Engineering* 8 (3 & 4).
- Hakim, C., 2004:** *Key issues in Women's Work: Female Diversity and the Polarisation of Women's Employment.* London: Glasshouse Press.
- Hearn, Jeff, 1999:** Men, masculinities, managements and gender equality in UK universities. In: Fogelberg, Paul; Hearn, Jeff; Husu, Liisa; Mankkinen,

- Teija (Eds.), *Hard Work in the Academy, Research and interventions on gender inequalities in higher education*. Helsinki: Helsinki University Press.
- Husu, Liisa, 2001:** Sexism, support and survival in academia. Academic women and hidden discrimination in Finland. In: *Social psychological studies* 6.
- Mc Ilwee, JS; Robinson, JG, 1992:** *Women in Engineering: Gender, Power, and Workplace Culture*. New York: SUNY Press.
- Office for Official Publications of the European Communities, 2005:** *Science, Technology and Innovation*.
- Pourrat, Yvonne (Ed.):** *Methodological Tools for Research in Gender and Technology*. Paris: ECEPIÉ éditions.
- Sagebiel, Felizitas; Dahmen, Jennifer, 2005:** Männlichkeiten in der europäischen Ingenieurkultur. Barrieren oder Aufforderung zur Anpassung für Frauen. In: *Soziale Technik*, Vol. 1, No. 15.
- Sagebiel, Felizitas; Dahmen, Jennifer, 2006:** Masculinities in organisational cultures in engineering education in Europe. Results of European project WomEng. In: *European Journal of Engineering Education*, Vol. 31, No. 1.
- Schienbinger, Londa, 1999:** *Has Feminism Changed Science?* Cambridge and London: Harvard University Press.
- Sonnert, Gerhard; Gerald, Holton, 1995:** *Who Succeeds in Science? The Gender Dimension*. NJ, New Brunswick: Rutgers University Press.
- Thaler, Anita; Wächter, Christine, 2004:** Frau Inschenör hat's noch immer schwör ... Zur Berufssituation von Technikerinnen. In: *Soziale Technik* 4/2004.
- Thaler, Anita, 2006:** *Berufsziel Technikerin?* München, Wien: Profil Verlag.
- Valian, Virginia, 1999:** *Why so slow? The Advancement of Women*. Cambridge: The MIT Press.
- Wächter, Christine, 2004:** Gender-inclusive interdisciplinary engineering education—Reaching for the stars? In: Lenz, Werner; Sprung, Annette (Eds.), *Kritische Bildung. Zugänge*.
- Wächter, Christine, 2007:** *Blocks and Hurdles, Chutes and Slides: Women Engineers in the Automotive Industry*. Paper submitted to The 5th European Conference on Gender Equality in Higher Education, Berlin (unpublished).
- Wajcman, Judy, 1996:** *Feminism confronts technology*. Cambridge: Polity Press.

Internet

- European Commission, 2004:** Waste of talents: turning private struggles into a public issue. Women and Science in the Enwise countries, http://ec.europa.eu/research/science-society/women/enwise/pdf/enwise-report_3.pdf.
- Federal Ministry for Education, Science and Culture, 2006:** Bericht über die Nachwuchsförderung und die Entwicklung der Personalstruktur der Universitäten gem. § 121 (19) UG 2002, <http://www.bmbwk.gv.at/medienpool/13952/nachw2sp.pdf>.
- Giret, Jean-François, 2005:** De la thèse à l'emploi, les débuts professionnels des jeunes titulaires d'un doctorat, *Céreq* n° 220, <http://www.cereq.fr/pdf/b220.pdf>.
- L'avenir de la recherche en France: perspectives démographiques, juillet-août 2004:** Population et Sociétés n° 403, INED, France, http://www.ined.fr/fichier/t_publication/510/publi_pdf1_numero403.pdf.
- National Unions of Students in Europe, 2005:** The Black Book of the Bologna Process, http://www.bologna-bergen2005.no/Docs/02-ESIB/0505_ESIB_blackbook.pdf.
- World Economic Forum, 2006:** Global Gender Gap Report, <http://www.weforum.org/en/initiatives/gcp/Gender%20Gap/index.htm>.

Pauleen Colligan and Maren Jochimsen

The voice of women scientists in EU research policy— The establishment of the European Platform of Women Scientists as a new strategic instrument in EU research policy

“There is a need for a framework under which to exchange experience and good practise while facilitating cooperation and consultation across sciences. This would create the mechanism for involving women scientists more actively in the policy process, by disseminating information and supporting lobbying and advocacy work. It would empower women scientists in their careers, with training actions and networking activities, a database of role models and mentors, campaigns and awareness raising initiatives.”

European Commission Action Plan on Science and Society, December 2001

It was based on the above-quoted passage that the European Platform of Women Scientists EPWS (henceforth EPWS or the Platform) came into being.

