



The Perfect Course of Life (CV) and Double-Career Couples in Science

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ABSTRACT

In spite of very good qualifications, young female scientists rarely reach the top positions in German universities. The paper discusses changes in requirements for an excellent academic career and the discrepancy between the norm of individual achievement and dependency on professional and private support. Due to government de-regulation and the flexibility of workforce required under neo-liberal ideology, in recent years the economic situation of young scientists has deteriorated and competition has increased. The construction of a perfect CV now takes the full attention of young scientists on their way to the top and demands the whole person. The paper argues that a gender gap is produced by different resources in the personal and professional life of male and female scientists. Increased requirements lead to stress as a central aspect of all stages of the career journey and encourage women more than men to leave science. Women scientists somehow have different images of their personal life in mind. They live linked lives, mostly in double career-partnerships and with caring responsibilities. Although, the change in double-career-couples goes from a complementary to a competitive or sometimes symmetrical relationship, this does not support men and women equally, due to the societal gender hierarchy which favors men's rather than women's career. Successful female scientists compensate for the gender gap through private support.

KEYWORDS

Perfect CV, personal and professional support, stress, double career couples, academic career.

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INTRODUCTION

Young women are not only as well or even better qualified and educated than men, they are also highly motivated when they enter the field of science (Kahlert, 2013). Nevertheless, they do not reach leading positions as often and as easily as men. Despite political efforts of the entrepreneurial university, changes in the university system in recent decades have not significantly improved opportunities for women to reach professorships (Weber, 2017). In Germany, now almost all young scientists have time-limited employment and more than half of them have part-time contracts, with the consequence of a fierce competition for the few secure and privileged positions available (Metz-Göckel et al., 2014). As studies have shown, women are still in a minority in the higher positions of science (Kahlert, 2013; Funken et al., 2013; Findeisen, 2013). The question arises why, and how they manage to be successful and get to the top. What kind of support do they obtain or would they need, particularly when they have small children?

The thesis of this paper is that the women scientists cannot reach the top without support at every stage of their career; They need a range of supporters behind or around them to be successful in science, engineering and technology (SET). This is the case for the German university system. Etzkowitz et al. (2000) explored the critical transitions and noticed the isolation and exclusion of women in U.S. academia. Their overview of studies of the America university system concluded that:

“When a relatively small number of women traverse the pipeline to win a faculty appointment the story is said to have ended successfully. Yet even at this juncture many highly effective women suddenly find themselves subtly ostracized while paradoxically expected to be ‘role models’ during the precarious tenure process. We call all of these disjuncture aspects of the ‘cascade effect’ in which the steady flow of energy can be short-circuited at any point, regardless of the level of achievement” (Etzkowitz et al., 2000 p.16).

As the paper will show, in addition to their professional qualifications ambitious young women have to organize their personal lives around specific prerequisites to be able to reach the top and stay there.

Different theoretical explanations are given, such as the hierarchical university system with many hurdles to overcome (Findeisen, 2011) or the problem of balancing professional and family life for women and young parents (Lind, 2010). The balance argument supposes a balance can be achieved through strong personal efforts (Lind, 2010; Metz-Göckel et al., 2014; Metz-Göckel, 2016). This is true under very specific conditions only, as we will show.

Another structural argument refers to universities as traditionally gendered organizations which were developed only by men and hinder the integration of

women (Acker, 2013; Kirsch-Auwärter, 2013). One aspect of the gendered organization is the gender stereotypes which mostly play a hidden role in the recruitment process and are seldom communicated in public, connecting the institution with the prejudice of their actors (Eckes, 2008; Scherbaum, 2011; Gender-Report, 2016). A second hidden reality is one reason why qualitative research methods are suitable to find out the implicit prejudices and gender stereotypes: "A certain persona, strict adherence to a rigid academic career path and total time commitment are among the unstated requirements for many jobs" (Etzkowitz, 2000 p.134). While this analysis stems from the U. S. system and is based on 20 year old data, it has relevance to the German system. A complex of psychological aspects as self-presentation and self-efficacy and social aspects as integration in networks and family background might be relevant for successful careers. Differences in the style of self-presentation and commitment, as well as peripheral integration in the scientific community in SET (Sagebiel, 2010), e.g. mathematicians and physicians (Reith et al., 2013) provide explanations. These plausible explanations are not entirely satisfying, because very qualified and seemingly well integrated women leave the science field. Therefore, there must be another reason why it is so hard for women to break through the glass ceiling.

This paper discusses a further aspect of the gender gap at the top in the German university system. It argues that there is a link between how female scientists imagine their personal lives, what images of their lives they have in mind, and why they drop out at an earlier stage than men. To be successful they have to organize their lives and present themselves as if they were men; that means to totally identify with what they do scientifically and be free of other aspects of life. In other words, their wish to live their own life, with children or without children, hinders them on the way to the top.

The epistemological aspect of scientific work and how the career is socially constructed are the two sides of the coin. As late comers and not in power positions, women are forced to adjust to established norms to become successful. To fulfill the expectation of a total commitment they might require special support. The neo-liberal ideology of meritocracy assumes that the individual is responsible for success and structural and other aspects don't play an important role (Sigal & Tienda, 2007).

