

AUFWIND
mit Mentoring

Empfehlungen für gelungene Mentoring- Beziehungen

Handreichung

GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung



Europäischer Sozialfonds
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EUROPÄISCHE UNION



LANDESKONFERENZ DER
GLEICHSTELLUNGSBEAUFTRAGTEN
AN DEN WISSENSCHAFTLICHEN HOCH-
SCHULEN BADEN-
WÜRTTEMBERGS

AUFWIND
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Recommendations for successful mentoring relationships

Manual

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TABLE OF CONTENTS

Table of Figures	3
Introduction	4
Foreword	5
1. “Aufwind mit Mentoring”	6
1.1 Background.....	7
1.2 Project conceptions and objectives.....	8
1.3 The mentoring landscape in Germany.....	10
1.4 Selection of participating mentoring programmes.....	13
1.5 Method.....	14
1.6 Programme specific reports.....	17
2. The Participating Mentoring Programmes	18
3. Key Results	22
3.1 Mentee expectations.....	24
3.2 Satisfaction with the mentoring programme.....	25
3.3 Effects of the mentoring relationship.....	26
3.4 Gender equality impact.....	31
3.5 Summary.....	40
4. Examples of Best Practice: Presentations by Programme Coordinators	43
5. Recommended Actions for Quality Assurance	49
5.1 Seven steps to establishing a good mentoring relationship.....	49
5.2 Mentoring relationships and their contribution to the awareness of equal opportunities.....	61
5.3 Challenges and recommendations for programme managers and coordinators.....	64
5.4 Challenges and recommendations for higher education institutions.....	67
6. Outlook	74
Appendix	76
Literature.....	76
Abbreviations.....	83

TABLE OF FIGURES

Figure 1: Definition of mentoring by eument-net and Forum Mentoring e.V.....	8
Figure 2: Subject of investigation.....	9
Figure 3: Project objectives.....	9
Figure 4: Project phases.....	10
Figure 5: Mentoring programmes at German institutions.....	11
Figure 6: The nine mentoring programmes selected.....	14
Figure 7: Overview of interviews conducted.....	15
Figure 8: Word cloud from the qualitative interviews.....	16
Figure 9: Response rate.....	16
Figure 10: Programme overview.....	20
Figure 11: Satisfaction with the programme according to subject area.....	25
Figure 12: Effects of mentoring according to status group.....	28
Figure 13: The greatest qualitative effects, sorted by status group.....	29
Figure 14: Advancements in personal development.....	30
Figure 15: Multiplexity of effects – emotional and subject affinity.....	31
Figure 16: Attitudes on equal opportunities, Studies-Job (left), High Potentials (right).....	32
Figure 17: Attitudes on equal opportunities, STEM (left), non STEM (right).....	34
Figure 18: Attitudes on equal opportunities, female mentors (left), male mentors (right).....	36

INTRODUCTION

The "Aufwind mit Mentoring" (Ascent through Mentoring) project arose from a cooperative initiative by the federal association Forum Mentoring e.V. and is, as such, a long-contemplated undertaking that was finally implemented by dedicated colleagues, to whom we give our heartfelt thanks. We are delighted that the results of the study are now available for publication!

When Forum Mentoring e.V. was founded in 2006 it initially comprised of just a few higher education establishments and scientific institutions that had come together for exchange, networking and, above all, for a subject-specific dialogue and transfer of knowledge. By now, Forum Mentoring e.V. has more than 100 members. The further development of the programme content and programme quality remains the priority of the various working groups. Topics of discussion include new formats, the characteristics of the cultures of various academic disciplines and status groups, and the critical assessment of emerging trends. The goal continues to be the definition of a common position – as far as that is possible – on current issues. One example of this is the "Quality Standards for Mentoring in Research", now available in its fourth edition, that has become the benchmark of our work and which we continue to develop.

It is against this background that we as the Federal Association of Mentoring Programmes in Research are particularly excited about the "Aufwind mit Mentoring" project. This is because the project and the results of the study provide us, and all who work to

ensure and improve the quality of mentoring in research with valuable insights, both for their institution and for their own work. The study confirms that mentoring programmes are effective tools for supporting junior researchers. The long-term continuation of programmes is a central determinant of success. Programmes of limited durations inevitably have less impact.

We are very happy to be able to present research findings that provide information regarding the efficiency of the programme, while indicating plenty of potential for development.

This validates our demands and quality criteria while also giving us the opportunity to improve the way we work. And that should always be our goal – continuous improvement – and not only in terms of all the elements of the mentoring programme itself – in the mentoring relationship, in the seminars on expanding key skills and in net-working – but also, and this is particularly clear from the results of the study, in the permanent implementation of mentoring programmes in research.

My wish is that all mentoring measures and other research projects in this field are successful.



Sibylle Brückner
First Chairwoman, Forum Mentoring e.V.,
Universität Würzburg

FOREWORD

Increasing the percentage of women in leading academic positions and in subject areas in which they continue to be substantially underrepresented is a central equal opportunities aim of many higher education institutions. Mentoring programmes should be useful in this regard because they help universities to retain female students, oversee their transition into professional life, and help women researchers to fully exploit their skills and career options both as individuals and within the structure of the institution.

A number of individual reports attest to the success of the programmes. Insights into the way mentoring works gained through a comparison of various programmes have been missing so far. The 'Aufwind' study fills this gap.

This guidebook aims to highlight factors that contribute to the establishing of successful mentoring relationships and that support early-career women researchers to realise their career goals in science and business. Another objective is to recognise the challenges that are associated with leadership positions in academia and to identify what kind of structural hurdles in the form of an obstructive general framework must be overcome.

The guidebook is based on the results of the study "Aufwind mit Mentoring" which has evaluated nine mentoring programmes across Germany. Our special thanks goes to them.

This guidebook is intended for university administrators, those working in the area of gender equality, managers and coordinators of

mentoring programmes, as well as for mentors and mentees who want to learn more about mentoring and how effective it can be, and indeed anyone who is working towards the goal of opening up access to academic leadership positions to talented female junior researchers where doors were previously closed. In doing so, the primary focus has been on the mentee and her personal development, while concurrently maintaining a background awareness of structural and cultural factors that exert a powerful normative force, shaping day-to-day life in higher education institutions.

This guidebook consists of three parts. The first part presents the study's most significant findings. The second part presents best practice examples and in the third part recommendations for quality standards are discussed.

This guidebook does not claim to be comprehensive, it aims to serve as an aid to quality assurance for any mentoring programme by means of which higher education institutions, as part of their staff development measures, ultimately determine the course of their researchers' careers.

We hope this guidebook will provide you useful information and contribute to the continued success of mentoring.



On behalf of the 'Aufwind' Team
Dr. Dagmar Höppel
(Head of the LaKoG)

1. "AUFWIND MIT MENTORING"

Even when they outperform their male colleagues, the road to academic leadership positions can be a rocky one for women researchers. The academic community loses a disproportionately high percentage of women at every level of the hierarchy. A number of measures and programmes have been developed to keep more women in research. Mentoring programmes are one highly popular measure with great potential for development. The research project "Aufwind mit Mentoring" arose from a Forum Mentoring e.V. initiative. This research project was supported under the thematic focus "Frauen an die Spitze" (Women to the Top) within the framework of the Federal Ministry for Education and Research's funding area of "Strategien zur Durchsetzung von Chancengleichheit für Frauen in Bildung und Forschung" (Strategies for the Implementation of Equal Opportunities for Women in Education and Research) and by funds from the European Union's European Social Fund.

The central concern of the "Aufwind mit Mentoring" research project has therefore been to analyse the effectiveness of measures taken to support and develop the careers of women in research using the concrete example of mentoring measures. To achieve this, comparative programme evaluations were carried out across Germany. Relevant criteria for analysis included the integration of the programmes into the higher education institution, staff provision, programme duration, and the individual elements of the mentoring measures (the framework programme). Moreover, a cross-programme analysis of the numerous aspects of mentoring relationships delivered substantiated results with regard to the effectiveness of certain mentoring constellations. With the aid of this diverse analysis concept, it has been possible to identify innovative best practice examples in higher education institutions and to produce action recommendations for quality assurance for future projects.

1.1 BACKGROUND

The practice of supporting young or inexperienced people through mentoring is widespread and has a rich tradition. A distinction is made between informal or "natural" mentoring that arises outside the sphere of organisations, and formal mentoring¹, which is used purposely as a staff development measure. According to an international comparative study carried out by eument-net², mentoring is predominantly used in the USA, Australia and in the German-speaking countries (cf. eument-net 2008).

Over the last few years, the practice of mentoring has enjoyed a boom in Germany, Switzerland and Austria in particular - a trend that appears to be far from over. This coincides with a perception of mentoring as a "cure-all" in terms of developing and supporting early-career staff, especially since, unlike many other staff development measures, it is effective even when staffing costs are to be kept low. The 'Aufwind' project will be of particular interest to mentoring programmes at German higher education institutions that are working to support female students, graduates and early-career researchers on their career paths (in research) within the framework of the advancement of women and/or gender equality programmes.

Having said that, research in the area of mentoring, especially in the German-speaking countries, is still in its infancy, although some short-term programme documentation and reports on programmes at German higher education institutions are available (e.g. Findeisen 2007; Heilmeyer 2006; Lask et al. 2007). For the most part these only evaluate individual aspects of the programmes and satisfaction levels with the programme. Evaluations that take long-term effects into consideration, that also refer to the overall impact of the programmes, or that compare a number of different programmes are few and far between (e.g. Franzke 2003; Kurmeyer 2005; Leicht-Scholten 2009).

This means, on the one hand, that we are lacking a comprehensive overview of the mentoring landscape in Germany's higher education institutions. On the other hand, a number of questions had until now remained unanswered, issues that could only be resolved by means of a cross-programme evaluation approach. For example, how is mentoring embedded into the structure of individual higher education institutions? What aspects do the various pro-

.....
1 In the following, "mentoring" is always used to mean "formal mentoring", unless otherwise stated.
2 The eument-net project was financed by the Sixth EU Framework Programme (2002-2007) and links academic mentoring programmes for women across Europe. For more information on the project see www.eument-net.eu.

grammes have in common and how are they different? And finally, which programme features provide particularly effective mentoring support?

While many studies have focused on the individual level, few have also taken a look at the impact mentoring can have at the institutional level. Jennifer de Vries has, for example, used an Australian mentoring programme as the basis for researching the kind of changes that occur in mentors with regard to gender competence and what effects mentoring can bring about in the area of organisational change (Vries 2006; Vries 2011). No such studies are available on the higher education landscape in Germany or the German-speaking countries.³

The “Aufwind mit Mentoring” project addresses these gaps in knowledge. Using nine mentoring programmes at German higher education institutions as examples, it presents an analysis of the effectiveness of systematic measures used to support early-career staff with the objective of developing the careers of women in research on both the individual and organisational levels.

1.2 PROJECT CONCEPTIONS AND OBJECTIVES

The “Aufwind mit Mentoring” project is based on a definition of mentoring (see figure 1) that follows eument-net and Forum Mentoring e.V.’s definitions of the term.

Figure 1: Definition of mentoring by eument-net and Forum Mentoring e.V.

DEFINITION	Mentoring is a success-oriented tool for the fostering of individuals early in their career, offering guidance and support to qualified and motivated junior staff in their personal and professional development. As a rule, mentoring is a personal relationship of guidance, in which the less experienced person – the mentee – is given support and encouragement in their career development by an experienced mentor. In addition to the exchange of personal experience, the central aspect of the mentoring relationship includes sharing contacts and opportunities to access professional or research organisations, sources of information and networks.
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LaKoG 2010

³ See results of the study “Aufwind mit Mentoring”, section 7, for detailed information on the research background on the effects of mentoring.

Figure 2: Subject of investigation

Evaluation of Mentoring Programmes	Mentoring Programme Impact
Comparison of mentoring programmes	Professional and career progression of mentees
Identification of innovative mentoring best practice models	Professional self-conception and leadership qualities of the mentors
(Further) development of quality standards	Institutional structures and academic cultures
Establishment of action recommendations	

LaKoG 2010

The main subject of investigation was the evaluation of the mentoring programmes that took part. Secondly, the effectiveness of mentoring on an individual and organisational level was to be investigated. That meant looking at the impact of mentoring on the mentees and the mentors, as well as on the institutions of higher education within which the programmes are situated (see figure 2).

In accordance with this, three main aims were set for the research project: to analyse the fostering of women’s careers in science, to investigate the effectiveness of the concept of mentoring, and to develop action strategies to promote equal opportunities and the integration of gender issues.

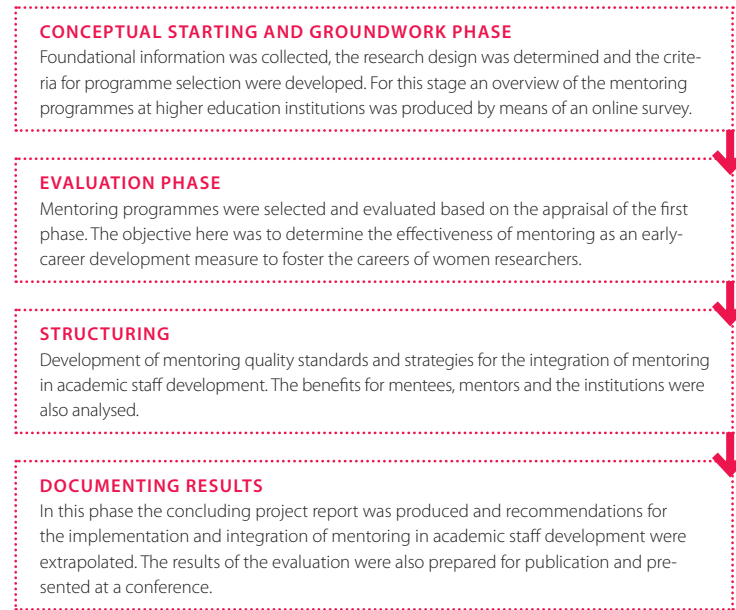
Figure 3: Project objectives

Objective 1: Career development	Objective 2: Equality	Objective 3: Action strategy
Analysis of the effectiveness of systematic measures taken to support early-career researchers with the objective of developing the careers of women in research, using the example of mentoring programmes at German higher education institutions.	Analysis of the effectiveness of academic mentoring for gender equality in the workplace.	Development of action strategies for the promotion of equal opportunities and the integration of gender issues into academic staff development in research and science.

LaKoG 2010

The project was implemented in four phases. Figure 4 illustrates the respective focus of each phase.

Figure 4: Project phases



LaKoG 2010

1.3 THE MENTORING LANDSCAPE IN GERMANY

A Germany-wide online survey was conducted between 14 May 2010 and 30 June 2010 to gain an initial overview of the mentoring landscape. The aim was to obtain an overview of academic mentoring programmes.

Academic mentoring programmes across Germany were asked to answer questions on the following topics:

- Target group and objectives
- Programme conception
- Organisational integration and networking
- Framework data of the programme
- Evaluation measures
- Prerequisites for a successful mentoring programme
- Contribution of mentoring to equality and staff development



Figure 5: Mentoring programmes at German institutions

LaKoG 2010

117 programmes from across Germany took part in the survey, a very high level of participation⁴. 94.5% of questionnaires were filled out by women, and the majority (54.7%) were filled out by programme coordinators; in 29.9% of cases the questionnaire was filled out by the project leader (n=117).

