Chapter 5
Gender and Academic Work at a Dutch University

Liudvika Leišytė and Bengü Hosch-Dayican

Introduction

European higher education institutions have undergone significant transformation in the past two decades partly due to the New Public Management (NPM) inspired reforms and relatively strong convergence of European higher education systems due to inter-governmental agreements such as the Bologna process (Leisyte and Dee 2012). Universities have been shifting their structures and processes from being 'loosely coupled' to 'tightly coupled' organizations (De Boer et al. 2007). As part of this process a gradual shift away from the classical Humboldtian model of teaching and research unity within the professional role of an academic toward structurally differentiated academic roles has been observed (Leisyte and Dee 2012).

We argue that the increasing division of academic labor may lead either to the emergence of, or the intensification of, already existing inequalities. As research output is often valued more than teaching experience in recruitment and promotion procedures,[1] the disproportionate division between teaching and research roles in academia can produce a segregation of academic roles among marginalized groups, since work tasks with lower status in performance evaluations (teaching) is likely to be concentrated among such groups in an organization (Leisyte and Hosch-Dayican 2014). Consequently, marginalized groups will not have the capacity or opportunity to engage in high status activities (research) and therefore will encounter problems with career advancement. Gender inequality in academia, for example, is highly

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[1] Success in research remains one of the most important criteria required for promotion to higher-ranked academic positions. A large number of research outputs and grants seems to conform better with contemporary notions of performance, while teaching has fewer measurable outputs (Blackmore and Sachs 2007).

L. Leišytė (✉) • B. Hosch-Dayican
Center for Higher Education (zhb), TU Dortmund University, Dortmund, Germany
e-mail: liudvika.leisyte@tu-dortmund.de; bengue.dayican@tu-dortmund.de

likely to be fuelled by this kind of development. Female academics already form a disadvantaged group since they are underrepresented in senior academic positions (see e.g. Eveline 2005; Grummell et al. 2009; Van den Brink 2010). As evidence from recent research suggests, female academics tend to be more involved in teaching than in research or leadership than their male counterparts (e.g. Berg et al. 2003; Barry et al. 2012). Thus, the shifting teaching-research nexus is more likely to introduce a constraint for their career progression for female than for male academics (Leisyte and Hosch-Dayican 2014).

The purpose of this study is to understand the change of academic roles for female academics and the implications of this change for their career opportunities. We focus on the Dutch academic system in general and on one university in particular. The Dutch higher education system is chosen as it is currently one of the poorest performers in Europe when it comes to the female academic representation in the professorial positions.[2]

In this chapter we therefore aim to answer the following research questions:

1. How have the changes in the NPM affected the division of academic labor in the Dutch higher education system?
2. What academic role differentiation can be found in the Dutch higher education system?
3. How is the workload of female academics distributed in the managerial Dutch university?
4. How does this workload differentiation influence their career prospects?

We will address the first two questions by examining secondary sources of data which include a number of European, national and institutional reports, relevant websites as well as pertinent literature. The third and fourth questions will be answered based on a survey conducted among the female academic employees of a particular Dutch university in 2012, complemented with a range of national and institutional documents. Building on these sources, we will organize the chapter in three parts. In the first part we map the changes in higher education policies in Europe with a specific focus on the Dutch higher education system. Further, we discuss the key issues related to the career development of female academic staff and explore the relation between the differentiation of academic roles and gender inequalities in career prospects. The third part will focus on the case analysis of the selected Dutch university. We will study how female academics view their work roles and discuss the implications of the differentiation in their activities for their career development. Finally, we will provide an overall reflection on the changes in teaching-research nexus and career prospects in the light of our findings.

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[2]The proportion of women in academic top positions in the Netherlands saw an incremental increase from 8 % in 2002 to 13 % in 2010 (European Commission 2012). Further, the Dutch higher education system has a relatively new system of job ranking, creating highly differentiated formal positions in which teaching and research tasks may occur in different proportions while sticking to the traditional Humboldtian model of teaching-research nexus (De Weert 2009: 148).

New Public Management Reforms and Dutch Higher Education System

Managerial control within universities has been strengthened by NPM-inspired governmental policies geared towards establishing the mechanisms of the private sector within the system of higher education, such as increasingly competitive allocation of state funding for universities based on output-oriented performance reviews. As a consequence of these reforms initiated in the 1990s, starting with the UK and gradually spreading into continental Europe (De Boer et al. 2007), universities in Europe have become more autonomous in acquiring and managing their resources and at the same time more accountable to the increasing variety of stakeholders. As part of these processes, universities have tried to modify their organizational structures and have increasingly become more 'corporate' organizations which aim primarily at maximizing their efficiency and effectiveness in order to be able to compete for resources (Leisyte and Dee 2012). These organizational-level changes imply a change in the work conditions of individual academics, in terms of increasing temporary, project-based contracts, the use of performance reviews where research outputs are emphasized, and the division of labor among academics in terms of teaching, research and administration. In particular, this latter development resulted from universities' struggle to increase student numbers, stronger accountability demands to managers and external funders, as well as the need to attract external grants.