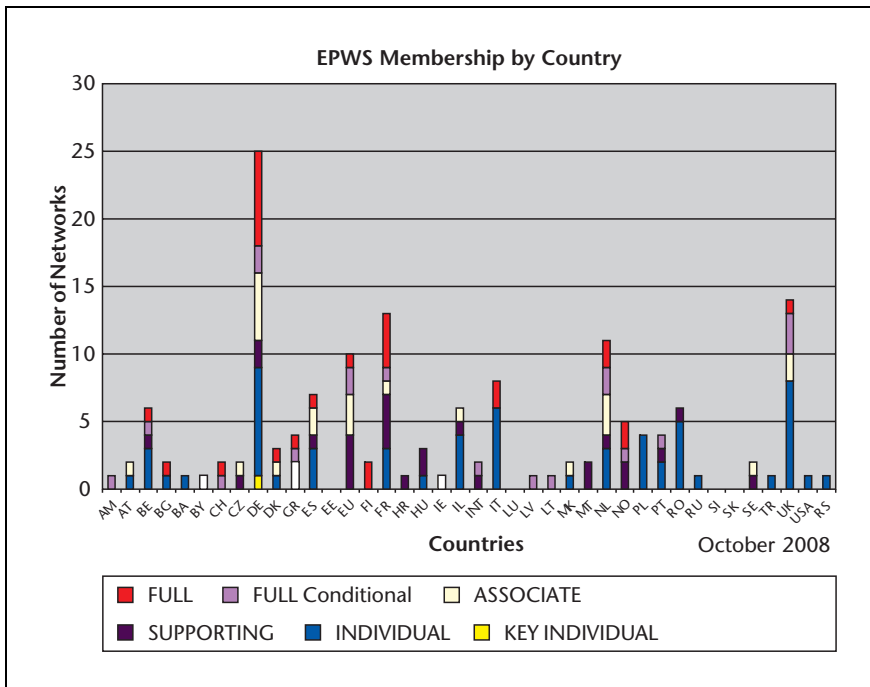
This article will present the goals and activities of the European Platform of Women Scientists, including its most notable achievements since its creation in November 2005. The article will describe the genesis and the ideas behind the establishment of EPWS and show its development from a Specific Support Action under the Sixth EU Framework Programme for Research and Technological Development (FP6) coordinated by the Center of Excellence Women and Science CEWS in Bonn, Germany, who drafted the winning proposal, to an independent association aimed at sustainability and will point out some of the challenges ahead.

EPWS— a New Strategic Instrument in EU Research Policy

The European Platform of Women Scientists EPWS is an umbrella organisation bringing together networks of women scientists¹ and organisations committed to gender equality in research in all disciplines in Europe 27 and the countries associated to the European Union’s Framework Programmes for Research and Technological Development.

1 The term ‘women scientists’ includes women researchers in any discipline and women working in science. The term science is used in its widest sense, ranging from natural to social sciences, including, but not restricted to, science, engineering and technology.

Figure 1: EPWS Membership by Country



EPWS currently has more than 95 member organisations, together representing over 12,000 researchers. In a little less than three years of existence EPWS has evolved into an important point of reference for women scientists in Europe as well as for policy makers aiming at promoting gender equality in science and research.

Legally established as an international non-profit organisation under Belgian law (AISBL) in November 2005, EPWS constitutes a new strategic instrument in European research policy, complementing various initiatives taken on the European level to ensure a better participation of women scientists in research and in the research policy process as well as the inclusion of the gender dimension in research. This is especially with regard to the EU Framework Programmes for Research and Technological Development.

The establishment of EPWS has been carefully studied and strongly supported by the European Commission in accordance with the Commission’s target to have at least a 40 % participation of women at all levels of management and

implementation of research programmes. The establishment of EPWS is furthermore in keeping with the Commission's strategy to attain a minimum of 40 % regarding the participation of women in panels and consultative committees in the research process.²

EPWS was created as a network-based organisation, as networks of women scientists were identified as of key importance to the research policy process, not only for being instrumental in the empowerment of women scientists, but also in the efforts to increase the number of women scientists in top positions and to make the voice of women scientists heard in the policy debate on national, regional and international level.³ In 2001, the Commission's Science and Society Action Plan⁴ contained a series of actions to promote gender equality in science. Action 24 specifically aimed at setting up a European Platform of Women Scientists, which would be committed to promoting gender equality in scientific research, in order to enhance the participation of women in research and their active involvement in the policy process at European level.

Until the end of October 2008, the Platform receives its seed funding as a Specific Support Action under the Sixth EU Framework Programme for Research and Technological Development (FP6).