Women in science do need special support. The discrepancy between official expectations and personal resources to meet these expectations is stressful. Stress is defined "as a pattern of cognitive appraisals, physiological responses, and behavioral tendencies that occurs in response to a perceived imbalance between situational demands and the resources needed to cope with them" (Passer & Smith, 2003 p.465). The experience of social exclusion or isolation within informal networks might be less in the postdoc phase than in earlier phases, but still continues. Women scientists might have less social capital, which is important for support, but need more and therefore stay in the outer circle (Zuckerman et al., 1991).

A conflict between the personal and the professional (as mothers) is also influenced by time pressures. A further important aspect is the association with youth.

Thought of as the creative phase of the life course, this association puts stress on the early stage of the career especially for women, given the coincidence with child-bearing years.

The answer to the question, why so few women are found in top level positions is complex and a critical one. The universalistic norm of science to be open to all who are talented regardless of gender, race and age, is compromised when talented women are hampered or excluded. To maintain this universalistic norm the argument is that although science has traditionally been a male-dominated profession, it is not inherently so. "A series of overt and covert points in the life course are responsible when individuals are either propelled forward to careers in science or deflected away" (Etzkowitz et al., 2000 p.26). As data show, the science career not only has 'critical transitions' for mothers, for childless women and also for men, who more often drop out for a career in industry (Metz-Göckel et al., 2016).

THE NEO-LIBERAL DISCOURSE, DE-REGULATION IN GERMANY'S UNIVERSITY SYSTEM, AND THE EXHAUSTED INDIVIDUAL

The university system in Germany is a federal one with a Ministry of Science in each of the 16 federal states (Bundesland). The neo-liberal development in the political system enforces regulations through market-mechanisms and competition. In Germany's federal political system de-regulation has weakened common responsibility, that is to say the responsibility of universities as employers for their employees, the young scientists. Formerly the universities were almost completely funded by the state with the Ministry of Science wielding great power over institutions. The Ministry of Science of North Rhine-Westphalia, for example, has given more freedom of choice and decision-making power to the single university. In this context, the concept of an entrepreneurial university and the university system as a whole have strengthened competition among and within universities. One consequence has been the replacement of permanent positions with temporary employment; as a result, almost 90 % of the young scientists work on a time-limited contract and two third of the female young scientists are employed part-time (Metz-Göckel et al., 2014; Rogge, 2013). The employment situation imposes more responsibilities and burdens on individuals and may lead to the phenomenon of the "exhausted individual". I borrow this term from the French sociologist Alain Ehrenberg (2008), who relates the 'exhausted self' to a typical pathology in western countries and to a psychopathologic development of growing numbers of depressive and alcohol dependent people. In the academic context, the exhausted individuals refer to young scientists who are overstressed. Their situation is often overwhelming due to contradictory expectations; that is, to be excellent and highly identified with one's scientific special field, while being only temporarily employed. They not only have to be excellent in their field of research, they also have to manage their precarious employment situation and their personal lives.

Germany has a mono-directional university system; that means scientists either move up or drop out. Even for postdocs and junior-professors (generally without a tenure-track), the situation is completely uncertain and insecure and full of risks, as Kahlert (2013) has identified.

A positive effect of recent de-regulation might be that non-traditional arrangements of gender, sexual and cultural identity come into consideration. These 'others' challenge traditional identities. While some of them were adopted or integrated, this did not affect the system of academic research and careers as a whole. Finally, neo-liberal de-regulation does not really care about academic identity; rather it focuses on productivity regardless of lifestyle.

THE GENERALIZATION OF COMPETITION AND THE STRUGGLE FOR THE PERFECT CV

In this political context, there has been an augmentation of time-limited mid-level academic positions (German: wissenschaftlicher Mittelbau) at universities through research funding by foundations, industry and public research programs. However, this has not resulted in an increase of tenure-track positions as a professor (which are almost the only stable positions). Since 2003 the ratio of professors to mid-level positions has decreased from 1 to 5.7 to 1 to 7.49 in 2011 (Rogge, 2013 p.35). This development has been accompanied by great heterogeneity of job descriptions – those who do research only and those who teach, counsel students and also contribute to the autonomous governance of the university.

In recent years women have participated in the expansion of posts and qualifications in Europe. "At grade C level, the difference with men stands at 10 percentage points, while at grade A level it reaches 58 percentage points. This effect is even more pronounced in the field of science and engineering, while women represented only 13 % of grade A staff in 2013" (She Figures, 2016 p.6). The proportion of grade researchers in the youngest age group relative to the older age groups is much higher. In general, women hold 44 % of Ph. D's and 27,8 % of habilitations but only 22 % of professorships in Germany (Gemeinsame Wissenschaftskonferenz, 2015). So more and more young scientists are competing for the few secure positions available and this is not a personal, but mainly a structural problem. In general, it leads to a strong and widespread sense of uncertainty as well as emotional and professional stress. One consequence is not only very intense competition in scientific output, such as publications and conference papers, but also in the presentation of their personal lives. A perfect CV has become a very important prerequisite for a professorship. Therefore, the scientific career is now also a struggle, a competition for the most perfect curriculum vitae.