The changes in higher education and research organizations in the past decades outlined above are believed to have led to a gradual shift away from the classical Humboldtian model of the teaching-research nexus toward structurally differentiated academic roles in European universities (Leisyte et al. 2009). The Humboldtian ideal, which emphasizes the interrelated unity of teaching and research within the professional role of an academic (Clark 1983), is increasingly put under pressure in the face of the policies that aim at augmenting intra-organizational efficiency and effectiveness. This aim could entail the separation of teaching and research functions by separating personnel categories as well as organizational units and by separate funding for research and teaching (Leisyte 2007; Leisyte and Dee 2012; Leisyte and Hosch-Dayican 2014). Moreover, the massification of higher education can also influence the shift in the teaching-research nexus towards separation since higher teaching workloads may otherwise not be effectively dealt with. The consequence is the transition to the so-called post-Humboldtian model which is characterized by "a differentiation of roles and/or organizations and/or resources for teaching and research" although both roles are still expected of academics at a university (Schimank and Winnes 2000: 398).

These structural shifts have also taken place in the context of the Dutch higher education system as a consequence of the NPM-oriented public sector reforms in the Netherlands; with particular implications for management practices at universities. The increasing performance and efficiency demands resulting from these

practices have, in turn, to a large extent modified the formal regulations of work conditions and job descriptions of academics.

Higher Education Reforms in the Netherlands and Management Practices at Dutch Universities

The Dutch government has traditionally played an important role in the coordination of the higher education system. In the Dutch context the higher education reforms in the 1980s strengthened university autonomy and management (De Boer and Huisman 1999). In 1985 the government introduced the concept of 'steering from a distance', under which the universities have been given institutional autonomy in hiring academic staff, raising funds, maintaining their own property and engaging in entrepreneurial activities (Leisyte and Dee 2012). The NPM-inspired reforms of the 1990s echoed this concept as they urged universities to become real corporate organizations which can be prompt in responding to the needs of the labor market and economy overall (Leisyte et al. 2008; Leisyte and Hosch-Dayican 2014).

The implications of the policy changes for Dutch universities have been widely discussed (De Boer et al. 2007). As studies have revealed, managerial power has increasingly shifted to the appointed Executive Boards and deans who have become professional managers. This, in turn, has led to increased administrative hierarchies and professionalization of the human resources departments in Dutch universities. Furthermore, the increasing audit logic in the form of output monitoring and increasing competition for resources have stressed the need to diversify income sources (De Boer et al. 2007). As a result, hiring and promotion criteria in universities have increasingly included numbers of publications in high-ranking journals and success in attracting external research funding (Leisyte 2007; Leisyte et al. 2008). The yearly academic staff performance reviews, from being part of an ad-hoc formality, have increasingly become part of the obligatory organizational routine and have additionally been used to discuss what needs to be achieved in terms of research outputs for the next year, what funding needs to be brought in and what expectations there are towards a contribution to the department to achieve promotion (Leisyte and Dee 2012). One explicit example of the changes has been the introduction of the "tenure-track system" whereby promising staff are hired and their performance expectations are laid down in the time-limited contract. Where the performance is satisfactory the candidates should be promoted to the associate professor and professor levels and are granted tenured (permanent) contracts. In case of failure, they leave the institution (Leisyte and Hosch-Dayican 2014).

The current recession has strengthened managerial levers in Dutch universities towards following stricter rules, more rigid budgeting, a greater use of the non-extension of temporary contracts and hiring freezes. Thus, university human resource policies and procedures have been streamlined and the working conditions and requirements have been increasingly geared towards standardization and

performance measurement. In spite of the increasing autonomy of university management in determining their own human resources policies, the employment conditions and benefits for academics are still covered by the "Collective Labour Agreement of Dutch Universities". In addition to employment conditions, the overall division of teaching, research and administration tasks is also centrally defined by this national agreement, which is a particular aspect of the Dutch higher education system that might have specific consequences for the teaching-research nexus.

Teaching-Research Nexus in the Dutch Academic Classification System

The Dutch NPM-inspired reforms in the 1990s changed academic staff employment regulations so that academics were no longer public servants but the employees of universities. This new classification of academic positions (*Universitair Functieordenen* – UFO) was introduced in 2003 and is part of the Collective Labour Agreement of Dutch Universities and features "diversified career patterns in which teaching and research tasks may occur in different proportions" (De Weert 2009: 148). As a result the various roles, tasks and responsibilities to be carried out to achieve specific results have been made explicit by formal criteria that apply to academic employment practices in Dutch universities. This agreement is negotiated between the Association of Universities in The Netherlands (VSNU) representing the 14 Dutch universities and three trade unions (Timmers et al. 2010). It regulates academic as well as non-academic job profiles and salary levels for all Dutch universities.