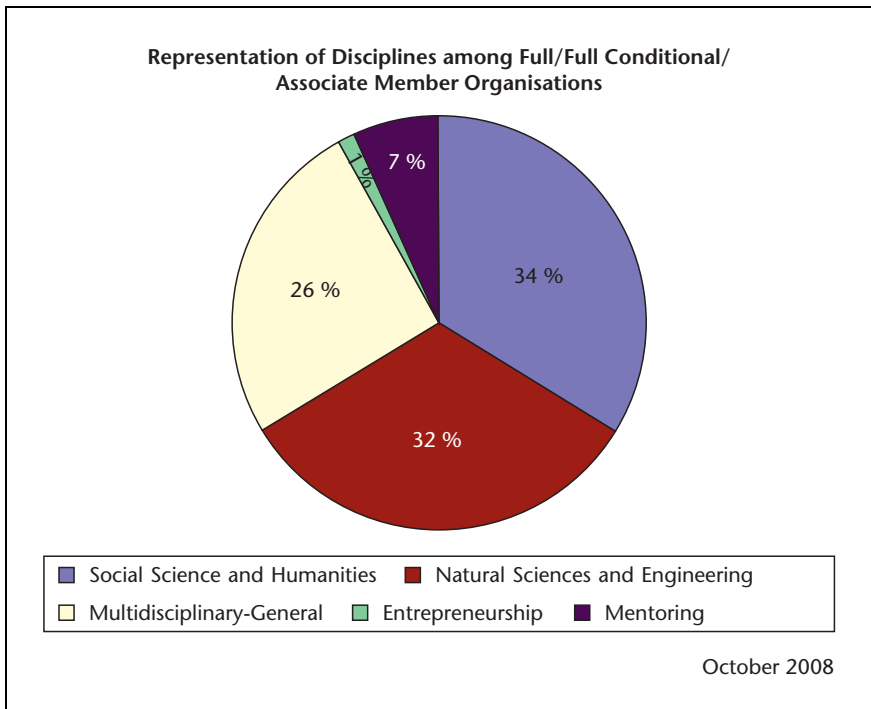
The Context—why the need to create EPWS?

The participation of women in science and research and in the research policy debate is not only a fundamental human right of women scientists, and therefore a matter of justice, in view of the acknowledged discussion on the value of diversity, it also has to be seen as essential to achieving excellence and innovation in research and ensuring a sustainable scientific quality. Furthermore, failing to make full use of the available qualified human potential of women scientists is detrimental to economies and societies on the macro level as well as to individual research institutions on the micro level.

2 European Commission, 1999, p. 11.

3 Networks Active in Europe, 1999. The importance of networking among women scientists on European level has been confirmed by the "Study on Networks of Women Scientists", tendered by the European Commission in 2002. It resulted in a Survey identifying the needs of the networks, a Final Recommendations Report developing a scenario, identifying challenges and providing recommendation to the European Commission, and in an up-dated Network Guide (Cf. European Commission, 2003).