At this point, we may ask why many young and qualified women are eager to do research and science under these circumstances? The paper interviews with successful female scientists to answer this question.

DATA BASE

The data base for the following reflections and findings was interviews with six successful young female scientists in the following SET disciplines: natural science (chemistry, physics, biology), engineering, mathematics and statistics, computer science. One was a doctoral student in the final stage of her dissertation, most are postdocs and junior-professors on the way to a professorship, and another was a recently appointed professor. The qualitative data was based on guided interviews with narrative parts and content analysis.

The high importance of a perfect CV was not envisaged when we started the project. It emerged from the interviewees in narratives about how they presented and commented on their lives, resources and feelings. Therefore, their statements are analyzed in this paper which describes their experiences and how they survived scientifically, and the strategies they used. Such comments are seldom published in the German university context.

These interviews with successful female scientists were part of a larger research project focusing on women scientists who left science careers. The whole project is based on quantitative data from 16 universities in Germany and an analysis of the 'contract biography' (number, duration etc.) of scientists (except professors) from all disciplines, whose employment contracts came to an end in 2009. The second data base is an online questionnaire which was sent those who left these universities. The successful female scientists function as a contrast group (Glaser & Strauss, 1967/2010). This project is one of the rare studies of young scientists in universities who left science.¹

Most of the interviews were conducted at their work place. They took one and a half or two hours and were later transcribed. The following analysis describes how these female scientists successfully managed their careers and how they coped with the discrepancies in their private lives.

COMPETITION FOR THE PERFECT CURRICULUM VITAE AND WHAT IT SHOULD LOOK LIKE – THE STRESS TO BE THE BEST

The competition for the best CV included looking at oneself from the perspective ²of others, such as potential evaluators and a whole range of experts who might be of relevance in building a successful career. Young scientists need to understand the unwritten rules, norms and knowledge of their scientific discipline so that they can build an optimal career. In this context Lind (2013) asks: "Is science a 'greedy' institution?" Mostly, interviewees concurred that it was. Being very good at what you are doing in research,

that is not enough. You have to promote yourself effectively, you have to communicate; your presentations, everything should be very attractive to people and if you want to start being a leader, that doesn't mean necessarily being a professor,

a young physicist from a South-European country with a brilliant international scientific background explained (I 24: 26). She was a junior professor (without tenure-track), pregnant with her second child and very aware that in contrast to research, becoming a full professor in the German university system was very demanding. Nevertheless, she applied for this position because she wanted to leave the United States and return to Europe.

Publication Strategy: Norms, Pressure, Luck – the stress of publishing in the right way

"You are, after all, what you publish" (I 22: 27), a postdoc in chemistry asserted.

She could imagine herself as a scientist and as a professor, but she was not sure that she would succeed. All interviewees were aware that they needed to publish in journals with a high impact factor. Ultimately, you are nothing more than a

number, some of them remarked. They complained that reviewers did not always know what the paper was about, not all reviewers were experts in the field, and often it was simply luck to get a paper published or accepted at a conference. This made young scientists unsure and created a stressful situation because publications are essential for top positions. A hidden problem here was the reviewers and editors who establish their own networks (Ranga, Gupta & Etzkowitz, 2012 p26-31; Sagebiel, 2015). A German study by Daniel (2005) found evidence of bias in doctoral fellowship applications of gender, discipline and institutional affiliation, but not of nationality. "For example, the female gender of the applicant reduced the predicted probability of receiving a scholarship from 50 % to 33 %. The applicant's discipline was even more important than his or her gender: if the applicant was not a biologist, but a chemist, the probability of approval declined from 50 % to 25 % (Ranga et al. 2012, p.29). The reviewers are gate-keepers and stay mostly anonymous. Ambitious young scientists are very aware of this kind of dependency and keep contact with many potential reviewers.

Professional and Private Support – Partnership in Double Career-Couples

Female scientists live linked lives; they choose academics as partners, often in the same field, and a third of them have partners who are also scientists (Lind 2008). Their partners, too, are building careers and are highly engaged in their profession. Nevertheless, women scientists often live in asymmetric partnerships. Research findings for women in double career-couples are ambivalent and report conflicts, depending on the group on whom research is conducted. Partners can be impeding or supportive. Generally speaking, it becomes complicated if women are more successful than their partners. "The violation of the gender hierarchy in professional life demands an even more traditional 'doing gender' in private life in order not to endanger the stability of the relationship" (Bathmann, Cornelißen & Müller, 2013 p. 125). Rogge (2013 p.42) found that "[w]hile all women live in double-career partnerships, they are dependent on partners who support their (equal) aspirations. This is not always the case, contrary to men who more often can rely on their partners' support". Rusconi and Solga (2010) found in their research on double career-couples in academia that generally the male career was more successful than the female, for several reasons. The main reason is the gender hierarchy which traditionally more strongly supports the professional career of men than of women. Therefore the societal gender hierarchy and gender stereotypes influence the careers of the partners differently within double career-couples. The same goes for professional support, which functions often in a hidden informal way.