This new system shifted the focus from years of work experience and performance towards core activities and competencies. The UFO academic profiles are composed mainly of teaching, research and administrative tasks. Depending on the weighting of these tasks within the position the following academic profiles are defined: Lecturers, Researchers, University Lecturers (equivalent to Assistant Professor), Senior University Lecturers (equivalent to Associate Professor), and Full Professors[3] (see Table 5.1). A specified mix of academic activities is foreseen for each one of these positions, which are furthermore broken down into levels differentiated according to the composition of academic activities (Leisyte and Hosch-Dayican 2014).

Table 5.1 reveals first of all that teaching-only (lecturer) and research-only (researcher, post-doc) positions are already a part of the Dutch academic career trajectories (Ibid.). The number of academics in such positions has been increasing substantially since 1990, while a recent study by De Goede et al. (2013) demonstrates

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[3] In addition to these positions, a common practice in Dutch universities is to employ doctoral candidates as a part of academic staff with employment contracts. The position is called "Research Assistant Trainee" (AiO), consisting mainly of research tasks with approximately 20 % teaching duties (see De Weert and Boezerooy 2007).

Table 5.1 Distribution of tasks among per academic position according to the UFO criteria

	Lecturer	Researcher	Assistant professor	Associate professor	Full professor
Teaching					
Development	±		√	√	√
Execution	√		√	√	√
Examination	√		√	√	
Evaluation	±		√	√	
Coordination				√	
Supervising students	√	√	√	√	√
Acquisition of contracted teaching			±	√	√
Accounting for contracted teaching					√
Supervising PhD students			√	√	√
Teaching total %	**91**	**14**	**54**	**53**	**40**
Research					
Planning/development		√		√	√
Execution		√	√	√	√
Publication		√	√	√	
Coordination		±	√	√	
Accounting for contracted research		±			√
Supervising research related personal		√			
Acquisition of contracted research		±	±	√	√
Dissemination of findings to public			√	√	√
Research total %	**–**	**79**	**38**	**40**	**33**
Administration					
Participating in working groups and commissions	±	±	√	√	√
Administration of teaching and research					√
Administration of human resources					√
Determining long term goals for chair					√
Administration total %	**9**	**7**	**8**	**7**	**27**

Source: VSNU (The Association of Universities in the Netherlands as cited in Leisyte and Hosch-Dayican 2014)

√ means full execution of the described tasks, while ± indicates that the task is optional or might vary according to the level within that position. The total percentages were not included as such in the UFO, but were calculated by the authors based on the list of tasks, where √ was given the weight 1 and ± took the weight 0.5

a steep decrease in the number of assistant professors within the same time span. Furthermore, specific levels within teaching and research are intertwined in separate career tracks in the sense that teaching or research tasks can be carried out only for the duration of a previously arranged period. As a result, the majority of the academics appointed to these positions have temporary contracts (De Goede et al. 2013).

For the remainder of the career profiles – assistant, associate and full professors – the traditional Humboldtian teaching-research nexus appears to have been maintained, since a combination of teaching, research and administrative tasks have been specified for these positions in the job classification system. Even for these positions, however, the nexus can be unbalanced over time for a number of reasons:

1. According to the figures in Table 5.1, there is hardly any balance between research and teaching tasks at mid-career levels, that is, assistant and associate professors. More than 50 % of the contract time of mid-career academics is intended for teaching, while administrative tasks take up roughly another 10 %, leaving no more than 40 % of work time for research activities. Although, formally, both teaching and research qualifications are needed for individual promotion towards professoriate, in the practice, a strong research profile (mostly measured by publications in high impact-factor journals and prestigious external research grants) is largely decisive for the renewal of contracts and promotion to higher career levels (Leisyte and Hosch-Dayican 2014). Lack of such a research profile can create a stumbling-block for career advancement of these academics; especially when the particular forms of the Dutch academic context are taken into account. First of all, although assistant and associate professors generally hold a permanent contract, the number of fixed-term contracts for assistant professors has been increasing in the past decade (Van den Brink 2010). Second, promotion to an upward academic rank is highly dependent on available positions, a unique characteristic of the Dutch academic system. Although there have been attempts to introduce the American tenure track system into Dutch universities in the past years, most positions still become available through formal vacancies (Van den Brink 2010). This means that, even with an excellent performance, promotion to higher ranks is not always an option.

2. Though centrally regulated, the new system defines the composition of tasks per profile as dependent on the purpose and tasks of a group. Thus despite the uniformity of classification criteria, the composition of activities within a profile is determined by factors such as the organizational context within which the profile is embedded (that is, the specificity of the chair group) and the foreseen contribution of this profile towards the organization. Individual development plans are used in which different academic roles are acknowledged including both vertical and horizontal mobility (Leisyte and Hosch-Dayican 2014). Academic staff members can be allocated to specific roles on the basis of an assessment of their qualifications, for example, to be more involved in either teaching or research (De Weert 2009). This can be done on a yearly basis in discussions with the direct superiors (usually the professor in the group) (Leisyte and Dee 2012).