4 Cf. European Commission, 2001.

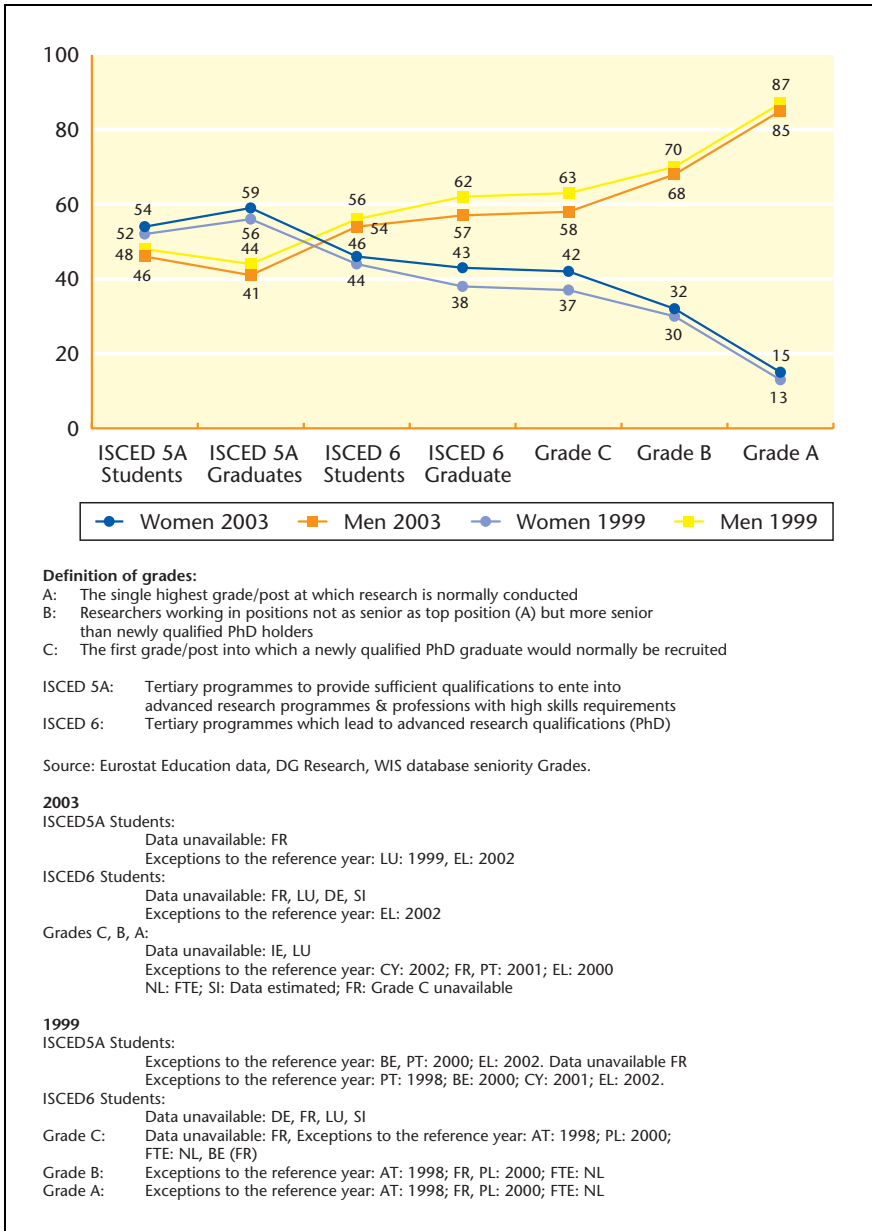
Figure 2: Representation of Disciplines

The *under-representation of women in science* is nonetheless significant. According to the latest EU statistics, women make up more than 50 % of EU students and earn 43 % of EU doctoral degrees but on average only hold 15 % of senior academic positions. In some countries and in some disciplines, this percentage is even lower. European research and European research policy is losing the potential of highly qualified women scientists.

To ensure the production of knowledge that is in the interest of all European citizens, it is of crucial importance that European research takes account of the *gender dimension* and the fact that social differences and inequalities between men and women are very much in existence in our societies. The same holds true for policy making: policies that do not address gender run the risk of over-generalisation or under-differentiation, thereby including and excluding men and women in different and inadvertent ways.

In terms of the larger EU policy context, under the auspices of the Lisbon Agenda which aspires to make Europe the most competitive, knowledge-based

Figure 3: Proportion of Women and Men in a Typical Academic Career



economy in the world, and the aspiration to create a European Research Area, increasing funding and support of research is high on the agenda. The European Commission wishes to raise the percentage EU member states spend on research to 3 % of their Gross Domestic Product (GDP). If this target was reached an additional 700,000 researchers would be required to carry out work on such an increased research budget. Fully utilising the potential of all scientists in the EU is therefore imperative to achieving this goal. This is especially true with regard to the untapped and, consequently, often enough lost, potential of women scientists. The fact that so many women scientists leave the research realm and that so many are under-represented in leading research positions is detrimental to the European research endeavour—not only in economic terms but first and foremost in terms of (wo)manpower and scientific excellence and innovation.

Mission and Main Goals of EPWS

Against this background, the *mission of EPWS* is to:

- Represent the concerns, needs, ideas, aspirations and interests of European women scientists in all disciplines and all stages of their career paths
- Coordinate support activities for women scientists to facilitate their active role in the European Research Area as researchers as well as participants in the research policy debate in Europe

in order to achieve the following *main goals of EPWS*:

- Enhanced participation of women scientists in European research policy and the shaping of the European research agenda
- Increased participation of women in research and in its decision-making bodies—as project researchers, leaders, and coordinators, in review and evaluation panels as well as in high level expert groups
- Increased participation of women scientists in national and European research programmes, especially in the Seventh EU Framework Programme for Research and Technological Development (FP7)
- Better understanding and integration of the gender dimension in science
- Promotion of an inclusive, gender-sensitive notion of excellence

EPWS fulfils its mission with democratic legitimacy, transparent decision-making structures and in dialogue with national, European and international institutions, acting as a structural link between women scientists of all disciplines and policy makers in Europe. It provides genuine EU added value with respect to the achieving the EU's goals of increasing the participation of women in EU research. It helps in the formulation of targeted and effective policies by

including the gender dimension in scientific analysis and will improve the contribution to Europe’s international competitiveness by ensuring high quality research.