Figure 5 shows the geographical distribution of the programmes. There is a concentration of programmes in North Rhine-Westphalia. There is also a relatively high number of programmes in Bavaria⁵ and Baden-Württemberg, as well as in the city-states. In contrast, there is only a scattering of isolated mentoring programmes in the new federal states, with the exception of Berlin and Potsdam. This can presumably be attributed to the generally less generous financial support given to equal opportunities measures in these states and higher education institutions.

⁴ Around 80 mentoring programmes were registered with Forum Mentoring e.V., the largest national network of mentoring programmes, at the time of the survey.

⁵ "BayernMentoring", a joint project by Bavarian higher education institutions, is very active there.

The online survey revealed the following:

- **Women's issue:** Mentoring continues to be a "women's issue": 81% of the programmes are exclusively aimed at female mentees.
- **Objectives:** The primary aim of most programmes is to foster the careers of students and researchers; firstly during the transition from studying to professional life and secondly on the road to leadership positions in business and research.
- **Subject fields:** Around half of the programmes (54.3%) are subject specific. Access to the other programmes is open to all disciplines. Those programmes that are aimed at specific subject fields usually cater to more than one subject. The STEM⁶ subjects (science, technology, engineering and mathematics) are well represented.
- **Forms of mentoring:** Almost all the programmes surveyed (91%) are based on one-to-one mentoring relationships. It is interesting that many programmes combine a number of different forms of mentoring. Some programmes use up to three different complementary forms.
- **Framework programme:** The framework programme of accompanying measures besides the mentoring relationship (e.g. networking opportunities, exchange of experiences, workshops etc.) are a very important part of the mentoring programmes, and that is why all programmes except for one have accompanying measures for the mentees and 94% of the programmes also have accompanying measures for the mentors.
- **Evaluations:** Great importance is given to programme evaluations. 93.9% of the programmes surveyed carry out evaluations. However, most of the programmes have no budget available for this. Only 18.1% of programmes have a budget available specifically for evaluations.
- **Objectives of the evaluations:** The evaluation measures primarily focus on success monitoring and quality assurance (and the improvement and further development of the programme). Only rarely do the evaluations serve to measure long-term effects and have the aim of providing impact analysis.

This survey of the academic mentoring landscape in Germany is the most comprehensive data collection in this field yet.

.....

⁶ The English term STEM deviates slightly from the German MINT used originally in the German version which stands for "mathematics, informatics, natural sciences and technology" although it is generally accepted that they both encompass the same fields.

1.4 SELECTION OF PARTICIPATING MENTORING PROGRAMMES

Using the results of the first online survey as a basis, it was decided which criteria the mentoring programmes included in the second, more extensive survey would have to fulfil so as to ensure both a programme-specific evaluation and a cross-programme analysis. A minimum of eight and a maximum of twelve programmes were to be evaluated. The programmes should be different with regard to certain classification categories and with regard to their mentoring concepts, while also displaying a high degree of comparability. The following criteria were established as a prerequisite for participation:

Prerequisites for participation

1. The programme had to have been up and running since 2006 at the latest. This time frame was chosen so that at least five cohorts of mentees and mentors from each programme were available for survey in 2011. This was particularly relevant in the face of what were in some cases very small cohorts.
2. The programme had to be aimed at either or both of the status groups Studies-Job (students or graduates transitioning to doctoral research or professional life) and „High Potentials“ (researchers already in the final phase of their doctoral research or higher). Too great a variation in the objectives of the different programmes would have impaired too much on the comparability of the data.
3. The programme had to involve mentoring relationships that accorded with our definition, i.e. one-to-one relationships, not simply (group) mentoring by peers. This criterion correlated to the subject of investigation, the focus of which was, alongside an analysis of the framework programme and the networking impacts, above all the effects of the relationship between the mentee and the mentor. Unfortunately other forms of mentoring such as peer mentoring, group mentoring or e-mentoring could not be included within the delimitations of the research project.
4. Former mentees and mentors had to be contactable. If this prerequisite was not fulfilled it would have been impossible to distribute the questionnaires among the programme participants, thereby making the participation of the mentoring programme in the research project impossible.

After the final stage in the selection process, 9 mentoring programmes were chosen on the basis of the above criteria and a formal agreement of cooperation was reached with each. Figure 6 shows the selected programmes.

Figure 6: The nine mentoring programmes selected

„High Potentials“	
plan m Mentoring in Science	Universität Bremen
SelmaMeyerMentoring	Heinrich-Heine-Universität Düsseldorf
Ina-Pichlmayr-Mentoring	Medizinische Hochschule Hannover
Studies-Job & „High Potentials“	
ARIADNETechNat	Friedrich-Alexander-Universität Erlangen-Nürnberg
MentHo	Universität Hohenheim
Cornelia Harte Mentoring	Universität zu Köln
Mentoringprogramm Konstanz	Universität Konstanz
mentorING	Technische Universität München
Studies-Job	
Thekla Mentoring	Ruhr-Universität Bochum

LaKoG 2010, eigene Darstellung

1.5 METHOD

Both quantitative and qualitative methods were used in the “Aufwind mit Mentoring” research project. This mixture of methods made it possible to encompass and analyse the complex contexts relating to mentoring from a range of perspectives. The experiences of the participating researchers during their work with the eument-net project were also drawn upon.

Qualitative Interviews

84 interviews were conducted within the framework of the qualitative part of the ‘Aufwind’ study. For each programme, interviews were conducted with three tandems⁷, the programme coordinator and leader, the equal op-

⁷ Tandems are mentoring pairs, i.e. the mentor and the mentee.

portunity officers of the higher education institution, representatives of the higher education institution’s management, and, in some cases, cooperation partners (see figure 7). The data collected during these interviews made it possible to gain deeper insights into the mentoring experiences of mentees and mentors. The involvement of programme leaders and managers of higher education institutions also made it possible to identify important issues relating to staff development and gender equality.

Figure 7: Overview of interviews conducted

	Per programme	Total
Programme coordinator	1	9
Higher education institution management	1	9
Equality officer	1	9
Cooperation partners (where applicable)	–	4
Mentees	3	26
Mentors	3	27
Total	9	84

LaKoG 2010

Figure 8 shows a word cloud of the 64 terms most often mentioned in the 53 interviews conducted with mentors and mentees.

The more often a word appeared during the interviews, the larger the term is depicted in the word cloud. Words that do not have a meaning by themselves (conjunctions, pronouns, etc.) were deleted from the list. Closely related terms were combined, as were words with different endings. For example, the term “Netzwerk” also stands for all mentions of “Netzwerke”/“Netzwerken”, “Networks” and “netzwerken”.

The words “woman” (frau), “female mentor” (mentorin), “male mentor” (mentor), “mentoring”, “mentee”, “career” (beruf), “personal” (persönlich), “problems” (probleme) “goal” (ziel), “child” (kind) and “support” (unterstütz-) all stand out as important and often mentioned topics in the interviews.

Figure 8: Word cloud from the qualitative interviews



LaKoG 2012, produced using "Wordle" online software, n=54 interviews

Quantitative Online Survey

In the second, quantitative, part of the 'Aufwind' study, an online survey was conducted with the 9 selected mentoring programmes. This required the mentees and the mentors to answer a number of questions regarding their experiences of mentoring and their career development⁸. In some cases mentoring pairs were anonymized consulted so that tandem-specific data is available in addition to a large body of data on mentees and mentors (see project report, sections 7, 8, 9 and 10, for information on the evaluation of this survey). The programme-specific individual evaluations that were made available separately to the mentoring programmes were based on this data set.

A total of 332 mentees and 248 mentors from the nine mentoring programmes were questioned as part of the quantitative survey. The total response rate for mentees was 39.4%, and 39.1% for mentors, which is very good for an online survey.

Figure 9: Response rate

		Number of identified respondents	Number of respondents reached	Returned	Response rate (adjusted)
Total	Mentees	942	842	332	39.4 %
	Mentors	727	635	248	39.1 %

LaKoG, 2011

⁸ The questionnaire can be found at www.aufwind-mit-mentoring.de.

Document Analysis

In addition, a comprehensive analysis of documents (programme concepts, websites, advertising materials, flyers, etc.) was undertaken. This was used primarily to comprehensively evaluate the closely inspected programmes on the basis of fixed parameters and to determine their development.

Conference

On 14 and 15 June 2012 the initial results of the project were presented at the conference "Aufwind mit Mentoring – Frauen auf dem Weg in akademische Spitzenpositionen" and discussed with 90 experts from Germany and Europe. Individual results were dealt with in detail in workshops and were also integrated in the evaluation and the development of the recommendations. The detailed results have been published on the project's website⁹.

1.6 PROGRAMME SPECIFIC REPORTS

It would make little sense to produce a direct comparison between the 9 mentoring programmes on the basis of specific criteria (e.g. satisfaction with the programme and its various aspects) because such an approach fails to take the context in which the respective programmes operate into consideration sufficiently. Each higher education institution represents a specific environment for mentoring programmes, each with special demands, prerequisites, support systems, etc. It was therefore decided that the "Aufwind mit Mentoring" project would take the approach of comparing each individual programme with the overall result. This way each programme can discover which aspects of the programme received above or below average ratings by interviewees, in comparison with the results of the overall sample. Each institution can decide on a case by case basis where there might be a need for action depending on the respective results and based on the difference to the overall average. Insights and recommendations derived from the programme-specific analysis were incorporated into the overall report.

⁹ The results can be found at www.aufwind-mit-mentoring.de under "Ergebnisse".

2. THE PARTICIPATING MENTORING PROGRAMMES

In order to illustrate the similarities and differences between the nine programmes, several key characteristics were analysed. Contacts at the programmes were asked to describe their mentoring programme in terms of several key attributes. The information received was used to create the overview in Figure 10.

This table, which shows the programme overview of the individual mentoring programmes, was produced to illustrate the similarities and differences between the nine programmes selected. The table is also subdivided into individual criteria. Based on the target groups and the objectives of the individual programmes, the table presents the organisational framework, the matching and the financing structure.

These are the key indicators required to describe the sustainability of the programmes. Programmes that are focused on helping mentees in the transition from study to professional life are indicated using "SB" (or "SJ" in English), while programmes dedicated to „High Potentials“ are indicated with "HP".

There are two research status categories:

1. Studies-Job: The group of Studies-Job mentees are female students from all subject areas that are in the "Hauptstudium" or "Masterstudium" phase of study who will soon be entering professional life, or graduates who have already completed their studies.
2. „High Potentials“: Female doctoral students, female post-doctoral researchers and women researchers working on their "Habilitation" who aspire to professorships or leading positions in research are described as „High Potentials“.

The programmes that participated, sorted alphabetically by city:

Thekla Mentoring

Ruhr-Universität Bochum



plan m Mentoring in Science

Universität Bremen



SelmaMeyerMentoring

Heinrich-Heine-Universität Düsseldorf



SelmaMeyerMentoring

ARIADNETechNat-Mentoring-Programm

Friedrich-Alexander Universität Erlangen-Nürnberg



Ina Pichlmayr-Mentoring

Medizinische Hochschule Hannover



MentHo

Universität Hohenheim



Cornelia Harte Mentoring

Universität zu Köln



Mentoringprogramm Konstanz

Universität Konstanz



mentoring

Technische Universität München

mentoring

Figure 10: Programme overview

	Thekla Mentoring	plan m Mentoring in Science	SelmaMeyer-Mentoring		ARIADNE-TechNat-Mentoring-Programm	Ina-Pichlmayr-Mentoring	MentHo	Cornelia Harte Mentoring	Mentoring-programm Konstanz	mentorING
	Ruhr-Universität Bochum	Universität Bremen	Heinrich-Heine-Universität Düsseldorf		Friedrich-Alexander Universität Erlangen-Nürnberg	Medizinische Hochschule Hannover	Universität Hohenheim	Universität zu Köln	Universität Konstanz	Technische Universität München
Programme start	2002	2004	2006		2003	2004	2002	2001	2000	2002
Target group										
Female students	x				x		x	x	x	x
Female graduates									x	
Female doctoral students		x			x		x	x	x	
Female PhD graduates			x							
Female post-docs		x				x		x		
Female 'Habilitation' researchers		x	x					x		
Female researchers already with 'Habilitation'			x							
Female assistant researchers								x		
Status groups	SJ	HP	HP		SJ/HP	HP	SJ/HP	SJ/HP	SJ/HP	SJ/HP
Percentage of STEM	86 %	67%	31 %		100 %	22 %	43 %	10 %	20 %	100 %
Objectives										
Percentage of women – research		x	x		x	x		x		
Percentage of women – business	x								x	
Percentage of women – leadership positions	x	x	x		x	x	x	x	x	
Percentage of women – STEM	x	x			x			x		x
Career planning and development	x	x	x		x	x	x	x	x	x
Career start	x				x			x	x	x
Networks	x	x	x		x	x	x	x	x	x
Average number of places (per cohort)	–	12	16		20-25	25	10	15-20	30	25
Mentee selection										
Profiling sheet	x	x	x		x	x	x	x	x	x
Predetermined criteria	x	x	x		x	x	x	x	x	x
Face-to-face conversation	x	x	x		x	x	x	x	x	x
Mentor selection										
Profiling sheet	x				x		x	x	x	x
Predetermined criteria	x	x	x		x	x				
Face-to-face conversation		–	x			x			x	
Matching										
By the mentees themselves		x			x			x		
With the coordinator	x		x		x	x	x	x	x	x
Preparation for the role										
With the coordinator	x	x	x		x	x	x	x	x	x
Setting goals	–	–	–		recommended	–	recommended	recommended	recommended	recommended
Recommended duration (in months)	12	18	18		18	18	12	12-24	12	12
Recommended number of meetings (per year)	3-5	3-5	3-5		3-5	3-5	none	3-5	+5	8-10 (total)
Elements of the framework programme										
Opening event	x	x	x		x	x		x	x	x
Mid-point reflection	x	x	x		x	x		x		x
Closing event	x	x	x		x	x		x	x	x
Workshops	x	x	x		x	x	x	x	x	x
Networking events	x		x		x	x	x	x	x	x
Coaching sessions					x	x	x	x		
Get-togethers		x	x		x	x		x	x	x
Participation in the framework programme										
Mentees	obligatory	partly	partly		partly	obligatory	partly	optional	obligatory	partly
Mentors	–	recommended	–		recommended	recommended	recommended	–	–	–
Department at the higher education institution	Administration	Administration	Equal opportunities		Equal opportunities	Equal opportunities	Equal opportunities	Equal opportunities	Administration	Equal opportunities
Financing	uni	uni/other	other		uni	uni	uni/other	uni/other	uni/other	other
Consolidation	yes	yes	no		no	yes	yes	no	no	yes

3. KEY RESULTS

As discussed, based on the criteria arrived at in the first online survey, nine mentoring programmes were chosen and surveyed by means of an online questionnaire and a total of 83 interviews with mentoring tandems, higher education institution managers, project leaders and equality officers. The response rate of mentors and mentees was 40%, which can be regarded as very good for online surveys of this kind. 332 mentees and 248 mentors took part in the survey.

The surveyed mentees were placed into one of two analytical groups based on their academic status at the beginning of their participation in the mentoring programme; on the one hand the students and recent graduates transitioning into research or professional life as the group Studies-Job and on the other hand those already at least in the final phase of their doctoral research (typically working long term towards a professorship) as the group "High Potentials". When the sample is divided into two groups on this basis, 63% of the mentees belong to the Studies-Job status group and 37% belong to the "High Potentials" status group. The programmes were also analysed according to subject area. Six of the nine programmes participating in the "Aufwind mit Mentoring" project are open to all subject areas, while the other three programmes are predominantly dedicated to women from the STEM¹⁰ subject areas. This focus on the STEM field was chosen because women are still hugely underrepresented in exactly these subject areas. Insofar, it is not surprising that a large number of the mentees are working in these subject areas. Along with differentiating between Studies-Job and "High Potentials", it is interesting to note whether mentees are working in STEM subject areas or not: 56% of mentees belong to the "STEM" group and 44% to the "non STEM" group.