It is observed that the level of competition at all academic levels is quite high, and successful recruitment to a higher position is highly dependent on exceptional research performance as well as the managerial context of the university. Mid-career groups are particularly under pressure due to the workload allocation portrayed above, which is slightly to the disadvantage of research tasks. Furthermore, in the context of the rapidly increasing numbers of students since the introduction of the Bachelor and Master degree system in 2002 in the Netherlands (De Weert and Boezerooy 2007), the formal requirements of teaching for mid-career academics may be easily extended to greater workloads than officially classified to the detriment of research. It is therefore dependent on the negotiations with the Chairs of the groups as to how the balance between teaching and research can be maintained. In such a context, the issue of gender balance in the allocation of teaching and research tasks is highly relevant.

Career Prospects of Female Academics

Despite the increasing number of women obtaining doctoral degrees, and despite the increasing emphasis on gender equality measures at universities, female academics remain a minority among academic staff, being severely under-represented in senior academic positions (Valian 1998; Osborn et al. 2000; Benschop and Brouns 2003; Leisyte and Hosch-Dayican 2014). Today in Europe a "leaky pipeline" is a reality in academia leading to 'a profound gender imbalance in a vast majority of countries' (European Commission 2012); the number of female scientists declines at every stage of the academic career path (Osborn et al. 2000; Rees 2002). For example, in 2009 the Dutch higher education system had 42 % female PhD graduates, 26 % female researchers and 13 % female professors (European Commission 2012). More recent research findings also indicate that the gender gap in employment status with respect to part-time and fixed-term employment contracts is highest in the Netherlands compared to a number of other European countries (Goastellec and Pekari 2013).

It is suggested that the reasons for a strong gender imbalance in academic career progression are complex and multi-faceted (Leisyte and Hosch-Dayican 2014). First of all, a set of institutional arrangements of academic careers shaped by the national reforms coupled with the culturally determined stereotypes of gender roles are very strong determinants of inequalities in academic career progression (Van den Brink 2010). Furthermore, the pre-existing hierarchical structure of an organization plays a crucial role in the likelihood of a new employee reaching the top, which might eventually lead to disadvantaging certain groups. Finally, meritocracy being the key determinant for hiring and promotion – where peer-review is the key selection mechanism – has also been shown to have specific biases towards under-represented groups (Lamont 2009). If transparent recruitment, work organization and promotion procedures are absent. women are more

likely to be hindered from ascending to the top of the academe due to unwritten norms and rules which are not necessarily accessible to the female academics (Bain and Cummings 2000; Probert 2005; Timmers et al. 2010).

Taking this into account, the transformation of universities towards more tightly managed corporate organizations – although initially seeming to be 'gender friendly' due to making the promotion criteria explicit and standardized – potentially may reinforce the gendered structure, culture and practices at universities. As discussed earlier, growing workloads due to changes in student numbers, as well as the pressures for performance and accountability stemming from increasing competition in the academic labour markets are the most tangible side effects of the NPM-inspired reforms. We have also shown that this increase in the amount of work may be accompanied with the changing balance between the different roles and tasks of teaching, research and administration. Coupled with the pre-existing gender inequalities in Dutch academe, these changes can lead towards a gendered teaching-research nexus in the Dutch system. As a result, informal discrimination is created in the allocation of academic workload among male and female academics which is based on already existing perceptions as well as practices of gender differentiated roles.[4] This development can lead towards a subtle gender divide in modes of employment and between academic roles and activities, which could hinder career progression of female academics in manifold ways (see Le Feuvre 2009; Barrett and Barrett 2011).

Recent findings suggest that female academics indeed find themselves increasingly disadvantaged in terms of academic work as a consequence of institutional change at European universities. Generally, the NPM reforms are seen as "carriers of masculine discourses, emphasizing competition and instrumental reason that has not been to the benefit of women" (Thomas and Davies 2002; Barry et al. 2012: 54) and are found to have affected women academics more than men. For instance, Barry et al. (2012) have found that women are disproportionately concentrated in teaching roles and pastoral care for students, whereas men predominantly occupy research positions such as lecturer/reader and professor both in Sweden and the UK (both countries have undergone NPM reforms in higher education). Similarly, other studies have shown that female academics perform a disproportionate share of academic departments' care work and emotional labour, such as pastoral care or mentoring (Probert 2005; Barrett and Barrett 2011), especially in higher education systems where the level of transparency of information on workload allocation is low. It was demonstrated that female academics spend more time on teaching (Bird 2011), while male academics are more represented in research-only jobs or in positions where teaching and research are balanced (Barrett and Barrett 2011). There is thus clear evidence of a skewed allocation of different academic tasks between male and female academics (Leisyte and Hosch-Dayican 2014).

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[4] Already in the aftermath of World War II, a gendered academic workload division was visible in U.S. colleges and universities: Women were excluded from research-intensive disciplines, while they were over-represented in teaching focused liberal arts colleges (Rosenberg 1988; Bird 2011).