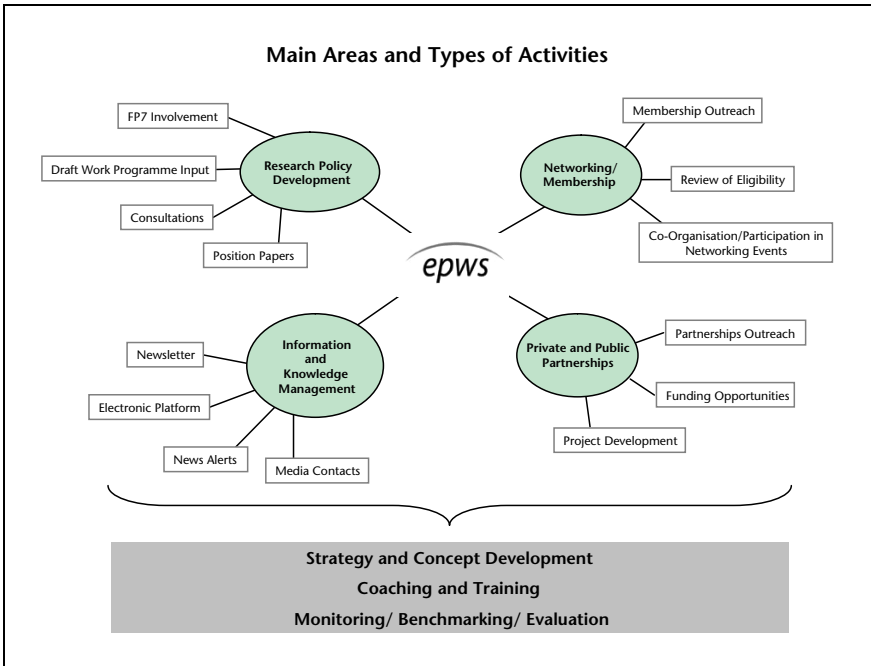
EPWS considers that the basic principle of inclusiveness and the encouragement of heterogeneity in research will benefit a community of researchers much larger than women scientists and gender researchers. A fair, inclusive, gender sensitive notion of excellence will also open chances to young researchers and to researchers with non-traditional research careers.

Main Areas and Types of Activity

EPWS develops and carries out its activities in four *main areas*:

- Networking/membership
- Research policy development

Figure 4: Main Areas and Types of Activities



- Information, public relations and knowledge management including the electronic platform
- Private and public partnerships

Principal Target Groups

Research community

- Networks of women scientists, networks of women and men gender researchers, networks of women and men promoting women scientists, women's gender groups in science organisations
- Individual scientists (women and men) as members, managers and potential founders of networks
- Gender experts
- Science networks

Policy makers

- EU executive and legislative institutions
- National/regional governmental and parliamentary institutions
- Non-governmental organisations with related interests

Research institutions

- Universities, (national) research organisations and research facilities
- Scientific organizations, institutional initiatives to promote women in research and/or the integration of the gender dimension in research
- Companies/industries active in research intensive fields or involved in industrial research (CEOs and lower management levels)

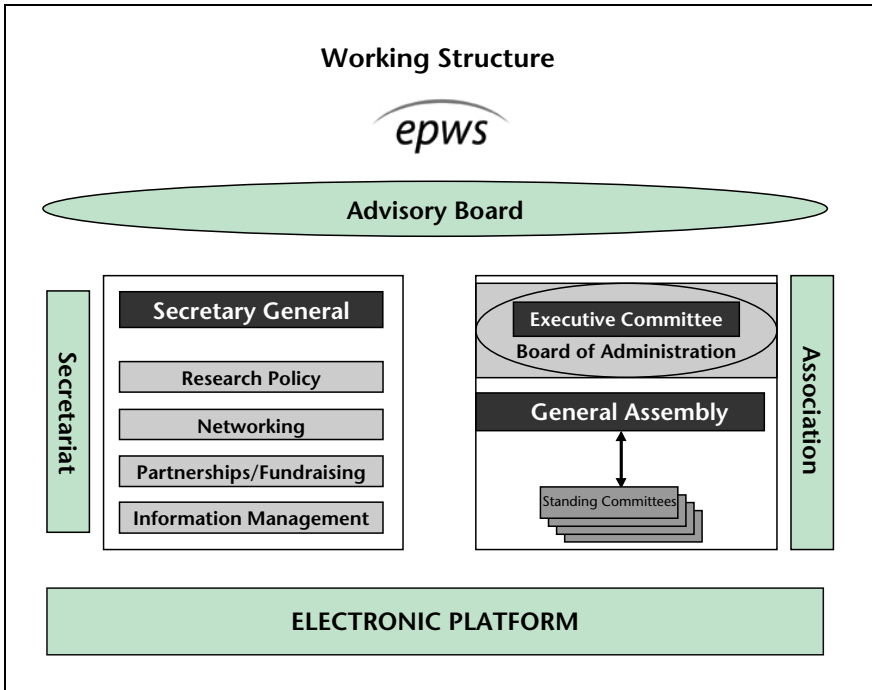
Media/General public

EPWS— a Structural Link between Scientists and Policy Makers

Acting on its mission, EPWS facilitates an informed and structured dialogue between the community of women scientists and those active in the promotion of women scientists and policy makers in Europe. It does so through the following three major steps:

1. Harnessing the concerns, needs, ideas, aspirations and interests of European women scientists in all disciplines and at all stages of their career paths

Figure 5: EPWS Working Structure



2. Coordinating support activities for women scientists to facilitate their active role in the European Research Area as researchers and participants in the research policy debate in Europe
3. Giving a voice to women in the research policy debate, in the setting of the research agenda and the in shaping of institutions

Each of these steps is formally anchored in the EPWS working structure:

Ad 1: In order to be able to represent Europe's women scientists with democratic legitimacy, EPWS was created as an international *Association* composed of full, associate, individual supporting members as well as supporting organizations thus reflecting different degrees of involvement in the association. EPWS facilitates communication and strengthens ties within the community of women scientists by bringing together networks of different character. Networks of women scientists, networks of women and men gender researchers, networks of women and men promoting women scientists and women's gender groups in research organisations are united by the same principal goals.