Interviewees explained that they had to look for professional support and to organize that support themselves. All but one reported that they had mentors in their supervisors or Ph.D. advisors or that they looked for some more 'big shots' as mentors: "I got help when I asked for it, but this is different than having someone to look after you, and maybe give some advice on how to proceed", meaning a mentor who has "the big picture" is needed, as one interviewee who wished she had a mentor explained (I 24: 15). Another mentioned that important people in the field should know who you are, so they have a face in mind when they read your paper. "Without the support of an authority figure, women consistently reported feeling lost and incompetent", according to Etzkowitz et al. (2000 p.100). The feeling of isolation and being less integrated in informal networks weakened self-

esteem and self-confidence and women reported feeling isolated and experiencing stress.

Beyond professional backing, it was essential that women had private support from a partner (male or female in a stable position) for their careers, as well as financial and emotional stability, and family members, mainly parents (retired and healthy ones), for child care, as interviewees who were mothers remarked.

With partners in double-career-couples this was often not the case, due to a change from a complementary to a competitive relationship. Now both men and women competed for the same pool of privileged positions. Contrary to expectations, the chances of women in double career-couples succeeding professionally are less than those of men because all norms support the man's career and not the woman's (Rusconi & Solga, 2011; Auspurg et al., 2014). So, double career-couples with and without children seem to be a myth, as Moen and Roehling (2005) found in a U.S study.

The interviewees in our sample lived in different, mainly non-traditional partnerships. These successful women scientists held different positions within the partnership. All had partners who were said to be very supportive and all lived in more or less symmetric partnerships. A junior-professor who had advanced as a scientist together with her husband said about their relationship: *"If you have a competition, you are done, you cannot be a couple"* (I 24: 19).

The second example was a woman who was more successful than her partner, a professor in the same discipline of mathematics too. She used to do much travelling by herself as well as with her partner. They had a long-distance relationship for a long time. The couple wanted to have children and she gave birth to twins, who were 10 months old at the time of the interview. She took parental leave for a short time and her partner even longer. She described her situation and partnership as follows:

I am heavily engaged in international research groups and have to go to conferences and stay in other countries for a certain period of time. So, my husband, the father, will take some more months of parental leave and he will care for the twins. (...) Travelling with children involves a lot more planning than before. Well, in the past, I simply packed my tooth brush and went off. Now, the next conference in XX will be with my children because of breast feeding and so on. This always turns into a complex affair. It takes time until everything is packed. Accommodation is of course also a different issue, as is arranging for child care on site (I 25: 29).

They were planning to spend one month in the U.S. where he would also be in charge of child care. *"For three months, we are going to work in B (Germany). There, we have already chosen a day care center and have also received a positive response. During this time, he also will be able to work full time once the settling-in period is over"* (I 25: 29).

She commented that she was very happy, although she had to give up her leisure-time activities such as acting in the theater or playing in the orchestra. During her postdoc-phase, she had frequently travelled around the world, but *"Now with the family that's gone"* (I 25: 28), she said and laughed. This couple with two small

children was not only an example for a double career-couple but also of a double care-couple, and these couples are still very rare in German academia.

Clearly, external factors such as mentors, private partners and grandparents (for helping with child care) are needed to stabilize the precarious situation for young scientists on their way to the top. They function as stabilizers in this precarious situation (Funken et al., 2013), otherwise the stress could be overwhelming.

Temporary in Foreign Countries - The stress of international mobility

You should have degrees from different universities, including a degree from certain institutions in other countries, mainly from elite universities in the U.S., to be able to present a perfect CV. Since the countries and universities are ranked by reputation, some interviewees said that a stay abroad was perceived differently depending on where you studied. This might be the case for many, not for all, European university systems. But the norm of geographic and international mobility increasingly becomes part of the subjective construction of the career and almost all young scientists are very aware, that without international experience nobody will get a tenured position in Swiss universities, for instance (Leemann & Boes 2012 p.182).

A junior-professor in our sample spent more than two years in Australia and in England, but she earned all of her degrees from the same highly ranked university in Germany. She consequently felt that her CV was not perfect. Therefore, she applied for a grant from the German Research Foundation, went to Great Britain and commuted every week back home to see her baby. She admitted that this time was the hardest period of her life. Her parents took care of her baby and helped her with child care all the time. Therefore, she continued living in the city of XX, where the university was located, while her husband at the time of the interview only spent weekends with his family.

A Tight Career Schedule - The stress of managing time discrepancies

“Despite the paucity of evidence that youth is associated with scientific achievement (Merton 1973), the U.S. academic system is geared toward a forced march in the early years, allowing a slower pace later” (Etzkowitz et al. 2000, p.141). In the last two decades this has also been the case for the German university system.

Most interviewees remarked that they needed to organize their scientific path and private life on a tight schedule. There was an unspoken time limit, as the data seem to indicate. When you are forty years old, it is too late. “The fortieth birthday is a magic number”, found Gross et al. in their research (2008 p.20). The successful female professor in our sample described the career path as follows:

I mean, a career always within the same group where you do your Ph.D. in a work group, then you are an assistant in the work group until your postdoctoral qualification and then, at some point in your mid-thirties, you are looking for a different position... this is destined to fail (I 25:11).