The three primary academic activities – teaching, research and administration – are routinely acknowledged as being of equal importance for faculty excellence in university mission statements, and all three are indeed included in promotion criteria at most universities. However, in practice these tasks are not valued to the same degree; achievements in research remain the dominant requirement in promotion criteria to higher academic levels and are perceived also by the staff as pivotal for promotion (Parker 2008; Barrett and Barrett 2011). Teaching, on the other hand, has fewer measurable outputs and remains less valued in faculty evaluation processes (Blackmore and Sachs 2007). Gender inequalities in teaching-research nexus can thus be of utmost importance for the career prospects of female and male academics and can be considered an essential factor in explaining the leaky pipeline syndrome. The workload imbalance disadvantaging research may mean stagnation or disruption of an academic career path, especially for women in mid-career levels such as assistant and associate professor, where the criteria for career progression are particularly demanding with respect to research outputs.

In the Netherlands, similar to other European countries discussed above, female academics are under-represented in almost all academic positions, with the exception of undergraduate and PhD students (Timmers et al. 2010; Van den Brink 2010; Van den Brink and Benschop 2012) despite policy measures taken at national and European level, The Netherlands still ranks very low with respect to the proportion of female full professors compared to other European countries (European Commission 2012). The demands of accountability and performance in terms of research outputs coupled with the increased competition for resources have possibly led to changing the teaching-research nexus and the disproportionate allocation of different tasks at different career levels for female academics. Given the evidence discussed earlier on the effects of NPM on universities, we may assume that the high percentage of dropouts of female academics at mid-career levels in the Netherlands (the leaky pipeline) is to a great extent associated with the changes in academic workload balance (Leisyte and Hosch-Dayican 2014). Thus we formulate the following hypotheses:

H1: *The teaching-research nexus for female academics in the Netherlands features more involvement in teaching than research.*

H2: *Female academics at mid-career levels* (*assistant and associate professors*) *in the Netherlands experience a stronger imbalance in teaching-research nexus compared to female academics at other career levels.*

H3: *Career prospects of female academics are constrained by the imbalanced teaching-research nexus*, *especially at mid-career levels.*

The Case Study University

We have tested our hypotheses by employing the case study method, whereby we selected a Dutch university which has a low proportion of women in senior academic positions. At the same time, typical Dutch employment procedures and role

divisions applied in this university. Our data source was an online survey conducted in February-March 2012, where female employees of the case university were approached by an e-mail request to participate. One hundred twenty-nine employees from different career ranks and faculties returned the survey, which represented approximately 25 % of total female academic staff. However, the analyses in this chapter were based on data from respondents at senior academic levels; doctoral candidates were excluded from the analyses since their task allocation profile with respect to teaching and research activities is distinct from the other academic positions due to their specific status.[5] The remaining 66 respondents consisted of lecturers, researchers, assistant and associate professors as well as full professors. Although the data did not allow for comparisons with male academics with respect to workload balance and career progression prospects, they provided the opportunity to explore the relationship between these two undertakings for female academics in the Netherlands (Leisyte and Hosch-Dayican 2014).

Teaching-Research Nexus Among Female Academics

The online survey contained questions on how much time was spent on average in a week on teaching, research, administrative and other activities and thus enabled the measurement of teaching-research nexus. The respondents were given the opportunity to react to these questions on a 5-point-scale consisting of the following categories: less than 20 %, 20–40 %, 40–60 %, 60–80 %, and more than 80 %. Furthermore, respondents were asked to indicate how they perceived the workload balance between their teaching and research activities on a 5-point scale in a separate question. As we were interested in the balance between teaching and research activities, we used these three variables for our assessment of the teaching-research nexus. A preliminary correlation analysis revealed that all three indicators were strongly and significantly related to each other. The time spent on research was positively correlated with the perceived workload balance among female academics (Pearson's $r = 0.601$), while there was a negative correlation between workload balance and the time spent on teaching (Pearson's $r = -0.625$). This shows that having less time for research than for teaching activities was likely to be regarded as an anomaly among female faculty and had consequences for their satisfaction with their workload balance. We also found a rather strong negative correlation between average weekly time spent on teaching and on research (Pearson's $r = -0.714$), indicating that both activities were competing with each other rather than being complementary (Leisyte and Hosch-Dayican 2014).

How is the teaching-research nexus being experienced among female academics? To evaluate the first two hypotheses, the allocation of weekly work time among different activities and the perceived balance between teaching and research were compared across four different academic career levels: lecturers, researchers

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[5] See the previous section on teaching-research nexus in the Dutch academic job classification system.

Table 5.2 Descriptive analyses of academic activities and teaching-research nexus among academic ranks

	Lecturer	Researcher	Mid-career	Professors
Perceived workload balance between teaching and research	1.20	3.60	2.55	3.03
Time spent on teaching per week	3.20	1.27	2.45	1.78
Time spent on research per week	1.20	4.13	2.31	3.32
Time spent on administrative work per week	2.20	1.13	1.45	1.29
Time spent on other work per week	1.20	1.07	1.33	1.21
N	5	15	42	4

Entries are means. The response scales for all variables vary from 1 to 5, where the ranking is as follows: For perceived workload balance, 1 indicates no balance at all and 5 refers to full balance. For all variables on time spent for academic activities, 1 refers to less than 20 % of weekly work time spent on activity and 5 refers to more than 80 %. Source: Leisyte and Hosch-Dayican 2014

(including junior and senior researchers and post-docs), mid-career academics (assistant and associate professors) and full professors. As can be seen from the Table 5.2, average weekly time spent on teaching and research activities varied markedly among the different academic ranks. In line with their job status, the weekly working time of lecturers and researchers was devoted predominantly to the respective tasks of teaching and research. Administrative and other duties constituted a minor portion of their academic activities, whereas lecturers appeared to have a much higher administrative load compared to researchers (Leisyte and Hosch-Dayican 2014). The reported time allocated to these activities (more than 40 % of their weekly work time) clearly deviates from the UFO regulation where no more than 9 % administrative work is expected for lecturers (see Table 5.1).