One particularly interesting aspect to consider in the context of career development is the performance and school performance of the mentees. According to the information provided by the mentees, around 53% achieved the "very good" mark in their Abitur (A Level equivalent), with 40% getting

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¹⁰ STEM is an acronym for "science, technology, engineering and mathematics". The project, originally carried out in German, used the term MINT which refers to the academic fields "mathematics, informatics, natural sciences and technology". Regardless of the slight differences between the two, it is generally agreed that STEM and MINT refer to the same fields.

"good", and only 7% getting "satisfactory". With an average Abitur grade of 1.77 [with 1 being the best possible mark on a range of 1 to 6] (Studies-Job: 1.77; „High Potentials": 1.53), the academic performance of the participants is well above the national average¹¹. The average marks for dissertations are also very good: around 18% of mentees with PhDs graduated with the "summa cum laude", 70% attained the "magna cum laude", 8% with "cum laude" and only around 1% getting "rite".

Another focus of the research was to investigate whether a difference could be detected between the career progression and the professional mind-set of those who took advantage of mentoring opportunities and those who did not. A comparison group was used for this purpose: the data was compared to other evaluation studies (Studies-Job group was compared with the HIS [Higher Education Information System] graduates study (Briedis 2007); the „High Potentials" data was compared with a survey of former DFG scholarship holders (Enders; Mugabushaka 2004)).

It also became apparent in the comparison with the HIS graduates study that the participating mentees achieved above-average final grades in their degrees. Mentees that were surveyed as part of the 'Aufwind' evaluation were more likely to have achieved the highest possible grade of "very good" in their studies, while the graduates surveyed in the HIS evaluation had a higher percentage of "good" grades (Briedis 2007).

Furthermore, mentoring participants are more likely to expect their jobs to correspond to the subject they studied and are notably more content with certain aspects of their professional positions than the HIS comparison group (Briedis 2007).

With regard to the group of junior researchers, it is apparent that they are not only able to hold their own with regard to publications and attracting external funding in a comparison with the DFG group, but that they outperform the comparison group in some subject areas.

.....
¹¹ Because responsibility for educational policy is devolved to the states in Germany, the average Abitur marks vary slightly from state to state but they are usually around 2.4 (in Baden-Württemberg, for example, the 2011 average was 2.37) (Statistisches Landesamt Baden-Württemberg, 2012).

3.1 MENTEE EXPECTATIONS

When we consider the expectations of the various target groups, it becomes apparent that the four groups of mentees start with different expectations. The most important aspect for the mentees from the "Studies-Job" status group who work in the STEM subject areas was gaining an insight into day-to-day professional life. Mentees from the "Studies-Job" status group working in non STEM subject areas were mainly hoping to concretize professional goals within the framework of the programme. The "High Potentials" from STEM subject areas were mainly interested in further developing their skills, while exchanging experiences was most important for the "High Potentials" from non STEM subject areas. The high "achievement of objectives" level indicated by the mentees demonstrates that these expectations were fulfilled to a large degree (Studies-Job: 67.2%; „High Potentials“: 65.8%).

One conclusion that can be drawn is that a clear notion and definition of goals, a structured approach (in the form of an agreement on objectives, preparation before the meetings and follow-up work afterwards such as preparing minutes/assignments), and regular, face-to-face meetings are fundamentally important if the self-imposed goals are to be achieved.

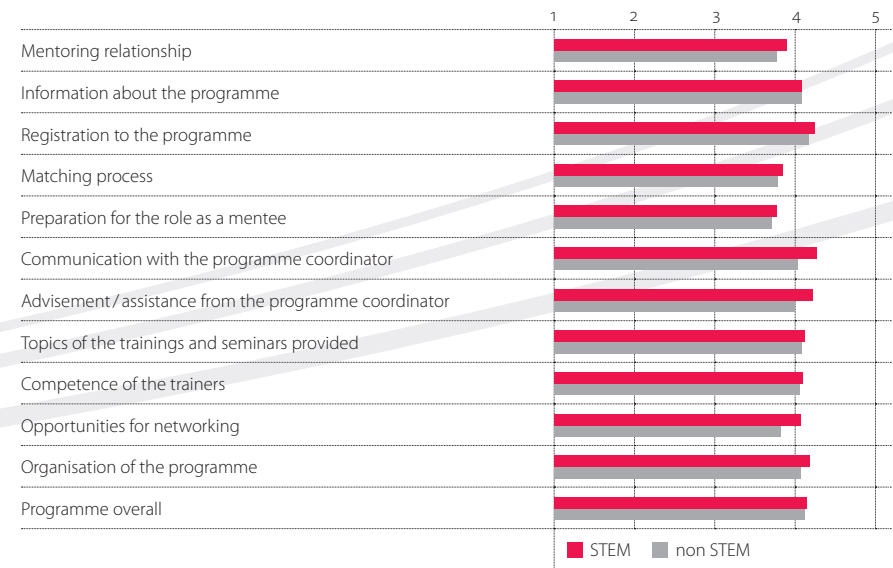
Mentoring makes an important contribution to the personal development and profile building of all mentees. To what extent the mentees profit from the mentoring relationship beyond that depends on the goals set beforehand. However, a certain recency effect can be detected. The more time has passed since the mentoring relationship came to an end, the less likely it was that positive developments in career progression be attributed concretely to the mentoring relationship. This effect also has to do with more recent life experiences that make the benefits of the mentoring relationship pale in the mentee's perception, unless the mentoring relationship initiated a decisive and fundamental change in course for the mentee.

The mentors that took part in the survey had an average of more than 14 years of professional experience at the beginning of the mentoring relationship. 60% of the mentors had already mentored one mentee before. On average, mentors who had more than one mentee under their guidance mentored three mentees. Asked about their motivation to take part in the programme, female mentors often cited their desire to provide support that they themselves would have liked to receive early in their careers, while the male mentors often mentioned that they were keen to pass on the kind of support they had received in the past.

3.2 SATISFACTION WITH THE MENTORING PROGRAMME

Satisfaction levels with the mentoring programmes were very high, both with the mentees and the mentors. Satisfaction levels were measured both as a whole and within the context of individual programme elements, although there was very little difference between the satisfaction levels in different subject areas or between the status groups "Studies-Job" and "High Potentials". It was the aspects relating to the organisation of the programmes that achieved the highest satisfaction ratings: registration for the programme, organisation of the programme, information on the programme, and the programme as a whole. Aspects relating to programme administrators (communication with and support from those in charge) were also given high satisfaction ratings. The satisfaction level of STEM mentees was slightly higher in this regard (see figure 11).

Figure 11: Satisfaction with the programme according to subject area



LaKoG 2012, 1 = "very dissatisfied" to 5 = "very satisfied", number of responses between n = 171-332

In the next stage of the analysis, the focus was on the mentoring relationship between the mentor and the mentee. This revealed that successful mentoring relationships had the following characteristics in common:

1. Mentoring relationship built around a structured concept/framework (initial phase, interim reports, concluding reflections, etc.)
2. A thorough consideration of one's own role beforehand as a means of establishing one's expectations with regard to the programme
3. The clarification of central objectives (for the development of and agreement on realistic goals with the mentor)
4. The involvement of the mentees when selecting a mentor (matching)
5. The subject affinity of the mentoring tandems
6. Female mentors who have children as role models for mentees interested in "compatibility of research and family"
7. The clarification of organisational issues (establish common structures: e.g. frequency of meetings, date arrangement, etc.) and of the "rules of the game" (confidentiality, openness, etc.)

The gender of the mentor does not notably influence levels of satisfaction with the mentoring relationship, but it does influence the kind of topics that are discussed within the relationship. For example, certain aspects of the topic of "compatibility of research and family" – such as how to negotiate the best terms in a male-dominated professional environment – can be discussed with a male mentor, while other aspects such as sharing experiences and developing strategies for coping with day-to-day life can be done with a female mentor.

3.3 EFFECTS OF THE MENTORING RELATIONSHIP

The interviews confirmed that the objectives of the mentees were often not related to research but that their primary concern was seeking orientation and guidance, usually linked to the question over whether they should remain in research or pursue work elsewhere. Here are two typical quotations that illustrate this.

Quotation by a "High Potential" mentee:

- » *"Subject-specific issues were not as important for me. My main concern was making the life decision over whether to stay in research. Do I really want to? Do I want an academic career? Can I do that – yes or no. And this decision could only be made with the help of a woman. ... I wanted to make a decision, I'd set myself a deadline."*

Quotation by a male mentor:

- » *"My task was to provide guidance during a critical phase in the mentee's career development. How should she position herself as she worked on her 'Habilitation' thesis? Which contacts could be useful for her? And how can she find the perfect balance between her work and private life? In this regard, sharing a subject area helps because we can be very precise, give concrete suggestions, and establish contacts. It is also a matter of coping with the competitive environment. How do you cope in competitive surroundings? That can lead to a real crisis. So listening is really important and it can be normal to find yourself in a crisis situation. It's important that there is a personal connection and a sense of sympathy, that you have good rapport and that you notice how the mentee ticks."*

Elaborating on the limitations of mentoring:

- » *"One hesitates to interfere with the working culture of colleagues."*
(male mentor, Research)

Mentees regard the opportunity to consider and discuss options with an experienced person as being particularly valuable. Setting goals, getting to know role models, and planning career steps were the aspects of the mentoring partnerships from which the mentees profited most (see figure 12).

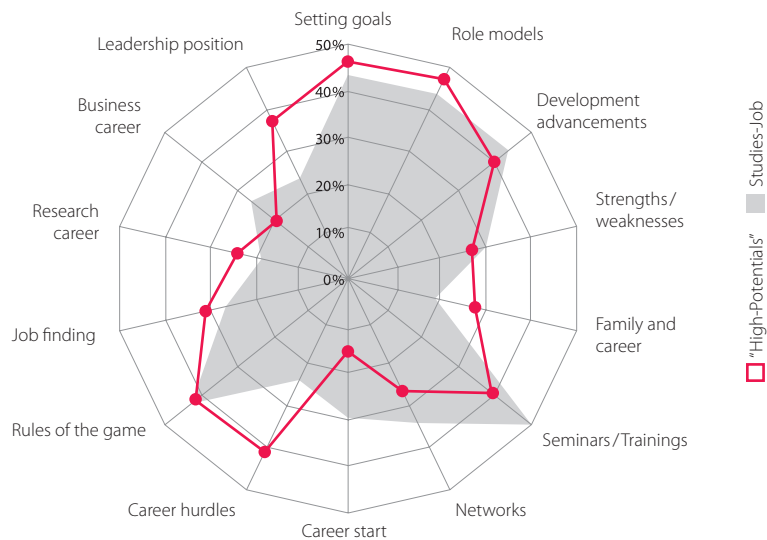
These three effects of the mentoring relationship – setting goals, getting to know role models, and developing career steps – were described as the most significant by both the Studies-Job and the "High Potentials" status groups. How much of an impact was had in each of these areas depended on which phase of their professional development the mentees were at. As illustrated in figure 12, the ratings given by the two status groups differ more greatly in some areas than in others. This is mainly down to the different priorities mentees have in the respective phases.

Quotation by one mentee:

- » *"My experience was mainly positive, and it continues to be important to me now on a day-to-day basis. ... She really helped me a lot, that was great and very helpful. ... You have to take care not to get too deep into private matters. You shouldn't get too personal in terms of family and career."*
("High Potential" mentee)

When it comes to the subject of “compatibility of research and family”, it is better to have a female mentor, but it’s not always necessary for her to have children herself. Mentees who are in the transition phase from study into professional life are, on average, younger than the “High Potentials”, who are usually already further along. As a result, “strategies for reconciling family and career” are usually less important for the Studies-Job group. This subject is more pressing for the “High Potentials”, and the benefits they gain from the mentoring relationship are greater in this area.

Figure 12: Effects of mentoring according to status group



LaKoG 2012, Mentees who “benefited strongly” and “benefited very strongly”, n=150-254

Furthermore, a higher number of “High Potentials” indicated that as a result of the mentoring relationship they were more consciously aware of the career obstacles that stand in the path of women, and that they had learned about the “rules of the game” in their field and now aspired even more to a leadership position than they had before their participation in the mentoring programme. This was with regard to issues that were more relevant for progressing up the career ladder than for getting started in professional life.

Quotation by a female mentor:

“An important objective of the mentoring relationship was to demonstrate the independence of women researchers. To support her in stepping out of the shadow of the boss, learn to handle failures. The goal was to stay free and independent, to not listen to how others might judge you.”

(female mentor, research)

The ratings given by both status groups were explicated in detail during the interviews. How the mentoring relationship made a particularly positive impact was also fully discussed. Figure 13 is arranged according to the degree of impact – the strongest impact areas are at the top – and illustrates, according to status groups, how individual effects change, gain or decrease in importance.

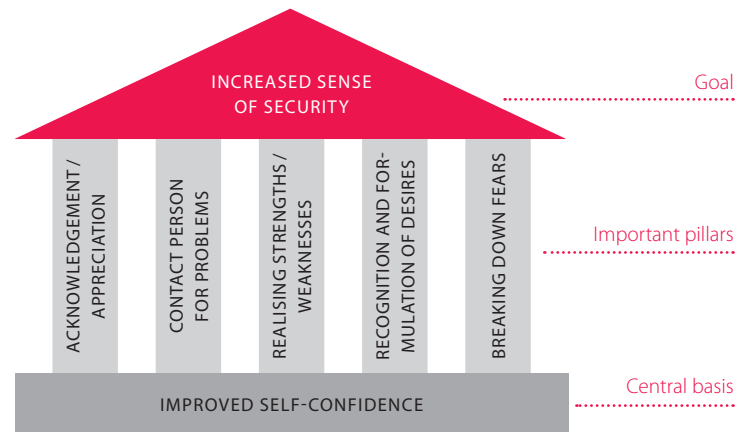
Figure 13: The greatest qualitative effects, sorted by status group

Studies-Job	„High Potentials“
Personal development advancements	Access to networks
Insights into professional life/environment	Support for research career
Access to networks	Decision regarding career in research
Information on the “rules of the game”	Personal development advancements
Career start/progression support	Getting to know role models
Support in studies	Setting professional goals

LaKoG 2012

The great emphasis that mentees placed on the advancement of personal development as a central effect of the mentoring relationship was investigated in more detail. The mentees interviewed stated that the main benefits they derived in this regard were an increased sense of security and improved self-confidence.

Figure 14: Advancements in personal development



LaKoG 2012

Mentees from both groups emphasised in the interviews that they were stronger after the end of the mentoring relationship because they felt that their skills had been acknowledged and that they had received personal affirmation. Another important aspect was that there was always someone available with whom they could discuss any problems that might arise. The mentees noted that it was very valuable to know that there was “always someone there”, in the figure of a mentor, if they wanted to discuss the hurdles and obstacles that they were facing. The feeling that they were not alone and that support was available was valued very much by mentees.