After one or two years as a postdoc at the latest, “one has to accept a job (in a branch of industry); otherwise it will be too late. And if one does not do that, then

one has to focus on one's postdoctoral qualification in order to follow the academic career path" (I 22: 32).

It was not only the actual age that counted, but the academic age, meaning the time since finishing one's Ph.D., a postdoc with two children whose time span was relatively large remarked: "That's why I cannot apply for programs such as junior-professor positions and similar opportunities. It is a little late for that" (I 23: 18).

A young postdoc with the goal of becoming a professor offered the following recommendation for younger students: "Finish your studies and your Ph.D. fast, especially if you are a woman." Institutions that fund scholarships

attach great importance to having completed university studies quickly. Well, if your studies take longer than the regular time assigned for them, you won't have a chance at all. And then, you also need consistently good grades. These are prerequisites... and if you also have an attractive CV, well, then these are basically the criteria (I 21: 8).

However, the tenure clock and the biological clock pose a problem for women more than for men and produces stress (see also Etzkowitz et al., 2000 p.141). Women can postpone their wish to have children as scientists and indeed do so, but they can't do it *ad infinitum* (Metz-Göckel et al., 2014).

A Must: International Conferences and Networking – the stress of getting into and staying in professional networks

Networking is of paramount importance for a scientific career and is time consuming. It enables the integration into the scientific community, which all interviewees emphasized. You have to organize and foster the networks yourself to become known in the relevant community, the several interviewees noted: "Networks are important for all evaluations of research proposals and applications for stipends, grants and positions" (I 22: 34).

Another interviewee remarked that:

the more people you know, the more cooperative projects you can participate in and the more input you will get and the more other scientists can teach you about how to handle equipment and techniques, which you might not be familiar with (I 22: 34).

And a junior-professor asserted:

If you really want to do something with an impact on science, then working at least twelve hours per day is a matter of course. We were travelling a lot, we had one suitcase ready at all times. I really believe that if you don't attend conferences, you start losing contact with what happens; this is not good. Unfortunately, the long hours are still necessary (I 24: 10).

To be internationally mobile requires very flexible circumstances in the private sphere. A linked life with children and parents who need care becomes complicated. In the case of a partnership it requires partners who are mobile too or understanding and sympathetic, if not stress will increase.

Competition: Impeding or Stimulating? – Stress of showing strong self-confidence

A young biologist noted that she was reluctant to lead conversations and afraid of revealing too much at conferences, because in the past she had sometimes talked herself into uncomfortable situations:

One really has to be careful, we are a relatively small work group, and we have for example the biggest competition sitting in B. He, however, has a work group with ... more people. That means if he overhears one of our ideas, then he will have all the available capacities to do this much faster, just like that (I 22:34).

Cooperation also entails the danger that ideas can be stolen. The biologist described how she began cooperating with a partner who was in possession of a certain device which her work group needed for a special project. And after they had discussed the entire project, it was agreed that both partners would be co-authoring the publication. That is the usual agreement. However, "Well, then he simply submitted an application with exactly this project for the research commission here" (I 22: 35).

The situation of competing with others presents a special problem for scientists with small children. They do not dare to take parental leave: "[I]f one realizes how fast the colleagues, the male colleagues progress, how much they publish... and if one somehow takes parental leave or a break, then one is finished" (I 26: 12). Being on a successful career path with a perfect CV, dealing with competition is different. The extremely successful female professor in mathematics (I 25), as a case in point, remarked that: "*Well, of course, competition does exist, but somehow, I think, it does not take center stage*" (I 25: 21). The stress produced through strong competition depends on whether the feeling of self-confidence is strong enough to deal with future perspective and failures.

(In)Compatibility of a Science-Career with Children (for Women)

I am expecting another child... So once again, I am not going to travel for about a year, but this is hard; it's hard because we don't have family around. This is very tough... So, it is really up to us, if the kid is sick, someone has to stay at home... We both have a job to do and it does not work like that: It's not like if anything happens, my husband stays at home. No. We just split everything and that is how it works. It's hard (I 24: 21).

Speaking from personal experience, the junior professor regarded the compatibility of being a mother *and* a scientist as problematic in the qualification phases of postdocs and junior-professors. These time-limited positions come with a great amount of pressure. And this is exactly the stage when many women decide to leave the academic career path in science, as one interviewee noted. This scientist was a junior-professor who, only for a short period of time, had *not* been present at university but instead worked from home. She asserted that in this crucial qualification phase working is simply not compatible with starting a family in her

male-dominated field of research (I 26). As a professor with two children, she thought that her situation fitted better with her work because she was more independent and her recently retired, still active, parents could always lend a helping hand if needed.

As a mother, she had to face many uncomfortable comments, especially because her colleagues and the department in general were of the opinion that a woman with a child did not fit in with their research culture. She would have preferred not to be made aware of this gossip, but also admitted to understanding it, because as a junior-professor she was the first woman at this faculty of engineering:

When I started working here, as a professor, I thought what kind of place is this? All the other professors were well over fifty years of age, many almost sixty years old, all of them men – and here I was, thirty years old, a woman and pregnant at that – (laughing) terrible! This was four years ago. In the meantime, also younger colleagues joined the department” (I 26: 13).