This remarkable finding might have been caused by several factors. First of all, the fact that the administration of teaching requires more time than the administration of research due to the high number of students may have led to the perception of work overload in this task among lecturers. Second, the female lecturers might be more prone to be overloaded by the time-consuming and "low status" administrative tasks. Unfortunately, the data at hand do not allow us to test these assumptions about the causes of this imbalance. Yet its implications are demonstrated clearly by the figures on perceived workload balance among lecturers and researchers. While all of the lecturers surveyed experienced almost no balance at all between academic activities, the researchers were distinctively more positive about their workload balance (Leisyte and Hosch-Dayican 2014).

A comparison of the weekly allocation of academic activities among career groups where the teaching-research nexus is supposed to be more balanced showed that the activities also varied among these groups. Mid-career faculty, i.e. assistant and associate professors, seemed to invest equal time in teaching and research tasks, while teaching activities were slightly more emphasized. Thus there seemed to be a high load of both teaching and research for mid-career groups, which was also reflected in their subjective evaluation of the balance between teaching and research

activities. They perceived the workload division between teaching and research to be less balanced compared to researchers and professors. This comparison showed that mid-career groups were worse off with respect to the teaching-research balance; they taught more and did less research compared to more junior researchers and full professors. They were also slightly more loaded with administrative and other activities, but the difference was not very pronounced (Ibid.).

In summary, we could not provide unequivocal evidence for a substantial imbalance in the teaching-research nexus with a tendency towards more teaching among all female academics and thus our first hypothesis cannot be corroborated. Teaching and research tasks seemed to take equal time for female faculty in a week. One major drawback of the survey question on the allocated weekly time for academic activities is, however, that the response scale was presented to respondents in the form of categories. It seems that both teaching and research take 40–60 % of the weekly time of both female faculty in general as well as mid-career female academics (which corresponds to 16–24 h a week), yet this is a large range and the actual hours spent on each activity can vary strongly among respondents who indicated this category. Thus this conclusion should be approached with caution. With respect to hypothesis 2, our analysis provides some support for the assumption that mid-career academics are more prone to be affected by the changing teaching-research nexus, in the sense that they have slightly more teaching duties. Thus they come close to the formal description of their tasks in the UFO criteria (see Table 5.1). However, the same problem with the response scale is also present here, so it is not possible to tell precisely how much time they allocate to each activity.

Workload Allocation and Academic Career Prospects

Academic career prospects are related to practices at several different stages of academic employment, varying from recruitment to evaluation and promotion. Since the survey was aimed at assessing the career progression prospects of female academics, it included a variety of statements on evaluation and promotion criteria and how respondents thought they were being affected by them. Scale analyses were conducted to identify the different aspects of career progression measured by these variables, which revealed that they can be categorized under two dimensions: (1) Transparency of evaluation criteria (Cronbach's Alpha = 0.85), and (2) Promotion procedures and prospects (Cronbach's Alpha = 0.81). Accordingly, two additional indices were built in, based on the results of the scale analyses. Table 5.3 presents the mean positions of each academic career level on individual variables as well as the indices of transparency of evaluation and promotion prospects (Leisyte and Hosch-Dayican 2014). The overall impression gained from the mean scores of the indices is that respondents from all ranks were generally neutral about, or rather satisfied with, evaluation and promotion procedures. Assistant and associate professors also did not deviate from this pattern to a substantial extent. The recognition of academic performance, responsiveness of faculty to promotion needs and the level

Table 5.3 Descriptive analyses of academic career progression prospects among academic ranks

	Lecturer	Researcher	Mid-career	Professors
Congruence between task description and evaluation indicators	2.60 (5)	3.47 (15)	3.40 (42)	3.75 (4)
Clear requirements for a positive job evaluation	3.20 (5)	3.40 (15)	3.19 (42)	3.75 (4)
Transparency of evaluation criteria (**index**)	**3.20 (5)**	**3.67 (15)**	**3.50 (42)**	**3.75 (4)**
Clear criteria for promotion	2.40 (5)	3.00 (15)	2.93 (42)	3.00 (4)
Positive job evaluation leads to promotion	0.00 (5)	0.20 (15)	0.40 (42)	0.50 (4)
Years since last job promotion	4.67 (3)	2.22 (9)	2.54 (35)	3.50 (4)
Responsiveness of faculty to promotion needs	1.80 (5)	2.80 (15)	2.86 (42)	3.00 (4)
Sufficient guidance and feedback for promotion	2.00 (5)	3.13 (15)	2.55 (42)	2.75 (4)
Recognition of teaching and administrative work for promotion	2.40 (5)	2.60 (15)	2.52 (42)	2.50 (4)
Promotion procedures and prospects (**index**)	**2.33 (3)**	**3.22 (9)**	**3.26 (35)**	**3.50 (4)**