Multiplexity of the effects of the mentoring relationship

A number of other factors affect the success of mentoring relationships. The “affinity” between mentees and their mentors plays a crucial role in terms of the impact the mentoring relationship can have. It became apparent in the interviews that mentees usually profited in a number of ways if the relationship was based on either a subject or an emotional affinity. In such cases the degree of involvement on the part of the mentors was also very high. If “affinity” was missing in the mentoring relationship, the mentees still benefited, but usually in terms of only one aspect, e.g. they only learned about the “rules of the game” or they only got to know role models. For the mentoring relationship to be successful it is therefore important to make the right choice, depending on the respective goals.

Figure 15: Multiplexity of effects – emotional and subject affinity



LaKoG 2012

3.4 GENDER EQUALITY IMPACT

Mentoring has established itself in many places as a tool that is successfully used to foster early-career staff and to promote gender equality. It has been under close scrutiny in higher education settings from the very beginning. While the contribution it makes in terms of supporting individuals is uncontested, there have been consistent calls demanding that it make a greater contribution in terms of changing structures and cultures, as well as in terms of the organisational development of higher education institutions (e.g. Franzke 2003, Franzke 2005 and Jäger 2009).

One of the objectives of the ‘Aufwind’ study was, therefore, to pursue the question of whether, and if so how, the gender sensitivity of the mentors and mentees has changed and what general repercussions this has had on the respective higher education institutions.

Perspective of the mentees

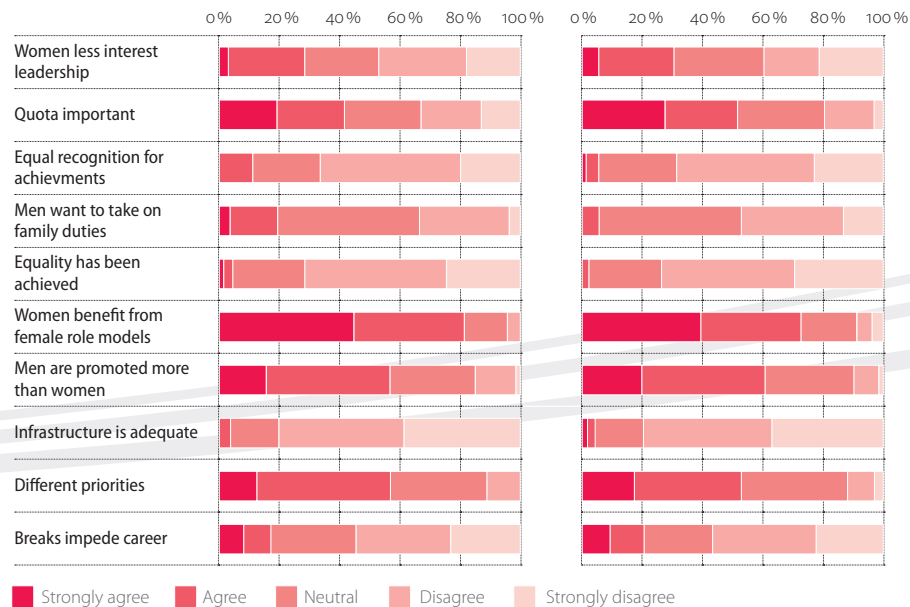
Are young women who take part in such mentoring programmes already highly aware of the inequalities that exist or is this aspect less relevant than the personal guidance and encouragement that the programme gives? The next questions that arise are: who can mentoring reach and how diverse is the reception of mentoring?

The mentees were asked to give their opinion on equal opportunity levels. They were asked to agree or disagree with the following statements according to a certain scale:

- Career breaks should not be an impediment to a career.
- The existing infrastructure is adequate to reconcile career and family.
- Equal opportunities between the sexes have already been achieved.
- The professional achievements of men and women are given equal recognition.
- Women are less interested in taking on the responsibilities of leadership.
- Men would like to take on more homemaking and family duties.
- Men and women have different priorities in terms of their professional life.
- A higher priority is given to the qualification and promotion of men.
- Women benefit from having female role models.
- The introduction of quota regulations would be an important step towards equality.

Answers are divided in accordance with the status of the mentees; see figure 16.

Figure 16: Attitudes on equal opportunities, Studies-Job (left), „High Potentials“ (right)



LaKoG 2012, Studies-Job n=172-176, „High Potentials“ n=105-108

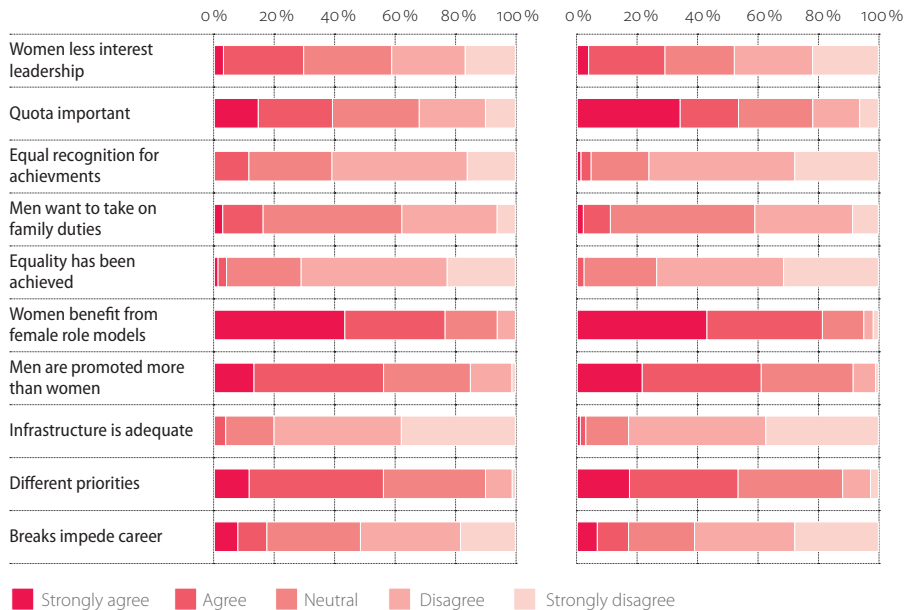
Figure 16 makes it immediately clear that the mentees are very aware of gender issues and differences. Large majorities of both the Studies-Job and „High Potentials“ mentees (strongly) disagree that “the achievements of men and women are recognized equally”, that “gender equality has been achieved”, and that “the existing infrastructure is adequate to reconcile family and career”. On the other hand, there is a fairly strong consensus amongst both groups of mentees that “women benefit from female role models”.

The differences identified between the attitudes of the two status groups at the time the survey was carried out are very slight. It should be noted that mentees who were already working in research at the time they participated in the mentoring programme were more likely to support the introduction of quota regulations (51%) than mentees who were about to start their careers at the time (42%). This is particularly the case in the field of medicine, where many female medics have long been fulfilling and surpassing the official performance figures.

This quantitative data can only be relied upon to reveal participants' attitudes at the time the survey was carried out. No assertions can be made on the basis of this data with regard to how a process of sensitisation may have been initiated or intensified as a result of the mentoring programme. If one assumes that the mentees would already have demonstrated a comparatively high level of awareness and agreement with gender-relevant attitudes before their participation in the mentoring programme, it would lead one to suspect that a certain self-selection process had happened in advance. Following this logic, women are more likely to participate in mentoring programmes that explicitly have the promotion of women as their goal if they share the conviction that existing obstacles can and must be removed using such (and other) measures. However, this can only be proved to a certain extent: the percentage of rejections to the statements on gender justice may be low, but the figures do show a relatively high percentage of waverers. It is not only “feminist” students and early-career researchers who take part in mentoring programmes. It appears then that mentoring in higher education institutions reaches beyond the gender-conscious clientele and caters for a broader target group.

One further aspect that became clear through the survey is that women who are qualified for work in the STEM subject areas are less likely to perceive disadvantages and inequity than women who do not work in male-dominated areas (see figure 17).

Figure 17: Attitudes on equal opportunities, STEM (left), non STEM (right)



LaKoG 2012 STEM n=155-158, non STEM n=119-123

One possible explanation for this pattern is that women who are already very aware of gender inequality at an early age may, when choosing a subject to study, avoid going into typically male-dominated fields (cf. Solga; Pfahl 2009). On the other hand, women who are of the opinion that gender discrimination is no longer a problem in professional life, and that there are no longer any obstacles for women, have less reason to avoid the STEM professions. They are therefore more likely to venture into professions in which women are still underrepresented.

The interviews indicate that a development has occurred in the gender sensitivity of mentees. When asked about the influence mentoring has had on their perception of the professional situation of women, a large majority of mentees stated that they had experienced a positive development in their awareness. This heightened awareness of the situation of women can be observed both in the Studies-Job group as well as in the „High Potentials“ group.

» *“And through the mentoring programme and through discussions in the mentoring programme with other mentees and the coordinators and so on, I learnt a bit more about it; that it can also be down to something else. And that can be a gender issue. And that was the main thing I learnt from the mentoring programme: to be more alert and aware of the issue of how women are discriminated against in day-to-day working life on the basis of their sex ...”*

(Studies-Job mentee, non STEM field)

Taking part in the mentoring programme also brought about behavioural changes in the mentees, resulting, for example, in their becoming alert to the issue of gender-equitable language, or in learning to take the initiative in communicating their wishes and goals firmly and insistently to senior persons or their superiors, especially when these are men.

As a rule, mentees from the Studies-Job group had rather not felt that they were disadvantaged professionally before taking part in the mentoring programme. Only as a result of the mentoring programme did they first become more aware of the different mechanisms that can lead to the professional discrimination of women and of the levels upon which this can occur. This aspect is particularly relevant for the mentees in the STEM fields. At the same time, mentoring also allowed these mentees to discover certain opportunities for women in male-dominated professions and they were given the encouragement and support to make the most of these chances.

Although the “High Potentials” – and especially those in non STEM subject areas – are basically aware of gender issues, some of them had not given any thought to the topic of gender equality before their involvement in the mentoring programme and only became sensitive to this issue as a result of taking part. Other early-career researchers had already been interested in this issue beforehand and they were able to engage with the topic more intensively within the framework of the mentoring programme.

» *“I think I'd already started to give the issue of women in professional life a lot of thought and that's why I decided to take part in the programme. Then over the course of the programme I examined these issues even more closely...”*

(“High Potential” mentee, non STEM)

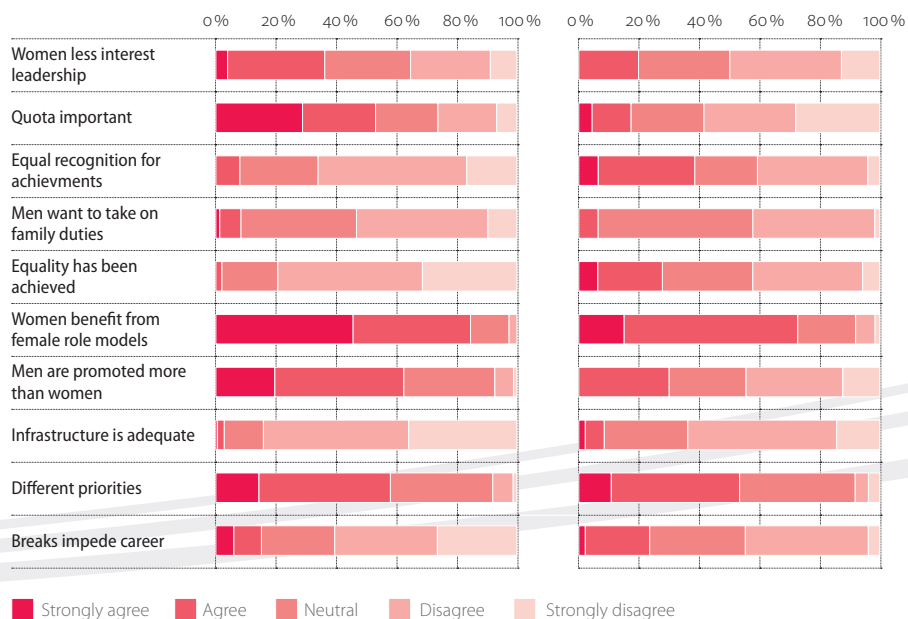
Moreover, mentees got to know role models in women's advancement through the mentoring programme and either became active in women's advancement themselves or at least gained a better understanding of these issues.

Participation in fostering and support programmes that are specifically for women often results in raising the gender awareness of all the participants. Through exchanges and discussions with people who are working towards the aim of equal opportunities (such as the mentors and the programme administrators), the mentees are presented with new explanations for existing imbalances and with ideas that often challenge formerly held opinions.

Perspective of the mentors

It is not only mentees who experienced increased awareness of gender issues as a result of their participation in the mentoring programme. A positive change in the mentors can also be detected, especially those who work in scientific research.

Figure 18: Attitudes on equal opportunities, female mentors (left), male mentors (right)



LaKoG 2012 Female mentors n=144-149, male mentors n=46-47

The results from the perspective of female mentors are clear. Only a minimal percentage of female mentors (<1%) affirm the statements “The existing infrastructure is adequate...” and “Equal opportunities... has been achieved”; less than 10% believe that women are given the “same recognition” for their work as men or that men would “like to take on more homemaking duties”. In contrast, more than 60% of female mentors are of the opinion that men are given more fostering and support, while more than 80% believe that women need “female role models”. Half of the female mentors consider “quota regulations to be an important step”, an amazingly clear statement on this issue. Around 25% of male mentors believe that “equal opportunities between the sexes has been achieved”, and around 40% think that women are given the same recognition for their work. Like the female mentors, only very few male mentors believe that men want to take on more “homemaking and family duties”. A large percentage of male mentors also agree with the statement that women benefit from having female role models. In contrast, however, only 17% consider quota regulations to be a wise move.

Countless examples of awareness raising can be found in the interviews:

“... I think we also experience a change of perspective, you realise once again that you belong to a different generation, or that the situation when we were studying was just completely different to the situation that young women are facing now. But you also come across issues where you get the feeling that things are going backwards for women, certainly.”

(female mentor, civil service)

Female mentors in particular report that they became more active in women’s advancement after the mentoring programme. In contrast to the male mentors they were already very aware of these issues and their mentoring roles merely gave the final impetus to become more active in the campaign for gender equality. The situation with the male mentors was different. They first became aware of gender equality issues through their involvement in the mentoring programme. Some report that they first came to understand that in research, it not only comes down to academic achievements, but that women encounter serious problems on the professional level despite higher achievement.

“Of course mentoring also changed the way I think about this issue. I was always convinced that achievements and performance were the be all and end all in a company, nothing else mattered. I came to understand through such discussions that that’s not always the case.”

(male mentor, research)

- » *“Why did I take part? I don't know whether I unconsciously set up barriers for women researchers, and I have daughters.”*

(male mentor, research)

Observing one mentee with excellent academic achievements attempting to re-enter academia at a high level, one mentor comments:

- » *“You start right at the bottom again after taking time out, your achievements up to that point are no longer recognised. I didn't know that, I wasn't aware of it. Even the professor didn't know what was causing the problems. If no solution is found internally then you have to change institutions. Isn't that a setback?”*

(male mentor, research)

- » *“I see problems in other departments and I was able to develop a new perspective, how is this problem solved by others, what advice can I give?”*

(male mentor, research)

Transferring the insights gained from the mentees' experiences into day-to-day life at the higher education institution also makes a contribution to changing working conditions in their own institution too (e.g. meetings only scheduled at times when childcare facilities are open). As a result, the mentoring relationship not only derives benefits for the mentee, but also for the mentors and their institutions.

In contrast to this positive development in terms of an increased awareness of gender issues in some mentors, around half of all mentors stated in the interviews that they had not experienced a change as a result of the mentoring experience, as illustrated by this quotation.