EPWS also addresses individual scientists and gender experts (women and men) as members, managers and potential founders of networks. The Association formalizes communication and networking and takes it to the European level.

Ad 2: The *Secretariat* in Brussels, as the administrative seat of the Association, acts as the interface between the disciplinary and national expertise of the community of women scientists and European institutions. Through its close contact with the European institutions and political developments it keeps track of and informs members of the European dimension of the dialogue. The Secretariat continuously monitors the decision-making process in the area of research and gender equality, by following media coverage, Commission and Parliamentary sessions and reports, and through contacts with other relevant Brussels-based stakeholders. It examines in detail the legislation at stake and identifies points of intervention where the interests of women scientists could be addressed. The information gathered is communicated to women scientists through written statements, news alerts and newsletters. It is done so in order to raise awareness among the community of women scientists of the opportunities to engage themselves in research policy and to encourage them to submit their own views on the European and/or national level.

To reach its different target groups, EPWS gathers, produces, translates, and disseminates targeted information in both directions, making full use of its *electronic communications platform*. The electronic platform consists of a publicly accessible website, used for the dissemination of general information as well as online surveys, and a restricted area for members only, used for internal discussions in the Association's executive bodies and the General Assembly's Standing Committees.

An international *Advisory Board*, bringing together well-known key individuals from research, politics and the business world, balancing gender expertise with expertise from the different fields, is in creation to increase the Platform's visibility and credibility at the European and international level and reinforce its activities, particularly in view of securing the financial future of the Platform.

Ad 3: EPWS seeks to influence the decision-making process regarding European research policy through negotiation of interests with decision-makers and other stakeholders, making use of different kinds of written statements to voice the concerns, needs and aspirations of women scientists in the policy debate:⁵

5 All published positions can be found on the EPWS web site at: http://www.epws.org/index.php?option=com_content&task=view&id=235&Itemid=4636.

- *Position Papers*, general or specific depending on the stage of the decision making process and following a specific logic that EU decision-makers expect, such as the *EPWS Position Paper on FP7 2007–2013*, 27/04/2006 or *EPWS Position Paper: European Scientific Council—Strategy Notes “The ERC Starting Independent Researcher Grant” “ERC Peer Review Panel Structure—Starting Grants”*, 09/08/06 and the *Statement of the EPWS Board of Administration: On the Future of Gender Action Plans in FP7*, 19/10/06
- *Replies to Public Consultations*, i.e. (online) surveys issued by the European Commission and its Directorates General on specific topics of interest to EU policy makers, such as *EPWS Reply on the European Commission’s Green Paper “European Research Area: New Perspectives”*, 16/08/07, and the *EPWS Response to the Public Consultation on the “Proposal of Selection Criteria for EIT Governing Board Members”*, 27/03/08
- *Letters* to EU politicians at all levels to express the interests of women scientists and their demands and recommendations, such as the *EPWS Letter to Commissioner Potoènik on the importance of Gender Action Plans at the proposal and evaluation stage of FP7*, 30/06/06
- *input* into parliamentary initiative reports
- *Analyses* on a wide range of issues relevant to women in science to stimulate the policy debate and policy making in these areas will complement the afore-mentioned instruments in the future. In identifying such areas of initiative, the support of EPWS members is welcome and vital.

All official EPWS positions are approved by the EPWS Board of Administration or the General Assembly before they are sent out to the relevant institutions. These institutions are most frequently different Directorates General of the European Commission and certain Committees of the European Parliament, usually the Committee on Industry, Research and Energy (ITRE), Committee on Women’s Rights and Gender Equality (FEMM) and Committee on Education and Culture (CULT). The positions are then followed-up by the Secretariat. EPWS also publishes these statements on its website and encourages members and other interested scientists to use these texts, adapt them to their own interests, and to engage in the debate as well, either in support of the argument at EU level or at member state level. To reinforce EPWS positions, members of the Secretariat meet with EU officials, members of Parliamentary Committees and other decision-makers involved, and when appropriate join forces with fellow organisations representing research or gender interests.

The way women researchers can contribute to science and economic development and the reasons why they are still underrepresented in key positions has to be addressed across policy areas and across the portfolios of different Direc-

torates General of the European Commission. This way, the recognition of the decisive role of women and the necessity to create conditions for their inclusion and promotion at EU level may be enhanced. As a result, EPWS' research policy activities currently focus on four interrelated issues: the development of Seventh Framework Programme for Research and Technological Development (FP7) and its respective work programmes, the EU's Lisbon Agenda⁶, the development of the European Research Area and the overall discussion of 'excellence' and 'innovation'.