Entries are means; Numbers of respondents are displayed in brackets. For the variable 'positive job evaluation leads to promotion', where the scale features only two points: 0 (yes) and 1 (no). For all other variables, the response scale varies from 1 (disagree) to 5 (agree). The only exception among these is the variable 'years since last promotion', where 1 refers to less than 1 year and 5 refers to more than 6 years. Source: Leisyte and Hosch-Dayican 2014

of guidance for promotion, however, seem to provide less satisfaction, especially among lecturers and researchers.

How were the career prospects portrayed above associated with the teaching-research nexus in this university? Does the balance between teaching and research relate to the career progression of female academics? In hypothesis 3, we proposed that the shifting teaching-research nexus would have a negative influence on career prospects of female academics, an effect that will be more pronounced for mid-career academics. This hypothesis contains several fundamental assumptions. First, a direct relationship between the teaching-research nexus and career progression prospects is assumed. Second, career prospects are expected to differ among career levels, i.e. between mid-career groups and the rest of the academic staff because of the unequal allocation of teaching and research tasks between these career groups with mid-career faculty having a less balanced nexus. Third, the stress is specifically on female academics suggesting that career prospects of (mid-career) female faculty will be more strongly constrained by the changing teaching-research nexus. These assumptions were tested using bivariate correlation as well as stepwise regression analyses. For testing the second assumption, a dummy variable was constructed in which the academics were divided into two groups consisting of mid-

Table 5.4 Correlation matrix for dependent and independent variables

	Mid-career academics	Gender balanced policies at university	Equal opportunities in department	Transparency of evaluation criteria	Promotion procedures and prospects
Workload balance	−0.444*** (66)	0.210 (66)	0.397*** (66)	0.399*** (66)	0.416** (51)
Time spent on teaching	0.474*** (66)	−0.213 (66)	−0.364** (66)	−0.372** (66)	−0.346* (51)
Time spent on research	−0.564*** (66)	0.206 (66)	0.240 (66)	0.219 (66)	0.263 (51)
Mid-career academics	1	0.009 (66)	−0.007 (66)	−0.080 (66)	−0.019 (51)
Gender balanced recruitment and promotion policies at university	0.009 (66)	1	0.319** (66)	0.093 (66)	0.407** (51)
Dedication for equal opportunities in department management	−0.007 (66)	0.319** (66)	1	0.470*** (66)	0.434*** (51)
Transparency of evaluation criteria	−0.080 (66)	0.093 (66)	0.470*** (66)	1	0.486*** (51)
Promotion procedures and prospects	−0.019 (51)	0.407** (51)	0.434*** (51)	0.486*** (51)	1

Entries are correlation coefficients (Pearson's r); ***$p <= 0.001$; **$p <= 0.01$; *$p <= 0.05$
Number of respondents is displayed in brackets
'Mid-career academics' is a dummy variable consisting of two categories, with 1 being mid-career academics (assistant and associate professors) and 0 covering all other career groups. 'Transparency of evaluation criteria' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (low) to 5 (high). 'Promotion procedures and prospects' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (very negative evaluation) to 5 (very positive evaluation). Source: Leisyte and Hosch-Dayican 2014

career academics and other academics. For the third proposition, we used two survey items as control factors – measuring perceptions of equal opportunities in recruitment and promotion at the department and university levels, since the data contains only female respondents and thus does not allow for a comparison by gender.

Table 5.4 presents the results of the bivariate correlation analyses between the teaching-research nexus indicators, the indices of career prospects and the control variables (Leisyte and Hosch-Dayican 2014). We found that both aspects of career advancement seem to be significantly associated with perceived workload balance

and time spent on teaching, whereas the direction of the correlation is different. The more respondents felt that there was a balance between their teaching and research duties, the more positive they were about the possibilities of career progression for female academics at their university. In contrast, the weekly teaching load was negatively associated with these factors, suggesting that efforts made in teaching and related activities were not being regarded by respondents as particularly of avail for their career progression. Finally, time spent on research was found not to be significantly related to any aspect of career progression.

A similar pattern of relationships could be found between career levels and teaching-research nexus variables, indicating that female academics in mid-career groups were more likely to perceive an imbalance between teaching and research duties, and to spend more time on teaching and less on research than academics in other ranks. No relationship was found between academic ranks and career progression as the correlation coefficients turned out to be very weak and not significant.

Last but not least, the control variables showed a mixed pattern in their relation to the dependent and independent variables. Perceptions of both equal opportunities at department level and gender-balanced personnel policies at the university were positively correlated with career prospects, whereas the university-level equality measure bore no relationship with the transparency of evaluation. This is probably due to the fact that staff-evaluation talks are still a matter for the department at Dutch universities and are not yet controlled by the university management as strictly as in other contexts. Only the departmental-level equality policies seem to matter for workload balance and weekly teaching time, implying that the allocation of tasks among academics is influenced by the departmental decision-making to some extent (Leisyte and Hosch-Dayican 2014).