- » *“Officially it was about opening up access to networks and I don't know of any gender-based networks. It's also supposed to be about learning to work the system. For me the important thing is that it is about the research performance, not about elbowing your way up. Female researchers need to present their results to the world, and to not be too modest. Women achieve great things but they can't be too modest. ... The objectives were: [to discuss] personal problems at the workplace with your superiors, the DFG's women's advancement. You don't want to be reactionary. ... The point comes when you'll be seeking promotion. Convince everyone with your research rather than bashing other people.”*

(male mentor, research)

Mentors of both genders report that they already have to address the topics of “gender justice” and “equality” in their day-to-day work and/or that they were already aware of the situation of women before the mentoring programme. This was particularly true for female mentors. Female mentors also claimed, however, that they became more active in terms of the advancement of women because of their participation in mentoring. Male mentors, on the other hand, often stated that they realised that “it's not just about performance”, and that structures exist that hinder women, even when they are just as good as or better than their male counterparts.

To conclude, it can be asserted that around half of the mentors incorporated the insights they gained into their day-to-day work. These aspects of mentoring could be used more intensively and in a more targeted manner for the purpose of raising awareness of gender issues. Until now the insights mentors have gained were often unsystematically collected. There was a particularly notable increase in the gender awareness of mentees in STEM subject areas. This was the area in which it was lowest at the start. Mentoring taught mentees to recognise obstacles and stumbling blocks early and, in an ideal case, to overcome them or to circumvent them completely.

Mentoring programmes have the chance of identifying concrete measures that could change higher education cultures and structures, and to implement these more intensively. This requires a high degree of gender competence on the part of those responsible for the programmes, as well as adequate time and resources for them to analyse the contributions of the mentors and to set in motion a step by step process of change together with the higher education institution's management. The objective must be to open and develop existing higher education cultures and structures. First proposals have already been implemented in numerous places and further measures could be identified in a targeted manner so as to improve the opportunities and conditions not only for mentees, but also for students, junior researchers and higher education staff as a whole.

3.5 SUMMARY

The situation of early-career researchers and the conditions under which they gain their professional qualifications has come under scrutiny in the Federal Report on Early-career Researchers (Bundesbericht Wissenschaftlicher Nachwuchs) in 2013. The report focuses on qualification and career development from the initial degree up to the awarding of a doctorate. Among the findings, it became apparent that there is no “feedback culture” and that early-career researchers are keen to receive more feedback on their work. Complex impact analysis is required to balance the performance requirements of the academic system with the professional and private circumstances of junior researchers (cf. BuWiN 2013). That undertaking, in terms of its themes and propositions, links in to current political debates. Mentoring relationships take off from such points of intersection and in doing so can fill a gap both on the institutional and the individual level. This was also proven recently in the Stifterverband’s 2013 “Staff Development for Early-career Researchers” study, which established that women are more likely to ask for guidance and skills development measures, and that they are keen to take part in measures such as mentoring programmes (pp. 1–2), which 67% described as either useful or very useful (Briedis et al., 2013).

The topic of “structured fostering programmes for early-career researchers” and “staff development in higher education” is increasingly becoming the centre of focus in terms of recruiting and retaining early-career researchers. Mentoring has been identified as a central element in terms of fostering and promoting early-career researchers. As a result, there is increasing interest in specifying how mentoring programmes can be used even more effectively, with the aim in particular of recruiting, supporting and retaining female junior researchers. In this case it is not academic qualifications that are most important but rather the opportunity to choose the best and to work with them to establish a good framework so that they can combine their academic talent and personal needs in the best way possible.

Mentoring is a highly flexible tool with which to foster junior researchers and it can fulfil a number of different requirements. Mentoring leads to high levels of participant satisfaction and closes the gap between “subject-specific specialism”, which the participating “High Potentials” often already possess, and providing the individual support required so that they can strive purposefully for leadership positions and take on the responsibility such positions entail.

Mentoring is an option for female students and researchers from two target groups in particular, namely those in the transition phase “Study – Profession or Research” and the so-called “High Potentials”, i.e. for targeted career development as preparation for leadership positions. Through the mentoring programme, mentees receive support as they attempt to gain a clear understanding of their situation and make important decisions at exactly those junctures where strategic decisions are necessary.

Female participants on mentoring programmes boast better than average grades, have high incomes, and are comparable to DFG scholarship holders in terms of publications and attracting external funding (Enders, Mugabushka; 2004).

Demand for and the popularity of mentoring programmes continues to be strong, both in terms of mentees and mentors. 85% of mentees and 87% of mentors would recommend participation in a mentoring programme to others. Moreover, those polled consider mentoring to be a very effective method of promoting women (mentees: 75%; mentors: 79%) as well as of fostering early-career researchers.

The demands made of applicants have evolved on many programmes and are, by now, not insignificant. Numerous documents, selection events and interviews, as well as letters of recommendation indicate that participation in such programmes involves certain expectations of the early-career researchers. In the retrospective survey, it became clear that expectations of the programme were fulfilled in very different ways and that mentees, in some cases, had very different experiences. This was confirmed in the interviews. It is therefore recommended that project heads conduct feedback interviews with mentees and mentors, and to carry out interim evaluations so that there is the opportunity to take corrective action mid-programme if necessary.

Based on the research results a number of action recommendations have been identified that aid the effective design of mentoring relationships. Initial approaches have been identified on how mentoring activities can be used to incorporate gender issues into staff development in research and science.

As a custom tool that is focused on the fostering of individuals, mentoring makes a huge contribution to strengthening the position of women in higher education. It can draw attention to structural problems and help to make these visible, but under the current framework it cannot eradicate or counterbalance these problems. The contribution mentoring relationships make to mentors in particular must also be communicated more clearly so that mentees can ask for what is important for them. Awarding certificates for participation represents an example of best practice that can also be regarded as an element of quality assurance. It is essential to prepare a detailed definition of roles for all participants as well as to communicate the expectations on both sides clearly. Finally, it is vital that all participants – mentees, male and female mentors, coordinators, and the heads of the higher education institution – become aware of gender issues so that the “cooling-out effect” (cf. Clark 1959) and the loss of women and their specialist skills are not regarded as their personal fault, but are rather treated as a structural problem.

The results of the study “Aufwind mit Mentoring” identify overriding quality standards for mentoring programmes and provide a stimulus for the integration of mentoring programmes into academic staff development. What is, however, still missing, are long-term studies on the impact of mentoring over longer time periods. The participating programmes have indicated that they would be prepared to take part in a follow-up study.

4. EXAMPLES OF BEST PRACTICE: PRESENTATIONS BY PROGRAMME COORDINATORS

The following 15 examples of best practice provide concrete insights into the way the mentoring programmes were implemented. These examples were identified as part of the evaluation and were presented by the programme administrators at the ‘Aufwind mit Mentoring’ conference at the Universität Hohenheim.

I. MATCHING AND SUPPORT OF THE MENTORING RELATIONSHIP



1. Matching: Dipl.-Päd. Helga Rudack, Ruhr-Universität Bochum (RUB)

Mentees at the Ruhr-Universität Bochum were particularly satisfied with the selection of their mentors. Helga Rudack from the Ruhr-Universität Bochum attributes this to the way they match mentors and mentees. Over the course of many years, she has built up a network of mentors and supporting figures. She has also developed criteria to ensure that the right mentor is found for each mentee and that the chemistry between them is ‘just right’. Where possible, she takes the special requests of the students and researchers into consideration. Over the years she has developed a special talent for pairing up the right people. Such a tailored matching process is, however, very time-consuming.

2. Matching in medicine: Dr. Bärbel Miemietz, Medizinische Hochschule Hannover (MHH)

Matching also requires special attention in the field of medicine. Dr. Bärbel Miemietz, Equal Opportunities Officer at the Medizinische Hochschule Hannover, also draws on a long-standing network and on the expertise of



a mentoring advisory board. Her programme only includes mentors from the MHH. The programme places great emphasis on transparency, confidentiality and the support of the institution's administration so as to avoid possible rivalry between supervisors and mentors. This has formed a counterpoint to the existing networks, specialist associations and (male-dominated) groups in the field of medicine. All those

involved are aware that it is necessary to proceed very sensitively as they work together to identify the interests and to establish the right criteria for a good partnership between mentors and mentees.



3. Support:

Dipl.-Pol.-Wiss. Larissa Schmitz, Universität zu Köln

The mentors and mentees surveyed were particularly happy with the intensive support provided by the mentoring programme in Cologne. Larissa Schmitz, Coordinator of the Mentoring Programme in Cologne, explains that targets are developed with the mentees and that these objectives are communicated

in an initial discussion between the mentor and the coordinator. Since this clarifies the framework of the relationship for both sides, the mentees in Cologne subsequently find it easy to pursue their goals together with their mentor. A close relationship between the coordinator and the mentees serves as a basis for successful mentoring partnerships, where feedback can always be exchanged with the mentoring tandem.



4. Support:

Dr. Ulla Weber, Technische Universität München

On the one hand mentees want support, on the other hand they also want space in which they can form their own individual mentoring relationship. Ulla Weber from the TU München tries to prepare the mentors for their mentoring roles as best as is possible by talking to each of them personally. It

was not possible to hold joint workshops due to a lack of time. Drawing from her experience, Ms Weber has developed a criteria list which she uses as the basis for her work with the mentors. She also tries to raise the mentors' awareness of equal opportunities issues at higher education institutions, while the mentors impart to her the situation and challenges in their companies.

II. PREPARATION FOR THE ROLE AND SETTING GOALS



5. Preparation for the role:

Dipl.-Psych. Susanne Abeld, Universität Bremen

In Bremen, satisfaction was particularly high with the preparation work, both in terms of the roles of the mentee and the mentor. Susanne Abeld explains that personal discussions are the basis upon which mentoring relationships are built. Only when there is a perfect fit between mentor and mentee can a good working relationship be established.

At the Universität Bremen, particular care is taken to ensure that the personalities of the mentee and the mentor fit together well. As a psychologist, Susanne Abeld has a wealth of relevant experience that she can use in the matching process.



6. Setting target and working agreements: PD Dr. Caroline Hopf, Universität Erlangen-Nürnberg

The 'Aufwind mit Mentoring' survey has shown that it is very important that mentors and mentees come to an agreement on their objectives and working relationship. Doing so

improves the achievement of targets and satisfaction levels on both sides. This was implemented with particular success by the mentoring programme at the Universität Erlangen-Nürnberg.

Caroline Hopf offers an opening workshop and personal discussions with the mentors to help mentees become clear about their goals. Both sides sign a work agreement, which is also used to measure the success of the mentoring relationship and its development.



7. Goal setting and reporting:

Dipl. Oec. Rotraud Konca, Universität Hohenheim

Along with a written list of agreed objectives, the mentees at the Universität Hohenheim are required to write reports on the mentoring meetings so as to document the progress made in the mentoring relationship. The results of the study show that this establishes a sense of accountability that enhances

the success of the mentoring relationship. Thanks to these short reports, Rotraud Konca is always kept informed of developments and can step in to take action if something is not running smoothly.

III. FRAMEWORK PROGRAMME (SEMINARS/CERTIFICATION AND NETWORK)

8. Framework programme:

Dipl.-Pol.-Wiss. Larissa Schmitz, Universität zu Köln

The seminars and training courses offered as part of the framework programme are an important aspect of the mentoring programme. They are an excellent complement to the mentoring relationship and they help to raise awareness of the additional obstacles that women face and how these can be overcome. Alongside the choice of instructors, most of whom possess gender competence, Ms Schmitz from the Universität zu Köln also works to ensure the use of gender-equal language, as well as to make sure that examples are used that directly reflect the lives of female researchers.



9. Mentee networks:

Monika Demming-Pälmer, M.A., Universität Düsseldorf

One aspect of the framework programme that has so far been undervalued is the opportunity mentees have to discuss their experiences. The mentees get to know each other at seminars, which is a great opportunity to exchange thoughts. This helps them

to realise that they are not isolated in the challenges they face nor in their day-to-day experiences in research, but that these situations are structurally and culturally determined. On the one hand, this comes as a relief for the mentees, while on the other hand it also provides the encouragement they need – supported by their knowledge of the higher education system – to continue with their careers in academia.

10. Mentee networks for improving gender awareness:

Dipl.-Psych. Susanne Abeld, Universität Bremen

Gender awareness is important in making sure the different facets of mentoring are relevant to the participants and their day-to-day (working) lives. Establishing a link between equal opportunities work and the results of gender research has been hugely important at the Universität Bremen since the beginning and this also influences the university's equal opportunities policies. This is reflected in the use of specially trained instructors for particular further education sessions and in the inclusion of those responsible for the implementation and organisation of excellence clusters.

Female mentees usually do not want to be confronted with the fact that different benchmarks may be applied to their research performance. Susanne Abeld endeavours to communicate the significance of gender bias and suitable ways of dealing with it.

IV. INTERNAL AND EXTERNAL PARTNERSHIPS



11. Internal networks:

Anne Pajarinen, M.A., Universität Konstanz

Networking opportunities were also rated very highly by the mentoring participants at the Universität Konstanz. Anne Pajarinen emphasises the distinctive aspect of the mentoring programme at the university: it includes mentees from both the university and from the polytechnic

institutions (Fachhochschule). Moreover, the programme is based at the Student Advisory Centre. This means that the experience they have of dealing with students and their problems as they come to the end of their studies and transition into professional life can be integrated optimally. The mentoring programme visits careers fairs and makes use of the opportunities offered by the alumni networks. Transfer of knowledge occurs in the best possible way as both institutions are under the same management. Furthermore, the coordinator ensures gender transfer and the coordination of their work with that of the Equal Opportunities Unit.

12. External networks

Dr. Ulla Weber, Technische Universität München

Mentees at the TU München benefit in particular from the university's contacts in the world of business. TUM-Mentoring's business network has grown immensely over the years. Mentors who have been involved since the early years have changed companies or have climbed high on the career ladder within the same company. It is important that the programme has a 'face' or a long-term contact person so that solid relationships can be built; relationships that include the sponsoring activities of these companies and offer connections to their management levels. This is an excellent basis upon which the network can be developed and expanded.

13. Visibility and raising awareness:

Dr. Bärbel Miemietz, Medizinische Hochschule Hannover

Mentoring relationships are particularly successful and their effects especially long-lasting when they not only provide individual solutions for the mentees but when they also bring about changes in the leadership culture of the mentors. The mentoring programme at the MHH has led to a change in the meeting culture and structures and has shown how minor measures can improve the compatibility of research and family.

V. CONSOLIDATION

14. Consolidation of the mentoring programmes:

Dipl.-Päd. Helga Rudack, Ruhr-Universität Bochum

The RUB was one of the first higher education institutions to acknowledge the expertise in the area of staff development and to understand how to use mentoring as a means of developing leaders. This mentoring expertise has been reflected in the university's staff development concept. This is now a win-win situation for all involved, including the head of mentoring, who has taken on a permanent role in the human resources department. University management believes that this successful concept will, in future, be reflected in the institution's research performance. The consolidation and integration has thus been worthwhile for all involved.

5. RECOMMENDED ACTIONS FOR QUALITY ASSURANCE

In the following, the main study results will be translated into specific recommended actions. We will first examine the mentoring relationships and then present the framework conditions for a successful mentoring programme.