As a professor with tenure-track and pregnant with her second child, she kept calm and thought her situation was now more compatible with her work. The differences in the quality and amount of support for men and women “might individually appear to be a small matter, an oversight or a matter of personal choice. Yet, over time, advantages and disadvantages accumulate, more often for men into a ‘Matthew effect’, the halo of success that attracts additional rewards and reknown (Merton 1968), but for women into a ‘Cinderella effect’ where the reverse conditions hold” (Etzkowitz et al., 2000 p.99).

This observation is also relevant to the German system. It is astonishing because other research findings about marriage, motherhood and research performance in science suggest, “that women publish less than men, but marriage and family obligations do not generally account for gender difference. Married women with children publish as much as their single female colleagues do” (Cole & Zuckerman, 1987 p. 119). But they “do pay a price to remain scientifically productive. They report having had to eliminate almost everything but work and family particularly when their children were young” (Cole & Zuckerman, 1987 p. 125). Lind (2010) found German female scientists with children reported being less exhausted than the singles. This unexpected outcome is difficult to explain and needs further research. It might be that the more mothers are identified with their scientific work, the more they might be anxious about not being seen as serious as the singles, or it might be that living with children functions as a source of energy and happiness and therefore compensates for other troubles.

The support of parents living nearby is essential for young scientists with little children, as well as institutional child care and a sympathetic partner. The scientist as an autonomous subject, who is free of all social ties and circumstances, only devoted to his or her scientific work turns out to be a myth.

DISCUSSION

As Etzkowitz stated in the U.S: "To attain the maximum value from investment in human capital, it is necessary to recognize that the quality of women's Ph.D. experience is as important as the numbers of degrees granted to women" (Etzkowitz et al., 2000 p.100). That is, why this paper focused on women.

The postdoc phase is a critical transition in the career path to tenure status and different to earlier stages, as the interviews reveal. Looking at the career process as a whole it is clear that stress accumulates instead of diminishes and this might be true as long as the future perspective for young scientists is very unclear and uncertain. The ideal of the whole personal life which should be completely subsumed to the career is most stressful and corresponds with the traditional concept of the male scientist who is free from all private services and obligations, as Max Weber said in his famous talk about science as a profession (1919, 1985). The extended norms for a successful career in science such as mobility, publications, time span etc. fully claim the lives of the aspirants. The interviewees had internalized these norms, although they were critical of the established publication requirements and dependencies which they had to follow. At the same time, they showed considerable perseverance in pursuing their careers, because they were highly connected with their research; they even loved their jobs and sometimes put up with a limited private life and a long-distance relationship, including frequent commuting. These young female scientists confronted the image of a traditional male scientist as old fashioned and provided an alternative. When other persons and their support is needed, then the single person is not necessarily the top performer anymore. Women who want to be successful scientifically and mothers as well need all-round support and this support comes from the private sphere, from their partners (male or female) or from their parents. It does not come from the university system.

A problematic result of our research is the importance of personal, non-science related stabilizers for a successful career, especially for women, who are more vulnerable than men because of their dependency on support. The support of parents living nearby is essential for young scientists with little children, as well as institutional child care and a sympathetic partner. Living in a double career partnership does not *per se* favor of woman's career, although the development goes from a complementary to a competitive or sometimes symmetrical relationship as the narratives show.

There is a great discrepancy between the ideal and everyday life of scientists, a contradiction between myth and reality. The traditional belief of the scientist as an autonomous subject who follows his scientific work and exists outside all societal relations remains the underlying problem in combining scientific work and family life and leads to a continuously "bad conscience", especially among young women scientists (Beaufaÿs, 2006 p.12). The German concept of 'Rabenmutter'³ relates to that. Women who finally reach the top have been highly selected. The dropout of gifted women on their way to the top might relate to the overwhelming demands of a successful career, leading to exhausted individuals who, therefore, resign (and

capitalize on better alternatives elsewhere). The scientist as an autonomous subject, only devoted to their scientific work turns out to be a myth.

What a pity for science and, we want to add, for society. Thus, the answer for the German university system to the question of whether science is a greedy profession (Lind, 2013) is: yes, it is under these man-made circumstances.

The problem is recognized now in politics and also by the German Research Foundation, which is a very important institution in the science field. But it still has a long way to go.

ENDNOTES

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³ There is no adequate translation of the meaning Rabenmutter. Close to it is deadbeat mom, as Wikipedia says.

REFERENCES

Acker, J. (2013). Hierarchies, Jobs Bodies: A Theory of Gendered Organization. In J. Lorber & S. A. Farrell (Eds.), *The Social Construction of Gender* (pp. 162-179). London: Sage Publication.

Auspurg, K., Frodermann, C. & Hinz, T. (2014). Job related decisions within partnerships. An experimental test of bargaining theory, frame-selection and low-cost-thesis. *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 66 (1), 21-50.

Bathmann, N., Cornelißen, W. & Müller, D. (2013). *Gemeinsam zum Erfolg. Über Karrieren von Frauen in Paarkonstellationen*. Wiesbaden: VS Verlag.