FP7 will set the European research agenda for the next seven years and also influence national research programmes, working towards the goal established in the Lisbon Agenda. Excellence (FP7) and innovation (Lisbon Agenda) are the key concepts used to map the direction to secure Europe's global competitiveness in the future. To fully achieve these goals, the consideration of gender is vital. To encourage and enhance the participation of excellent women scientists is the only way to create, identify and maintain excellence throughout Europe. In its Position Papers and Replies to Public Consultations, EPWS, therefore, argues for attention to gender balance and/or gender mainstreaming to counteract the still existing structural obstacles which women experience when working in research. This is outlined in the Commission Publication "Gender and Excellence in the Making" (2004), which summarizes and adds to a large body of research on the subject.⁷ This is especially important with regard to the definition of the notions of 'excellence' and 'innovation', because the selection of who is deemed excellent and who is deemed innovative is not free of subjective perspectives, often gendered, perspectives and favourable contexts and therefore needs careful examination.⁸ EPWS has argued that a gender sensitive notion of excellence is needed with respect to the proposed European Institute of Innovation and Technology (EIT) and the European Research Council's activities and also highlighted this need in the European Commission's consultation on the European Research Area (ERA).

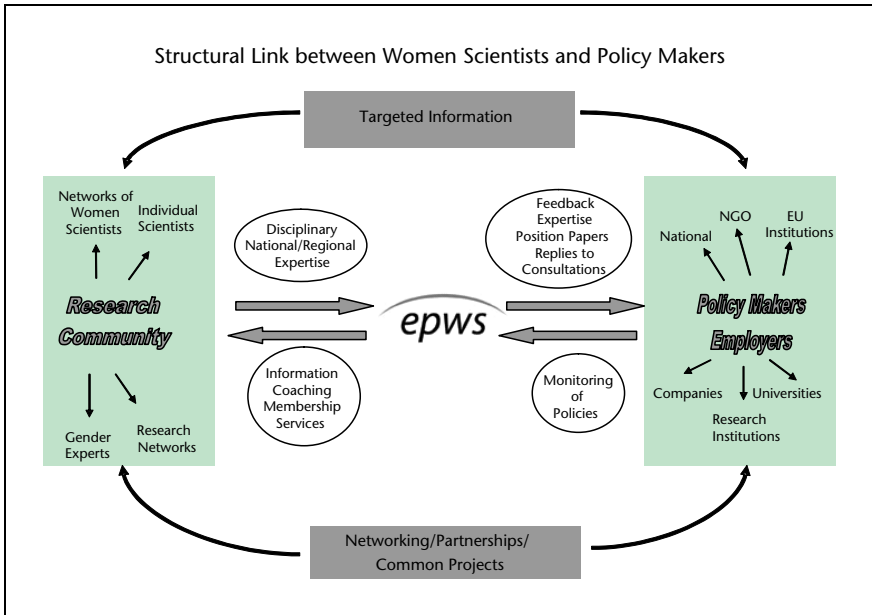
The activities described above and their respective target groups are visualised in summary in the graph below.

6 Cf. EU Presidency, 2000.

7 Cf. European Commission, 2004.

8 See for example Wennerås, Wold, 1997 or Massachusetts Institute of Technology (MIT), 1999. A summary of context related explanations can also be found in the ETAN (European Technology Assessment Network) Expert Working Group on Women and Science's Report (European Commission, 2000).

Figure 6: Structural Link between Women Scientists and Policy Makers



Notable Achievements and the Future for EPWS

In the short time of the Platform’s existence, EPWS has quickly established itself in the research community as well as in the community of European policy makers in Brussels and beyond. EPWS’ activities have been well received by the community of women scientists, officers promoting gender equality in research, research administrators as well as by policy makers. This situation clearly illustrates that the approach EPWS takes is responding well to the needs, the motivations and the aspirations of its primary target groups. Its growing membership base and the continuous increase in requests for common projects, presentations of the Platform and EPWS expertise demonstrates the growing acceptance of the Platform as a reliable partner.

The Platform’s biggest asset are its members, and the numbers reached at after at little less than three years are a veritable achievement. Member networks have a wide disciplinary and country spread and their calibre and diversity is noteworthy.

In terms of promoting the concerns and views of women scientists to EU policy makers, a few of the most notable interactions illustrate that EPWS is both increasingly well-known and is increasingly well-regarded by EU policy makers: In the period July 2007—July 2008, EPWS has been asked to speak at Public Hearings of the European Parliament three times. Furthermore in the last two years EPWS has been referred to in two different official documents of the European Parliament. While EPWS has contact of varying degrees with a number of different Members of the European Parliament (MEPs), the most noteworthy liaisons with the Parliament include the organisation of roundtable debate in the European Parliament on the subject of “*50 years of Equal Opportunities between Men and Women. Facts, Figures and Solutions for the Underrepresentation of Women in Science*” (04/07/2007) together with Zita Gurmai MEP; an invitation to speak at the ad-hoc Committee on Women’s Rights of the Euro-Mediterranean Parliamentary Assembly, which took place in the European Parliament (17/10/2007); and being deeply involved in the writing of an own-initiative report of the European Parliament on the topic of “Women in Science” at the request of rapporteur Britta Thomsen MEP which also resulted in being asked by the European Green Group to be an expert in the European Parliament Hearing on Women and Science in Brussels (18/12/2007).