5.1 SEVEN STEPS TO ESTABLISHING A GOOD MENTORING RELATIONSHIP

Good preparation is essential for a successful mentoring relationship. This presupposes the mentee's awareness of the personal significance of the support as well as the opportunities and risks the mentoring relationship can entail, including her surroundings. The following lists the seven steps to a successful mentoring relationship:

1) Give orientation and clarify expectations

For a successful mentoring relationship, it is important to clarify expectations beforehand. The goal is to create and offer a space in between the 'feasible (research) goals' and the more 'long-term', i.e. thinking big. Mentees can profit more from the mentoring relationship if the concrete expectations they have of the mentor and of the relationship (and maybe also of the programme as a whole) have been established beforehand. Good mentoring needs orientation guidance. The first step in this process of clarification is to determine the individual's current position, while taking their past research and professional achievements into consideration. This often reveals academic successes that are not deemed very important in everyday professional or research life. Examining past performance and consciously perceiving one's own resources usually encourages future mentees to define their research or student profile more clearly. With heightened awareness of their resources and possibly the identification of untapped potential, they can develop an initial requirements profile of the mentoring relationship. It has

proven to be beneficial to implement the clarification process in the framework of an introductory workshop and to discuss and process the individual challenges and open questions with the mentoring coordinator once again subsequently. The coordinator may support the process of clarification by providing appropriate documents (checklists, enquiries, information, interim evaluations, etc.) and including a profiling sheet as part of the application.

2) Setting and agreeing upon goals

Before the goals that are set can be achieved, they have to be clearly conceived and defined. It is therefore important for the mentee to receive support before the beginning of the mentoring relationship with regard to setting goals and developing potential action steps. It is recommended that the mentee's goals are written on paper so that everyone's focus is pinpointed on the demands. The written documentation of goals makes it possible for concrete measures and appropriate steps to be taken to reach these goals. The definition of a goal requires a clarifying process and lays the foundation for the search for an appropriate mentor. Mentees and mentors should jointly formulate the goals of the mentoring relationship in the beginning. It is recommended that these goals are not stuck to rigidly but that the tandem jointly reflects upon them from time to time and modifies them if necessary. This makes it easier for the mentee to refer to the agreed goals in potentially difficult situations and to make a claim for commitments previously made on this basis. In addition, written goals can be used as a basis for jointly reflecting on the achieved goals at the end of the mentoring relationship. Some mentoring programmes offer one- to two-day workshops on setting goals; others offer a joint introduction, followed by one-to-one talks. Both are important if a mentoring relationship is to be successful. As the process of establishing goals is often accompanied by critical questions, for example with regard to an increasingly competitive working climate or whether to remain in research ("should I stay or should I go"), it is especially important for the future success of the mentoring relationship. A structured approach with regard to the implementation of the mentoring relationship has proven to be helpful.

3) Framework design of the mentoring relationship

Good preparation and the organisational framework of the programme are decisive factors when establishing a mentoring relationship. It defines certain options for action and reveals a certain space or leeway that can be designed by the mentees and mentors themselves. The structural framework of the programme should establish the fundamental requirements for a good

joint working relationship in the mentoring partnership and clarify the expectations and resources. The following central aspects should be clarified before the start of the mentoring relationship:

• The time budget of the mentee and the mentor

The personal meetings between the mentee and the mentor form the core of the mentoring relationship. Through personal communication, knowledge is transferred (especially informal knowledge), and experiences, tips and advice can be exchanged. The frequency of the meetings – on average 'Aufwind'-mentees met around four to five times with their mentor – is a central element for the success of the mentoring relationship. The more often the mentoring pair meets, the more intensive the exchange can be and the more likely it is for learning and development processes to be initiated. The following should be clarified in advance:

- How much time can I invest in the mentoring relationship?
- How much time do I want to invest altogether?
- How much time do I expect from my mentor?
- How often do I want to meet with my mentor and how much time am I willing to invest in this?

• Gender of the mentor

Would I like a man or a woman as my mentor? The lack of female role models is seen as a vital reason for the small number of women that reach top positions. Mentoring relationships should therefore contribute to direct contact with female role models. The advantages and disadvantages of the mentor's gender should be considered in advance. The majority of the mentees surveyed as part of the 'Aufwind' study were very satisfied with the gender of the mentor. 80% had female and 20% had male mentors. The function of role models is especially important for female students in male-dominated fields. It has been shown that the concerns of the mentees have influenced their choice of the mentor's gender. In particular, mentees who feel that the topic of reconciling research and family is important decided in favour of a female mentor who can offer help on the basis of her own experiences. Other mentees specifically chose a male mentor in order to get to know the viewpoint of and the best approach towards their male boss. In doing so, they hope to get advice and to develop strategies on how best to handle the more traditional male perspective. This involves breaking down reservations that they may have previously held. Even when striving for the same goal, a male or a female mentor can be the right person for the mentee at different times. However, most mentees want a female mentor in order to get to know the female viewpoint and perspective. Some mentoring programmes (three in the 'Aufwind' study) therefore exclude male mentors on principle for equal opportunity reasons.

• Subject affinity of the mentor

Subject affinity is an important factor for satisfaction levels with the overall mentoring programme and specifically with the mentoring relationship. Mentees with mentors working in the same specialist field are somewhat more satisfied in all areas than mentees with mentors outside their specialist field. This is not very surprising as exchanges between people in the same specialist field can be more concrete. The mentors are familiar with the logic of the respective field, can give very specific advice and offer contacts to their own networks. A differentiated approach is only possible when the mentor has a detailed knowledge of the appropriate system and the way it functions. If the mentee and mentor work in different subject fields, their communication remains on an abstract level. This might be desired, especially to clarify strategic issues when only the culture of the department is known. "High Potential" mentees in research are especially keen to have mentors from unrelated fields so as to avoid giving overly detailed insights into research plans, thus eliminating the danger of future competition. Subject and/or emotional affinity are central factors that mentees emphasize and that have many benefits for the mentoring relationship. For a successful mentoring relationship, it is recommended that mentees and mentors are matched whose subject areas are as closely connected as possible – especially while the mentee is transitioning from their studies to their career or is at the beginning of their academic career. If the mentee has consciously decided in favour of a mentor outside her subject area, for instance for strategic reasons, this usually leads to a high degree of satisfaction nonetheless.

• Geographical proximity of the mentor

Some mentoring programmes rely solely on their in-house resources and only allow mentoring partnerships within their university while other programmes don't set any limitations and are happy to arrange 'worldwide' mentoring relationships.

Mentees of the 'Aufwind' study were largely satisfied with the geographical proximity of their mentors. However, it has been observed that the frequency of personal meetings had an influence on mentee satisfaction rates. The more one-to-one meetings, the higher the satisfaction rate was, particularly in the transition area of Studies-Job.

Depending on the concern of the mentee and the preferences of the mentor, other criteria such as the professor's or a recognized institution's reputation may outweigh the factor of geographical proximity. In this case, international conferences and modern communication channels such as Skype etc. are used for meetings. Here, too, it was the "High Potentials" group in particular that readily accepted the offer of an international mentoring relationship.

• Course of the mentoring relationship, preparation and evaluation

The course of a mentoring process usually includes an initial meeting, a joint closing event and sometimes an interim event, where developments and goals achieved so far can be assessed and adjustments made if necessary. These steps have proven successful: the satisfaction levels of mentees are higher when they are offered this opportunity for reflection. During the preparation phase the programme coordinator is usually responsible for the interaction between mentor and mentee. She will intensively prepare both sides for their respective roles. It is often the case that only some mentors can take part in this process. We therefore recommend documenting the contents of the event and to prepare written materials that will keep everybody involved informed and up-to-date.

At the end of a mentoring relationship it is advisable to have a joint session to reflect on developments, acquired skills and goals that were achieved (or not achieved). A number of steps taken towards the development of skills are taken implicitly and have to be explicated, i.e. verbalised by the mentee, for them to be perceived consciously. Mentee and mentor can reflect upon what they achieved in their relationship and where there is a need for action on the part of the mentee or for potential structural and cultural changes in the department.

The mentoring meetings, as well as their preparation and evaluation, are one of the basic tasks of the mentees. The mentee's independent initiative as the 'motor of the mentoring relationship' is important here as the mentoring relationship will be particularly successful when mentees take personal responsibility. How can the mentees be supported in this matter? It is recommended that the frequency or the minimum number of meetings as well as the start date of the relationship is set so as to clarify when the formal mentoring officially starts. In addition, it is essential to define and implement quality standards (that might be linked to evaluation criteria) which make it possible to issue statements on the achievement of the programme goals at a later stage. Many mentoring programmes have therefore developed detailed instructions for the procedure as well as for the preparation for and evaluation of the meetings. The following elements have proven to be particularly successful:

- Minutes or feedback forms
- Creating a constructive relationship between the mentees and mentors, in particular building a foundation of trust
- Maintenance of contact through mutual feedback on the implementation of discussion content and new factors
- Mentoring coordinator to hold interim discussions with the mentees

- and the mentor, and they among each other
- 'Wake-up calls' for tandems that seem to be in abeyance (e.g. by follow-ups, enquiries, low-threshold feedback request on the satisfaction level with the mentoring relationship)
- Final meeting

The things they have in common bring the mentees and mentors closer. For instance, having studied at the same university, the same university abroad or having a similar family situation are elements that stabilise a mentoring relationship. When the coordinator also knows the mentees and mentors personally, it provides an additional level of support and promotes the foundation of trust.

A structured approach has proven successful especially with students that are transitioning into their careers. This includes the preparation and evaluation of the meetings (via protocols and homework). Scheduling personal and frequent meetings is especially important for a structured approach as there have been repeated reports of problems when asking for and setting appointments for meetings. The feeling of being a supplicant is humiliating and contradicts the postulate that mentoring relationships exist outside of hierarchies.

The following has also been identified as a factor in successful mentoring relationships: a friendly relationship and ongoing contact while keeping the other party informed of new developments.

4) Preparation for and fulfilment of the role of mentee and mentor

Mentoring relationships are more successful when the mentor is also prepared for his/her role. This involves the clarification of the concept as well as the activities of mentoring.

• Role preparation for mentees

The mentee is advised to undergo a thorough preparation for her role since this will help to reflect on her expectations and to formulate realistic goals. This can also help the mentees to openly approach the mentors and can serve as a basis for legitimacy to make concrete claims from the mentors (e.g. time for a meeting). Options that have proven useful include introductory and orientation workshops, with the selection of a mentor potentially being postponed until after this.

• Role preparation for mentors

While mentees actively apply to participate in a mentoring programme and prepare their mentoring topics quite thoroughly within the framework of their assessment and the clarification process, mentors are usually picked by the head or the coordinator of the mentoring programme. Mentors also have different and often personal expectations and experiences as lecturers or experienced managers when they take on the role of a mentor.

The 'Aufwind' study has shown that most mentors draw on their own experiences and would like to give back the support that they themselves enjoyed or missed out on, or would like to altruistically help young women on their career paths. However, the expectations within the group of female mentors, within the group of male mentors, and between the two groups differ. Being well prepared for the role not only offers the chance to reflect on individual experiences but also to examine the discriminating structures that exist with regard to gender aspects.

• Fulfilment of the role of mentee and mentor

The mentoring role is successful when the (intermediary) goals achieved have been discussed during the period of the active mentoring relationship and when expectations have been compared to the actual results. The goal is a positive balance for both sides.

The 'Aufwind' study has shown that, on average, mentors assess their commitment and the elements of the mentoring relationship better than mentees. When asked about the different aspects of their mentoring relationship, all mentors gave themselves positive scores. When allocating roles, this phenomenon should be mentioned and joint feedback rules should be communicated so that mentors don't overestimate themselves and so that there is no ground for misunderstandings. For example, the expectation mentees had that mentors would function to 'open doors' was rarely regarded as being fulfilled. Mentors, however, were often not aware that mentees wanted them to 'open doors' for them, or this wish occasionally pushed the limits of their 'academic probity' which they were not ready to cross in the framework of the mentoring programme.

Due to the different ways people work it is recommended that programme managers openly address misunderstandings and to make any resulting difficulties transparent. Ultimately, by discussing any issues, both sides gain a sense of security when dealing with each other. It is recommended that mentoring programme heads actively approach mentors to analyse existing

hurdles with regard to their structural and cultural aspects. The results of this kind of reflection should also be made available to the university management, the equal opportunity commissioner and the university as a whole for a discussion of its self-conception and for documentation purposes.

Since it is difficult in practice to get hold of external mentors for an on-site preparation of mentoring relationships, individual offers or invitations for preparation for the role as mentor have proven successful.

Possible offers for mentors:

- Preliminary talks (face-to-face or on the telephone) with the mentoring manager or coordinator, clarification and coordination of mutual expectations
- Written hand-outs (programme description, rules, feedback form; 'rights and obligations' in the frame-work of a mentorship relationship, etc.)
- Establishing a target agreement on the mentoring relationship, including a reflection on the framework conditions for the mentoring relationship
- Statement on the contribution mentoring makes as a staff development measure in the area 'Young researchers, "High Potentials"'
- Mutual reflection on the demands the research system makes on junior researchers
- Rewarding the mentoring work through public recognition, awarding certificates, recognition as teaching performance, bonuses etc.

Since recognising when others may have more experience than oneself is an important part of mentoring, the mentors should also be informed that it is perfectly legitimate to look for co-mentors within their own network to clarify specific questions such as the issue of the compatibility of family and work.

Possible offers and role preparation measures for mentees have already been discussed in previous points and partly overlap with the mentors' own. The following elements have also proven to be successful:

- Workshops and role play exercises on the configuration of the mentoring relationship, which may offer the mentees an additional perspective.
- Providing information on rights, duties and examples of best practice, in addition to the information about the programme.

Dealing with difficulties agreeing on appointment times, clarifying the topic of confidentiality, and drawing the line between research/profession and private life are all issues that can be prepared. Potential difficulties can then

be discussed and avoided altogether and it can help to reflect on one's own position in relation to these topics.

5) Finding and securing the services of the best mentor

Different approaches have proven to be successful for finding and securing the services of mentors. Usually the search is oriented around the mentee's goals. The mentoring coordinator starts searching for the person who best suits the mentee ('the chemistry has to be right') and who has all the pre-requisites to fulfil the mentee's goals as well as possible. Which strategies do the mentoring programmes use to secure the services of the mentor?

There are different ways to clarify which mentor best suits the mentee. The results of the 'Aufwind' study prove that mentees are more satisfied if they participate in the search for a suitable mentor. Mentees are more satisfied with the matching process when they have a say in which important characteristics the mentor must have. Student mentees are less specific in their expectations than more advanced researchers, who usually have subject-specific requirements and expectations. The mentee's participation in the search for a suitable mentor can serve as a reality check where they can verify whether their desired professional profile already exists or would need to be established. It can also serve to determine the amount of vacant professorships in the subject field in order to potentially expand the desired profile.

• Search for a mentee in the group Studies-Job

Studies-Job mentees prefer to be matched. They are grateful for the assistance they receive from the project head in searching for (or being referred to) a suitable person. They need more assistance when establishing the mentoring relationship, particularly in terms of taking an active role in the organisational layout of the mentoring relationship. A strong bond to the mentoring coordinator encourages the mentees to lay claim to the commitment made by the mentor and can compensate if and when the mentoring relationship proves to be less fruitful than expected.

• Search for a mentee in the group "High Potentials"

"High Potentials" mentees like to participate in the search for their mentors. They have more professional and research experience and have better judgment when deciding who best suits them. They most often aim to establish a reputation with the help of their mentors and want to participate in their networks. The search for a suitable person simultaneously raises their profile so that the search might reveal that a suitable profile does not yet exist and still has to be created. Also, they reflect on their own compatibility to poten-

tially further develop their personal profile in order to serve more than one career prospect. “High Potentials” first of all look for a professional relationship. Openness and trust are especially important – not an atmosphere of competition, but rather of support and encouragement.