Beaufaÿs, S. (2006). Von Goldgräbern und Körperlosen. Mythos und Alltag wissenschaftlicher Lebensführung. In M. Buchmayer & J. Neissl (Eds.), *Work-Life Balance und Wissenschaft - ein Widerspruch?* (pp. 11-21). Wien: Lit.

Cole, J.R., Zuckerman, H. (1987). *Marriage, Motherhood and Research Performance in Science*. *Scientific American* 256:119-125.

Cornelißen, W., Rusconi, A. & Becker, R. (2011). *Berufliche Karrieren von Frauen. Hürdenläufe in Partnerschaft und Arbeitswelt*. Wiesbaden: VS-Verlag.

Eckes, T. (2008). Geschlechterstereotype: Von Rollen, Identitäten und Vorurteilen. In R. Becker & B. Kortendiek (Eds.), *Handbuch Frauen- und Geschlechterforschung²*, (pp. 171-182). Wiesbaden: VS-Verlag.

- Ehrenberg, A. (2008). *Das erschöpfte Selbst. Depression und Gesellschaft der Gegenwart*. Frankfurt/M: Suhrkamp.
- Etzkowitz, H., Kemelgor, A. & Uzzi, B. (2000). *Athena Unbound. The Advancement of Women in Science and Technology*. Cambridge University Press.
- Findeisen, I. (2011). *Hürdenlauf zur Exzellenz. Karrierestufen junger Wissenschaftlerinnen und Wissenschaftler*. Wiesbaden.
- Funken, C., Hörlin, S. & Rogge, J. C. (2014). *Generation 35 plus. Aufstieg oder Ausstieg? Hochqualifizierte und Führungskräfte in Wirtschaft und Wissenschaft*. Berlin.
- Gender Report 2016. *Geschlechter(un)gerechtigkeit an nordrhein-westfälischen Hochschulen*. Kortendiek, B., Hendrix, U., Hilgemann, M., Niegel, J., Bünning, J., Conrads, J. & Mauer, H. (2016). Studien Netzwerk Frauen- und Geschlechterforschung NRW Nr. 25, Universität Duisburg-Essen.
- Gemeinsame Wissenschaftskonferenz (GWK) (2015). *Chancengleichheit in Wissenschaft und Forschung*, 19. Fortschreibung des Datenmaterials (2013/2014) zu Frauen in Hochschulen und außerhochschulischen Forschungseinrichtungen, H. 45. Bonn
- Glaser, B. G., Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine de Gruyter, New York (German: Grounded Theory, Bern, Verlag Huber, Hogrefe AG 2010).
- Gross, C., Jungbauer-Gans, M. & Kriwy, P. (2008). Die Bedeutung meritokratischer und sozialer Kriterien für wissenschaftliche Karrieren - Ergebnisse von Expertengesprächen in ausgewählten Disziplinen. *Beiträge zur Hochschulforschung* 30 (4), 8-12.
- Kahlert, H. (2013). *Riskante Karrieren. Wissenschaftlicher Nachwuchs im Spiegel der Forschung*. Opladen: Barbara Budrich.
- Kirsch-Auwärter, E. (2013). Emanzipatorische Strategien an den Hochschulen im Spannungsfeld von Organisationsstrukturen und Zielvorstellungen. In U. Müller, B. Riegraf & S. M. Wilz (Eds.), *Geschlecht und Organisation* (pp. 193-225). Wiesbaden: VS-Verlag.
- Leemann, R., Boes, S. (2012). Institutionalisation von ‚Mobilität und Internationalität‘ in wissenschaftlichen Laufbahnen. Neue Barrieren für Frauen auf dem Weg an die Spitze? In S. Beaufays, A. Engels & H. Kahlert (Eds.), *Einfach Spitze? Neue Geschlechterperspektiven auf Karrieren in der Wissenschaft*, (pp.174-203) Frankfurt/M.: Campus-Verlag.
- Lind, I. (2008). Aufgeschobene Kinderwünsche – eingeschränkte Perspektiven? Zur Vereinbarkeit von Wissenschaft und Elternschaft – Ergebnisse einer aktuellen Studie. *Forschung & Lehre* 15 (11), 754-756.
- Lind, I. (2010). Was verhindert Elternschaft? Zum Einfluss wissenschaftlicher Kontextfaktoren und individueller Perspektiven auf generative Entscheidungen des wissenschaftlichen Personals. In C. Bauschke-Urban, M. Kamphans & F. Sagebiel

(Eds.), *Subversion und Intervention. Wissenschaft und Geschlechter(un)ordnung*. (pp. 155-178). Opladen: Barbara Budrich.

Lind, I. (2013). Wissenschaft als „greedy occupation“? In Haller, M. (Ed.), *Österreichische Akademie der Wissenschaften: Wissenschaft als Beruf. Bestandsaufnahme – Diagnosen – Empfehlungen* (pp. 95-110). Wien.

Metz-Göckel, S. (2016). Der perfekte Lebenslauf. Wissenschaftlerinnen auf dem Weg an die Spitze. In J. Reuter, O. Berli & M. Tischler (Eds.), *Wissenschaftliche Karriere als Hasard. Eine Sondierung* (pp. 101-130). Frankfurt/New York: Campus.