Two other important policy developments include the appointment of EPWS President Adelheid Ehmke to the prestigious European Research Area Board (ERAB). This Board, which works directly with the Research Commissioner Janez Potoènik was created as a new consultative body responsible for advising the EU on the realisation of the ERA. The Platform also has been appointed to Directorate General (DG) Employment and Social Affairs’ high-level “Network of Women in Decision Making”, which works directly with Commissioner pidla of DG Employment and Social Affairs, and on this network is represented by EPWS Vice President Brigitte Mühlenbruch.

In the future EPWS will look to continue expanding on its mission to represent the voice of European women scientists in Europe and to facilitate their active role as researchers as well as in the research policy debate. EPWS will consolidate and strengthen its activities in networking, research policy, partnerships, and information and public relations and will cultivate its strategy and concept-development. It will increase its coaching and training as well as its monitoring, benchmarking, and evaluation activities in order to:

- Significantly expand its membership base and increase the number of joint projects with members
- Effectively encourage, coach and strengthen networks of women scientists at national and European level

- Significantly enhance the participation of women scientists in European research policy and the shaping of the European research agenda
- Substantially increase the participation of women in science and its decision-making bodies at all levels
- Substantially increase the participation of women scientists in the Seventh EU Framework Programme for Research and Technological Development (FP7)
- Consistently promote the understanding and integration of the gender dimension in science
- Strongly promote gender-mainstreaming as a guiding principle and instrument for research institutions, universities, companies as well as for policy makers at national, EU and NGO level

Until the end of October 2008, the activities to establish the European Platform of Women Scientists are financed as an FP6 Specific Support Action (PLATWOMSCI) with the Center of Excellence Women in Science CEWS in Bonn as project coordinator. From thereon, EPWS will be responsible for acquiring its own financial means and securing the Platform's financial sustainability will remain one of the Platform's key tasks.

The present momentum of activities, partnerships, and visibility has to be maintained and requests for cooperation and for the extension of the scope of services provided by EPWS have to be fulfilled. The activities of EPWS will be developed in response to the social demand and the political challenges which arise, guiding the respective strategic response so that needs of women scientists continue to be discussed and met both in pursuit of a more just European research environment and for the good of EU research and innovation.

References

- European Commission, 1999:** Communication on Women and Science—Mobilising Women to Enrich European Research (COM (1999) 76): http://ec.europa.eu/research/science-society/pdf/g_wo_co_en.pdf.
- European Commission, 2000:** Science policies in the European Union: Promoting excellence through mainstreaming gender equality: http://ec.europa.eu/research/science-society/pdf/g_wo_etan_en_200101.pdf.
- European Commission, 2001:** Science and Society Action Plan: http://ec.europa.eu/research/science-society/pdf/ss_ap_en.pdf.
- European Commission, 2003:** Directory of Networks of Women Scientists: http://ec.europa.eu/research/science-society/pdf/women-sc-net-guide_en.pdf.

- European Commission, 2004:** Gender and Excellence in the Making: http://ec.europa.eu/research/science-society/pdf/bias_brochure_final_en.pdf.
- EU Presidency, 2000:** EU Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000.
- Massachusetts Institute of Technology (MIT), 1999:** A Study on the Status of Women Faculty in Science at MIT. Cambridge, Mass.
- Networks Active in Europe, 1999:** Women and Science: Networking the Networks. Declaration of Networks Active in Europe: ftp://ftp.cordis.europa.eu/pub/improving/docs/women_dec.pdf.
- Wennerås, Christine; Wold, Agnes, 1997:** Nepotism and Sexism in Peer-review. In: *Nature*, Vol. 387, p. 341–343.

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Maren Jochimsen was appointed first Secretary General of the newly founded *European Platform of Women Scientists EPWS*, an umbrella organization of networks of women scientists and organizations promoting women scientists in all disciplines throughout Europe, in November 2005. She has since then set up and managed the Platform's Secretariat in Brussels, Belgium, and represented EPWS at numerous international conventions and working groups. Maren Jochimsen holds a Doctorate in Ecological Economics from the University of St. Gallen, Switzerland, where she subsequently worked as researcher. Her postdoctoral research on the integration of caring activities in economic science took her to the University of Cambridge, Harvard University, and the University of Amsterdam.

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Mühlenbruch was a member of the Steering Committee for the Study on Networks of Women Scientists in Brussels which confirmed the need of a network for women scientists at European level. Brigitte Mühlenbruch was Managing Director of the Center of Excellence Women and Science CEWS in Bonn from 2000 until 2005, managing several research projects funded by the German government and the EU in the field of gender equality in science. Under her leadership, CEWS drafted the winning proposal for the establishment of the European Platform of Women Scientists EPWS in Brussels and signed the contract with the European Commission in 2005.

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