• Recognition of the mentor’s work

There are different views on how the mentor’s work should be recognised. It is often argued that the support and promotion of junior researchers and “High Potentials” in particular is a part of a professor’s standard tasks. Individual recognition is therefore said to be unnecessary and many of the professorial mentors do not expect it.

In contrast, the results of the ‘Aufwind’ project suggest that a formal recognition of mentoring activities leads to more satisfied mentors. Considering the personal commitment some people make to the promotion of junior researchers, it seems appropriate to consider how mentors could be rewarded. It would be conceivable to have the activity count towards teaching load/contact hours or to take measures that create an even work-work-balance. Possible solutions include providing resources for an assistant, an exemption from other committee work, or support with the preparation of applications for third party funding, as is done in other countries. An inclusion of mentoring in the criteria catalogue for allowances for special commitments to promoting equal opportunities for women, as well as coaching vouchers are some ways to support and credit mentors.

Furthermore, research mentors profit from the chance to reflect on everyday university or professional life and from the network of mentors. This is especially successful if the programme includes on-site meetings. As is common in good networks, the mentoring coordinator acts as a multiplier and can create connections between mentors if on-site meetings are not feasible. Being a part of such networks, which are usually confidential, has the effect of relieving the burden of individuals.

Mentors with a business background expect that, through their participation, they will gain access to a new network and have direct contact to the world of research, potentially linked or leading to a lectureship. Moreover, mentoring sometimes leads to the recruitment of top-class new employees for a company.

6) Set common rules

If a mentoring relationship is to be successful, it is important that both sides agree on common rules. Apart from the aforementioned organisational aspects, the relationship should be characterised by mutual respect and issues of confidentiality and the limits of mentoring relationships between research/work and private life should be defined. Overall the relationship should allow the mentee to make her own decisions, occasionally going against what has been discussed with the mentor if necessary.

The results of the ‘Aufwind’ study show that a particular focus should be set on complying with the following rules:

- Mutual respect
- A largely non-hierarchical relationship between mentor and mentee to enable the exchange of experience on an equal level
- Openness, particularly with regard to new things
- Trust and confidentiality
- Commitment (sticking to agreements, appointments, obligations)
- Appreciative and respectful feedback

It is also expected that both sides adhere to the standard rules of a constructive feedback culture and of good academic practice or of academic probity. This is especially relevant if conflicts of interest arise (e.g. between the mentor and colleagues or their own staff). In cases of insecurities or violation of the rules it is advisable to turn directly to the mentoring programme head. That way, transparent and satisfactory approaches can be worked out for all involved. The option of ending the mentoring relationship should also be available without anyone having to make detailed statements. This applies to the mentee as well as to the mentor.

7) Collaborative reflection – evaluation of the mentoring relationship

A successful mentoring relationship consists of a beginning and a joint end. Most mentoring programmes surveyed scheduled a time period of nine to eighteen months for this. They are flexible and mostly adjust the running time to the needs of the mentoring pair. The results of the study prove that satisfaction levels are greater if a joint end could be found. This can be marked by a final meeting or a final report submitted by the mentee to the project head. In the interviews, people often mentioned that they appreciated the feeling of approval and esteem given when the programme’s

contact person got in touch and inquired after the experiences they'd had during the mentoring relationship. This, however, requires an appropriate time budget on the part of the mentoring programme.

Written questionnaires were the subject of particular criticism by mentors who were active in more than one programme. They prefer using their scarce time resources to meet the mentee face-to-face than to answer surveys. Collaborative reflection on the mentoring relationship also offers the opportunity to critically evaluate the university's structures and to discuss suggestions for the improvement of the situation at the home university, in the mentoring programme, as well as generally with regard to the educational and research system. Since many of the mentors are active in other spheres apart from the mentoring programmes, they occasionally take these ideas into other discourses and institutions. This process could be even better used through an in-depth exchange and/or the creation of targeted spaces of reflection, specifically for the mentors. It is important that the collaborative reflection process includes the maintenance of contact in the future so that the contact can be re-established at short notice if required – e.g. with regard to career decisions or important research questions such as matters concerning an appointment. One positive point that should be emphasised is that nearly all mentors were ready to take part in the mentoring programme again and many mentees plan to become a mentor at a later stage.

Also, nearly all mentors were of the opinion that mentoring could be utilised at their own institution as an effective support tool. It is also promising that a high number of mentees that experienced a mentoring relationship would repeat that experience and would recommend it to other junior researchers (80–90%). Around 80% of "High Potential" mentees see mentoring as an effective tool for the promotion of junior researchers and women, and see it as an useful tool in their own organisation. This percentage is lower for mentees who are transitioning from studies to jobs. However, they are usually not used to the institutional framework conditions as they have not yet been in employment.

In future, forms of reflection should be developed that allow the participants (also within the framework of new forms of training) to develop innovative, gender-equal ranges of topics and to participate in think tanks for university reforms.

5.2 MENTORING RELATIONSHIPS AND THEIR CONTRIBUTION TO THE AWARENESS OF EQUAL OPPORTUNITIES

There are still widespread reservations towards activities that support female researchers on their path to top academic positions. Direct discrimination is easy to spot and is normally eliminated. It is harder to identify indirect discrimination. This is often concealed and deeply rooted within the university's structures and is therefore hard to rectify. 'An excellent female researcher will succeed by herself' is a stance that researchers cling to obstinately, even though numerous studies prove otherwise (cf. European Commission 2012).

The issue is also contentiously debated among female researchers: they don't need promotion but rather 'de-hindrance', meaning that the additional hurdles and obstacles present in the structures of universities and the minds of its staff have to be changed. However, this insight is often the result of what is often a painful process that reveals that equals are not equal (cf. Wenneras; Wold 1997) but that preconceptions, gender stereotypes and sexism of various kinds have an effect (cf. Becker 2014). It is, therefore, recommended that participants follow a gender-sensitive approach from the beginning of the mentoring programme to raise awareness of the specific challenges that female researchers face. The concept of awareness should not only be applied to the mentees but also to the mentors.

Raising the awareness of mentees

During the interviews, a number of students and researchers emphasised that they do not experience discrimination. The obstacles faced by female researchers should therefore be explained in a very sensitive manner within the framework of the mentoring relationship. On the one hand, the goal is to inform people about the impact of discriminating structures and, on the other, to include the insights of women and gender studies during the course of academic careers into the clarification process, personal assessment and the creation of the mentoring relationship. This can be done during the presentation of the leaky pipeline phenomenon or of paradox effects (e.g. Jäger 2009) which show that women have poorer chances of gaining a professorship in so-called 'women's subjects' than in male dominated subjects. The 'quota' is another sensitive issue that can be used to raise awareness. It is rejected in particular by junior female researchers, who often have the goal of achieving an academic top position 'by their own means'.

With the belief in the 'objectivity of science', structural barriers for female scientists are most often blanked out, which is connected to the desire to be judged 'neutrally' and neither be discriminated against positively nor negatively. Existing barriers are in fact hard to detect: they are closely connected to how reputation and prestige are created ('The Matthew Effect', cf. Merton 1988¹²) and which achievements are given recognition (Beaufays 2003). They are accompanied by working conditions that are experienced as being far from female-friendly and sometimes overtly sexist (cf. Becker 2014) and that amplify the feeling of not being welcome and not belonging.

The confrontation with the disadvantages that exist for female researchers and the mechanisms that exclude them from equal participation is met with initial refusal on the side of many female researchers. The recognition of discrimination – which is the result of a stigmatisation process motivated by gender stereotypes – is unsettling for the affected person as it makes the denial of their full potential by others very tangible. However, without this insight, the disadvantaged person tends to blame herself for the experience of affront, which negatively affects her evaluation of her own capabilities, the so-called academic self-concept.

Creating awareness of discriminating structures and of the differences in the performance evaluation (gender bias), however, extends the gaze to include the underlying mechanisms and leads away from supposedly personal inadequacies to demanding from the university that existing structures must change. Raising awareness is, therefore, an important contribution towards strengthening the individual, but also towards revealing starting points from which structural and cultural obstacles can be overcome.

Raising awareness with mentors

Most mentors are recruited for the mentoring programme to support young students and researchers, to help them fully realise their career potential and to successfully achieve their professional goals. This requires knowing the challenges that young women, in particular, face.

The female mentors surveyed as part of the 'Aufwind' study predominantly stated that they were aware of gender topics. They bring experience from their equality work as well as their research environment, where they sometimes deal with gender issues on a thematic level. However, their knowl-

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¹² Robert Merton's so called 'Matthew Effect' is understood to be the self-amplified accumulation of reputation, named after a citation from the Gospel of Matthew: "For unto every one that hath shall be given...".

edge appeared to be heterogeneous and strongly marked by personal experience. The male mentors, in contrast, appeared rather reserved with regard to the evaluation of their gender sensitivity and admitted in the interviews to a degree of uncertainty. Personal experiences such as having daughters or a working wife do not guarantee gender sensitivity, neither does being a woman.

To establish a common base it seems advisable to determine the future mentor's understanding of gender during a meeting or through the exchange of experiences or during a sequence of opening workshops. The goal is to build a common basic understanding. Through personal reflection, changes over the last years can be made more visible and the situation of young women can be seen more clearly. However, it should go beyond the mutual confirmation of experiences and should be set in the broader context of higher education policies (cf. Schlüter, Berkels 2013). Only when integrated in such a way can the results of such reflection contribute to a fair and gender-equal atmosphere at the university.

Mentoring programme initiatives for gender awareness such as workshops for mentors and mentees regrettably had to be discontinued due to low participation in all but a few exceptions. Apart from examples of best practice and information materials, only a few ways have been found so far to bring the different view-points of mentees and male and female mentors into a constructive dialogue so as to create equal opportunities for women and men. A space for reflection where knowledge can be shared, collaborative learning made possible and new horizons developed should be strived for.

Raising gender awareness with mentoring programme managers

Knowledge of women and gender studies, of the university's structure and cultures, and of the social sciences is very useful in the effort to fully utilise the potential for change that can be initiated by mentoring programmes in all the various areas and on all levels. This knowledge can be further amplified when combined with experience and competence in the area of equality. It is therefore important to also offer qualification opportunities and spaces for reflection to the coordinators and programme managers. This contributes to the development of the mentoring programme and assists in its expansion as a part of the university's staff development measures. This could be achieved through an internal collaboration with the counselling centre, the institute for the promotion of junior researchers, staff and organisational development department, or with mentoring experts and associations such as Forum Mentoring e.V.

5.3 CHALLENGES AND RECOMMENDATIONS FOR PROGRAMME MANAGERS AND COORDINATORS

Programme managers and coordinators also play an important part in the success of the mentoring relationship. The majority of programme managers and coordinators of the mentoring programmes surveyed had developed a broad spectrum of measures for the preparation of the mentoring relationship. These began with the selection of the mentee via selection procedures and informal conversations that are often rather work-intensive. These processes establish the mentees' specific needs as a preparation for the search for an appropriate mentor. As a rule, these criteria help to discover the best way to analyse the life circumstances of the mentees and mentors and, as a result, to pick the most suitable mentor in consideration of the mentees' goals.

These elements specifically have been identified as factors contributing to the success of the mentoring relationship:

- Structured introductory conversation (possibly after the submission of an application or profile form; also for mentors; preparation of mentee via introductory meetings)
- Assistance with setting target agreements
- Interim conclusions (as an event or for addressing the mentoring partnership in a personal discussion)
- Feedback forms for identifying satisfaction levels with the mentoring relationship (as an interim evaluation and at the end)
- Recommendations for an obligatory final meeting (expression of appreciation, process guidance, mutual reflexion etc.)
- Guideline for mentees and mentors with the focus on clarifying roles

Both mentees and mentors emphasize the importance of a structured and systematic approach during the mentoring period. The programme coordinators can provide support by supplying the appropriate documents (checklists etc.).

Usually, the programme coordinator supplies hand-outs or checklists for the individual programme modules and will answer any queries and serve as a mediator. Occasionally, the roles mix and she will take the role of a coach to reactivate the mentoring relationship if needed and give situational recommendations for action. Thanks to her understanding of the different university constitutions, the coordinator gains insights into the underlying

university-specific structures and develops a comprehensive expertise of the concrete effects of the university's existing structural and cultural profile. Some universities have already recognised this potential and use it in the area of staff development or for reforming their university's structure and culture.

The interlocking of the mentoring relationship with other elements of the mentoring relationship offers the chance to receive additional targeted support that goes beyond the individual mentoring relationship; this can be in the form of workshops, networking meetings and even coaching in some cases. Occasionally, through the mentoring programme and the interaction with other measures offered as part of staff development, the programme head or coordinator becomes the initiator for the re-conception of qualification concepts for junior researchers. Certain individual elements have found their way into the universities' mainstream programme in this way. It requires particular care for the equality-specific elements to be retained and perpetuated.

Mentoring coordinators, because they promote and ensure quality, contribute to the success of the mentoring relationship by clarifying the mentee's expectations and motives. This includes the definition of personal boundaries with regard to privacy. Compliance with the definition should be repeatedly reviewed over the course of the mentoring meetings and a joint process of reflection is thus supported by the coordinator.

Preparation of the mentors

Mentors are to be informed about the requirements of their role and tasks and their burden in terms of topics and the level of consultation should be reduced if possible. The following applies:

- Subject-specific professional support is not the main focus
- Insecurities or specific questions may be delegated and passed on to other individuals or institutions if possible
- When large discrepancies exist between the mentees' expectations and the level of support that can be realistically expected from the mentor, the coordinator should be consulted and (supplementary) alternatives explored in close collaboration
- Development of training measures for mentors' advisory skills (e.g. through written materials etc.)
- Qualification and training of coordinators

The emergence of mentoring has opened up a new occupational field in academia. The range of challenges requires specific skills that can be acquired through formal exchange of experiences (e.g. Forum Mentoring e.V.) and through the field of 'human resources management'. It is therefore recommended that programme managers and coordinators are given access to such measures.

Mentoring relationships require reliable partnerships and this is also the case with programme administrators. Programme managers should ensure that contact persons do not constantly change. Regular changes to the coordinating staff hinder the establishing of trust and make it much more difficult to adjust mentoring relationships that do not satisfy the expectations of participants. In addition, regular changes prevent the establishing of long-term relationships with mentors, meaning that these contacts are not safeguarded and developed for the higher education institution. The chances of ensuring that mentors establish a long-term commitment to the higher education institution and, in some cases, combining this with successful alumni work are greatly increased when reliable and constant contact persons are available and visible.

Further development of the programmes

The evaluation of the mentoring programmes has shown that a number of differentiations arose during the course of their development that can lead to both an expansion and to a focussing and refining of the profile of the programme offering.

Programmes for STEM subjects and medicine, more than any others, display strong differentiation. However, the special evaluation of the individual programmes has also shown that an understanding of other subject cultures can develop from the interdisciplinarity of a mentoring group in particular. This has led for example to working partnerships and joint publications and usually requires a methodological and thematic compatibility from which new working methods and research can arise.