Metz-Göckel, S., Heusgen, K., Möller, C., Schürmann, R. & Selent, P. (2014). *Karrierefaktor Kind. Zur generativen Diskriminierung im Hochschulsystem*. Opladen: Barbara Budrich.

Metz-Göckel, S., Heusgen, K., Schürmann, R. & Selent, P. (2016). *Faszination Wissenschaft und passagere Beschäftigung. Eine Untersuchung zum Drop-Out aus der Universität*. Opladen: Barbara Budrich.

Moen, P., Roehling, P. (2005). *The Career Mystique. Cracks in the American Dream*. Lanham: Rowman & Littlefield.

Passer, M.W. & Smith, R.E. (2003). *Psychology. The Science of the Mind and Behavior*. Mc Graw Hill, International Edition.

Pettersson, H. (2011). Gender and transnational plant scientists. Negotiating academic mobility, career commitment and private life. In *Gender. Zeitschrift für Geschlecht, Kultur und Gesellschaft* 3 (1), pp. 99-116.

Ranga, M., Gupta, N. & Etzkowitz, H. (2012). Gender Effects in Research Funding. A review of the scientific discussion on the gender-specific aspects of the evaluation of funding proposals and the awarding of funding. German Research Foundation. Bonn.

Reith, F., Langfeldt, B., Griffiths, K. & Mischau, A. (2013). Geschlechterunterschiede in der Selbstpräsentation und der Vernetzung als ausgewählte Karrierestrategien von MathematikerInnen und PhysikerInnen. In U. Busolt, S. Weber, C. Wiegel & W. Kronsbei (Eds.), *Karriereverläufe in Forschung und Entwicklung. Bedingungen und Perspektiven im Spannungsfeld von Organisation und Individuum* (pp. 250-270). Berlin.

Rogge, J. C. (2013). Wissenschaft als Karrierejob. In C. Funken, S. Hörlin & C. Rogge (Eds.). *Generation 35 plus. Aufstieg oder Ausstieg? Hochqualifizierte und Führungskräfte in Wirtschaft und Wissenschaft* (pp. 30-52). Berlin.

Rusconi, A., Cornelißen, W. & Becker, R. (2011). Einleitung. In W. Cornelißen, A. Rusconi & R. Becker (Eds.), *Berufliche Karrieren von Frauen. Hürdenläufe in Partnerschaft und Arbeitswelt* (pp. 9-20). Wiesbaden: VS-Verlag.

Rusconi, A., Solga, H. (2010). Doppelkarrieren – Eine wichtige Bedingung der Verbesserung der Karrierechancen von Frauen. In J. Funk, E. Gramespacher & I. Rothäusler (Eds.), *Dual Career Couples in Theorie und Praxis* (pp. 37-55). Opladen: Barbara Budrich.

Rusconi, A., Solga, H. (2011). "Linked lives" in der Wissenschaft Herausforderungen für berufliche Karrieren und Koordinierungsarrangements. In A. Rusconi & H. Solga (Eds.), *Gemeinsam Karriere machen. Die Verflechtung von Berufskarrieren und Familie in Akademikerpartnerschaften* (pp. 11-50). Opladen: Barbara Budrich.

Sagebiel, F. (2010). Zur Funktion von Männernetzwerken für die Karriere von (Ingenieur-)Wissenschaftlerinnen. In C. Bauschke-Urban, M. Kamphans & F. Sagebiel (Eds.), *Subversion und Intervention. Wissenschaft und Geschlechter(un)ordnung* (pp. 279-301). Opladen: Barbara Budrich.

Sagebiel, F. (2015). *Peer Review-Verfahren. Legitimation oder ein geschlechtergerechtes Verfahren zur transparenten Qualitätssicherung*. In *die hochschule*, Tabus und Tabuverletzungen. M. Kamphans, S. Metz-Göckel & M. Bülow-Schramm (Eds.), 2/2015, pp 143-157.

Sigal, A. & Tienda, M. (2007). Diversity, Opportunity and the Shifting Meritocracy in Higher Education. In *American Sociological Review*, Vol 72, Issue 4, pp. 487-511.

Scherbaum, S. (2011). Die Macht der Stereotype. In R. Buhr & B. Kühne (Eds.), *mst/femNet meets Nano and Optics* (pp. 30-39). Retrieved from [www.emft.fraunhofer.de/content.dam/emft/de/.../Die Macht der Stereotype.pdf](http://www.emft.fraunhofer.de/content.dam/emft/de/.../Die_Macht_der_Stereotype.pdf)

She Figures (2016). European Commission. Brussels

Weber, L. (2017). Die unternehmerische Universität. Chancen und Risiken für Gleichstellungspolitiken in Deutschland, Großbritannien und Schweden, Weinheim/Basel: Beltz/Juventa.

Weber, M. (1919, 1985⁶). *Wissenschaft als Beruf*. Tübingen: Mohr.

Zuckerman, H., Cole, J. R., & Bruer, J. T. (Eds.), (1991). *The outer circle: Women in the scientific community*. New York: W.W. Norton.