Differentiation of programmes according to the status/academic career level (students, doctoral candidates, Habilitation candidates/postdocs and [junior] professors) and/or subject discipline have proven to be a good way of categorising mentoring programmes even more effectively. However, it is important to note that while Habilitation candidates benefit little from doctoral candidates, the doctoral candidates benefit all the more from Habilitation candidates. Doctoral candidates can learn from the problems that those before them have faced, find encouragement and motivation for

their own personal choices, and identify dead-ends and obstacles that they can avoid in future. More sweeping differentiations of the programmes based on 'transverse', biographical categories (family situation, migration background) have not been applied as of yet, largely so as to avoid fixing a special status on these groups. Such groups that fall into certain criteria (children, migration background) should therefore be given priority in the allocation of places and the conception of individual programme elements should be focused on the specific needs of these groups. It is especially important that mentoring programmes focussed on small target groups also establish connections with other networks to enable a system of career-relevant support to blossom.

Mentoring programmes have proven to be flexible support programmes that can be adjusted to meet specific expectations. However, this requires clearly defined objectives and sufficient resources to make it possible to achieve these goals within a realistic timeframe.

5.4 CHALLENGES AND RECOMMENDATIONS FOR HIGHER EDUCATION INSTITUTIONS

Institutional integration is fundamentally important for the success of mentoring relationships and for the long-term consolidation of mentoring programmes. Insofar, it is important to make a distinction between the conditions for the mentoring relationships and the institutional framework and to question these with regard to the contribution they make to sustainable development. Therefore, one of the tasks of the management of the higher education institution is to ensure sufficient continuity with regard to the mentoring framework/programme so that the relationships can remain active and effective over the long-term.

Ensure the sustainability of the mentoring relationships

Almost half (46%) of all mentees involved in the 'Aufwind' study maintained long-term contact with their mentors after the end of their mentoring relationship. 'Regular contact between mentor and mentee' and 'subject affinity' are central factors that have a positive correlation with the longer-term maintenance of contacts, as was an 'emotional closeness' on both sides. While the official duration of the mentoring programme had no influence, it is clear that the number of meetings was decisive in terms of how further contact between mentor and mentee would develop. It is therefore

recommended that a minimum number of meetings is set (four to five for shorter relationships, more for longer relationships), to which the mentoring tandem must adhere. Networking events that offer the opportunity to exchange experiences also make it easier to maintain contact.

The following methods have proven useful as a means of maintaining the mentoring relationship over the long-term: networking meetings, e.g. conferences every one to two years, the identification of best practice tandems, e-mail groups, newsletters, portraits of former tandems, and experience reports. The results of mentoring relationships should be documented, supported by guidelines and/or evaluation questionnaires. Follow-up news on the mentees serves to encourage others to look at them as role models. It is ideal when the mentees continue to report over a number of years on how their professional/research careers and the contact they have with the mentor have developed. It often only becomes clear in retrospect which decisions were decisive for their future development. Mentees should therefore be asked to report back once a year (for a maximum of 10 years for „High Potentials“).

It is recommended that an accompanying evaluation of the mentoring relationship and its effect becomes a standard part of the programmes in future. Moreover, mentoring should be integrated into existing (Germany-wide) evaluation instruments (such as HIS studies for students; IfQ¹³ studies for researchers). This would also increase the visibility of mentoring as an equal opportunities measure and as an instrument of staff development.

Mentoring programmes and their importance for higher education institutions

The importance of mentoring programmes for higher education institutions was emphasised in interviews with the heads of higher education institutions and equal opportunities officers, especially in connection with the recognition of their equal opportunities profile. Mentoring programmes are usually preferred as an individual measure for female students and researchers and are by now almost a requirement for applications to the Women Professors Programme or for submissions to the DFG's higher education institution concept of research-oriented equal opportunity standards. The opportunity to recognise and develop mentoring relationships in a targeted manner as an element of staff development has so far only been fully exploited in isolated cases.

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13 Institute for Research Information and Quality Assurance

Long-term continuation of mentoring programmes

The long-term continuation of the programmes has proven to be very important for the success of a mentoring programme and its further development. Established programmes are usually an integral part of the qualification programme on offer at respective higher education institutions. They are a clear signal to the outside that female researchers are valued and are supported in a targeted manner to help them make the most of their career opportunities.

In establishing and consolidating the programmes, it has proven useful for the mentoring programme heads to occupy positions at intersection areas so that the expertise arising from the mentoring programme can be integrated and applied to other fields in the areas of gender equality, staff development and student issues. Those programmes, more than others, are in many cases well-established or are on the way to becoming so. However, it should be noted that only very few programmes have been made permanent and that we should make a distinction between making the programmes permanent, making the project management permanent, and making the project coordination permanent.

Establishing the profiles of the mentoring coordinators

Mentoring coordinators need career prospects so that they can build reliable mentoring relationships and, most importantly, a reliable network with the mentors and mentees. Long-term employment opportunities to ensure the transfer of expertise are therefore also very important for them. Regular changes to staff risk sabotaging the success of the mentoring programmes. The heads of the higher education institution could take measures to prevent such problems. It is recommended that programme coordinators are offered longer-term career prospects. Should this not be possible (e.g. financing only from project funds), it should be ensured that at least one other person is in place and visible as a permanent contact person who can safeguard the benefits that go beyond simply those deriving from the mentoring relationship for the programme participants (mentees, mentors, instructors, contacts to others) and the higher education institution.

The title 'Mentoring Coordinator' is misleading because it does not do justice to the range of tasks the role involves. The coordinator is the central point of contact of the whole programme and her work goes far beyond simply coordinating activities and participants. She builds bridges between all those involved and is responsible for the commitment of each individual to the programme. She functions as a head-hunter when it comes to looking for a

suitable mentor, and as an event manager when it comes to organising high-profile certification awards ceremonies. The 'Aufwind' study has also shown that the coordinator often takes on a substitute role for the mentor when the real mentoring relationship has not gone well, often resulting in the mentee being very satisfied with the programme nevertheless. The coordinator herself becomes a trusted person and advisor – a "face from the university" that contrasts to mentors from business, administration, industry and research. The value of this work within the higher education institution should therefore be reassessed. A job title should be sought that does justice to the range of tasks carried out. The title 'Programme Manager' is currently being discussed.

Set against the background of the 'Aufwind' study, the importance of the coordinators for the mentoring programmes cannot be emphasised enough. However, it should also be evaluated critically and constructively. Going well beyond simply organising and processing work, the coordinator is also responsible for analyzing the gender awareness of potential mentors and to work with mentees to explore how realistic their objectives and expectations are. She therefore acts both as an expert in staff development and as a gender expert. This is one of the most important starting points in terms of the further development of mentoring as a staff development tool.

The effectivity and sustainability of the programmes can be improved further through their integration into the staff development concept or as a component of staff development concepts. It is also very advantageous when the programmes are given the personal support of the heads of the higher education institution and when the measures are integrated into the higher education institution's general framework of promoting junior researchers.

Mentoring as a signal for equal opportunities

A higher education institution that decides to establish a permanent mentoring programme expresses its estimation of junior researchers and takes on the challenges that arise from their constitutional equal opportunities obligations. For a higher education institution, mentoring – in the competition for the best female junior researchers – is a clear signal that indicates its wish to present itself as an attractive employer, to show that it actively promotes junior researchers, and wants to secure their services.

For many higher education institutions, mentoring is therefore a central element of their equal opportunities work. Institutionalising this element is also a clear signal to the DFG, which rewards equal opportunities activities within the framework of their Research-oriented Standards on Equal Opportunities (DFG, 2008). It proves that equal opportunities work is being vigor-

ously pursued and that it is also being implemented as part of targeted staff development measures. Furthermore, the equal opportunities measures of the Women Professors Programme and the DFG can be used to provide financial support for mentoring programmes.

The following promote the effectiveness of mentoring as an equal opportunities measure:

- Establishing partnerships with women's/equal opportunities officers/ equal opportunities office, or the inclusion of gender expertise (e.g. accompanying research, conception, ...)
- Coordination requires a high level of gender competence; further training in the area of gender studies and e.g. by Forum Mentoring e.V. must be provided
- Inclusion of the higher education institution heads in the mentoring programme (e.g. participation in the programme, HE institution heads commit to being mentors, to communicate gender competence or raising awareness, etc.)
- General: integration of gender issues, especially mentoring activities as a component of academic staff development (cf. Briedis et al. 2013)
- Communication of gender and equal opportunities aspects, integrated into training sessions, accompanying events, mentoring materials provided to all programme participants and anyone interested
- Consideration of gender aspects during evaluation and reflection talks

The objectives of mentoring programmes should be clearly communicated both internally and externally. This improves transparency but should also allow for participation to be on an anonymous basis, should the mentee wish it, to avoid potential problems within the institute. The disclosure of general reasons given for such decisions can, in turn, be used to raise awareness of gender issues.

Mentoring as a staff development tool

Staff development measures should be established more firmly and the advantages of mentoring as an effective staff development tool should be communicated more intensively so that the potential of mentoring programmes as a staff development tool can be fully exploited. It is flexible, it reveals individual and structural issues (unlike coaching, for example), leads (in a best case scenario) to a change of consciousness and promotes a range of different skills (advising skills, leaderships skills, gender competency etc.). In addition, it provides an opportunity for professional exchange and networking.

Mentoring participants could also be awarded certifications, as suggested in the 'Examples of Best Practice' section of the 'Aufwind' project, so that mentoring is integrated into the higher education institution's staff development programme. Affiliation to a central department – such as the Pro-rectory for the Promotion of Junior Staff – could, together with gender competent internal and external certification agents, serve as a guarantee for meaningful quality control.

Financial security of the programmes and their position within the higher education institutions

Meeting costs (i.e. securing funding for the programme) is mentioned as the greatest challenge for higher education institutions. This question is often accompanied by the issue of under which department the programmes should come: Should the programme be counted as an equality-oriented measure or does it come under staff development? Who supervises the programme? It is easier to establish appropriate institutional connections within the university and the right financing in areas which enjoy permanently stable financing (e.g. medicine) and which are not solely dependent on third-party funding and special programmes. Linking to qualifications within the university has proven helpful, as has alignment with and the consideration of the particular characteristics of the individual institution. The commitment of the university management (including the chancellor) has proven to be a crucial factor here. Moreover, it was mentioned several times that moderate participation fees would increase the mentees' commitment to the programme.

The acceptance of mentoring within the university

The university's atmosphere and the openness and the approach towards participation in a mentoring programme and its accompanying events are crucial. It was mentioned multiple times during the interviews that students and colleagues were treated sceptically or met with derogatory remarks when they mentioned that they were taking part. This resulted in the mentees not talking about it in their departments. Several mentoring programmes therefore allowed their mentees to decide how they wanted to communicate their participation. Generally, we should work towards a more gender equal university culture by taking awareness-raising measures and avoiding stigmatisation.

Establishment of a mentoring board

It has become clear that establishing a research programme board has improved the way the mentoring programme's achievements were communicated both internally and externally. It is recommended that individuals who have expertise in the area of gender research as well as an excellent reputation in the areas of business and research are included, and that the university's existing internal expertise for research, teaching and administration is drawn upon.

Quality assurance and quality standards

Within the framework of the quality assurance of mentoring programmes, mutual exchange between the mentoring officers (as was done as part of this project) was regarded as beneficial and useful. For instance, a joint database structure was established among all participating programmes for the logging of mentoring relationships. Also, programme managers and coordinators mentioned the exchange of experiences as part of the Forum Mentoring e.V. as being particularly beneficial. The quality standards that were established are observed by the majority of the programmes and serve as a point of orientation for their further development.

Establishing cooperative working relationships – within the department, internally and externally

The following were mentioned as being excellent opportunities for mentoring programmes: establishing cooperative partnerships within and between universities and companies (e.g. research projects) and thus making the equality activities of everyone involved visible. Pressure from outside – from external partners – can initiate changes and intensify the collaboration with alumni and the transfer of knowledge. Inward co-operations such as with graduate schools, clusters of excellence and research associations usually contribute to improved visibility of the programmes and create better conditions for the development of gender sensitive approaches for the solution of challenges or difficulties such as the reconciliation of family and working life. Spin-off effects therefore arise that go beyond the mentoring relationship and that may benefit the department and its culture.

6. OUTLOOK

Due to their flexibility, mentoring programmes offer great opportunities. As a result, it is all the more important to establish universal definitions, a common framework, clear regulations and quality standards and to develop sustainable long-term strategies.

The goal of mentoring is to support women in exploiting their talents to the full and to open up access to top positions. Its effect upon the existing university system is mainly a stabilising one, assisting university graduates and "High Potentials" to better exploit their career options under the given conditions and therefore attain top academic positions quickly. In the beginning, it is essential for them to know the rules of the research community. Mentoring increases their awareness of the academic realities and thanks to a 'fact check' they gain a clearer view of their chances and their profile.

In the best cases, mentoring also has an impact upon the structures of the university and research itself, e.g. with regard to raising gender awareness. This requires the integration of the programmes into the long-term strategies of the universities so that they don't run out of steam after a short period or, even worse, are used as a false argument for the supposed deficiencies of female researchers. In this context, impulses from outside are also important for mentoring, e.g. through networking via the Forum Mentoring e.V. and others, taking part in research projects, or inviting external speakers to increase awareness of the underlying university structure and culture.

Mentoring is a worthwhile and successful tool for promoting students and junior researchers but it also has its limits. It is not a universal remedy that can resolve all the problems that exist for female researchers and students. Its limits are significantly determined by programme sustainability/duration, structural integration and (financial) support. Mentoring relationships offer enormous opportunities for development that go well beyond simply supporting individuals, especially considering the fact that staff development and equality standards will play an even more important

part at higher education institutions in future. However, this can only be achieved if the expertise of gender experts is integrated and a long-term, well thought-out concept is pursued. Further research into the long-term effectiveness of mentoring programmes – which also focuses on the network aspects and the exchange of experiences and which goes beyond the 'mere' mentoring relationship – is therefore essential. In its early stages, the study has proven the development potential of the interaction between institutional and structural conditions and the success of mentoring relationships. Strategically developing these further will be a rewarding challenge which the mentoring programmes will be eager to meet. The nine mentoring programmes that participated in this evaluation have decided to continue their collaboration and further develop the opportunities that mentoring offers.

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ABBREVIATIONS

B.A.	Bachelor of Arts
Betriebsw.	Betriebswirt(in)
BMBF	Bundesministerium für Bildung und Forschung
BMFSFJ	Bundesministerium für Familie, Senioren, Frauen und Jugend
BuWiN	Bundesbericht Wissenschaftlicher Nachwuchs
CEWS	Center of Excellence Women and Science
cf.	compare
DFG	Deutsche Forschungsgemeinschaft
e.g.	for example
e.V.	eingetragener Verein
ESF	Europäischer Sozialfonds
et al.	and others
etc.	and so forth
EU	European Union
HE	higher education
HIS	Hochschul-Informationssystem
HP	„High Potentials“
HS	Hochschule/Hochschul-
i.e.	that is
IFQ	Institut für Forschungsinformation und Qualitätssicherung
LaKoG	Landeskonzferenz der Gleichstellungsbeauftragten an den wissenschaftlichen Hochschulen Baden-Württembergs
LNHF	Landeskonzferenz Niedersächsischer Hochschulfrauenbeauftragten
M.A.	Master of Arts
MHH	Medizinische Hochschule Hannover
MINT	Mathematik, Informatik, Naturwissenschaften und Technik
n	(number of cases, sample size)
Päd.	Pädagoge/Pädagogin
PD	Privatdozent
RUB	Ruhr-Universität Bochum
SB	Studium-Beruf
SJ	Studies-Job
Soz.Wiss.	Sozialwissenschaften
STEM	science, technology, engineering, mathematics
TU	Technische Universität
TUM	Technische Universität München

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