The results of the bivariate correlation analyses provide preliminary insights into the relationships between the teaching-research nexus and academic career prospects. However, more valid conclusions about the strength of influence and direction of causality can be achieved by testing the effects of these variables in stepwise regression models. We conducted separate linear regression analyses for two dimensions of career progression prospects (transparency of evaluation and promotion procedures) as two different dependent variables. Furthermore, we carried out the regression analyses independently for each of the three aspects of the teaching-research nexus: workload balance, time spent for teaching and time spent for research. We preferred this option for a number of reasons. First, as discussed in section "Teaching-Research Nexus Among Female Academics", these variables are highly correlated with each other, suggesting that the odds of cancelling out each other's effects are rather high when they are placed in the same model. Second, each teaching-research nexus indicator is likely to have its own consequences for career prospects and therefore it is worth testing the models for each individual variable.

All in all, this results in six separate regression analyses, each of which is conducted in three steps. Relying on the tentative results from the bivariate analyses we decided to apply the following strategy in the stepwise analysis. In the first model, we tested the independent effects of the respective teaching-research nexus indicator on career progression prospects. In the second model, the mid-career dummy

was introduced to see whether and how the initial effect of the teaching-research nexus variable would change. Our assumption that mid-career faculty's career prospects were more strongly constrained by the imbalance in teaching and research tasks would be supported if the initial effect becomes stronger. The third model was the full one in which the control factors were also added to the analysis. We used gender-neutral decision-making procedures as control variables in order to make inferences about gender differences in career progression prospects in the absence of male respondents. The underlying idea was that the teaching-research nexus would have less significance for career prospects (or its effect will diminish) if the department or university management takes precautions to ensure gender-neutral recruitment and promotion, which would matter only if there are strong gendered career advancement procedures (Leisyte and Hosch-Dayican 2014).

The results for the two dimensions of career progression prospects are presented in Tables 5.5 and 5.6. Table 5.5 shows that our expectations have been supported to a great extent in relation to the influence of workload balance and the time spent on teaching on perceived transparency of evaluation criteria. Introducing the mid-career dummy in the second model strengthened the effect of these factors, whereas the coefficient of the dummy variable itself was not significant. This means that being a mid-career academic has only an indirect influence on the transparency of evaluation criteria as viewed by the respondents, which is moderated by workload balance and weekly time devoted to teaching. The introduction of equal opportunities' variables also alters the results in the expected way. The effect of workload balance drops remarkably, and the effect of teaching time diminishes while departmental level equality measures have the strongest significant effect on the dependent variable. Interestingly, time spent for research deviates from this pattern where only the equality policies in the department seem to have an influence on this aspect of career progression. The regression analyses which have promotion procedures and career prospects as dependent variables show a very similar pattern and almost replicate the findings for transparency of evaluation (see Table 5.6). However, university-level gender equality measures also seem to matter for this aspect of career progression, probably because promotion criteria are more centrally determined by the university management. In addition, weekly research time turns out to be a predictor of mid-career academics' promotion prospects, although the effect is not very pronounced. The effects of the teaching-research nexus disappear altogether once controlled by equal opportunity policies at both department and university levels, suggesting that there may indeed be gender disparities in the relationship between the teaching-research nexus and promotion practices at this particular university (Ibid.).

The results of the regression analyses thus strongly support our third hypothesis, i.e. that a high teaching load seems to inhibit career progression of female academics. Further, the findings imply that the unbalanced workload allocation is influencing the career development possibilities for mid-career academics. Finally, we can assume that the relationship between the teaching-research nexus and the prospects for career development is affected by gendered practices in the university which has

Table 5.5 Regression models with the dependent variable transparency of evaluation criteria

	Workload balance			Time spent on teaching			Time spent on research		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Workload balance	0.349*** (0.10)	0.396*** (0.11)	0.252* (0.12)	–	–	–	–	–	–
Time spent on teaching	–	–	–	–0.378** (0.12)	–0.438** (0.13)	–0.274 (0.14)	–	–	–
Time spent on research	–	–	–	–	–	–	0.185 (0.10)	0.215 (0.13)	0.100 (0.12)
Mid-career academics	–	0.286 (0.30)	0.122 (0.29)	–	0.293 (0.31)	0.123 (0.30)	–	0.151 (0.35)	–0.021 (0.33)
Gender balanced recruitment and promotion policies at university	–	–	–0.092 (0.12)	–	–	–0.094 (0.12)	–	–	–0.081 (0.12)
Dedication for equal opportunities in department management	–	–	0.321** (0.10)	–	–	0.335** (0.10)	–	–	0.389*** (0.10)
Constant	2.573*** (0.30)	2.236*** (0.47)	1.978*** (0.52)	4.377*** (0.29)	4.299*** (0.30)	3.246*** (0.59)	3.043*** (0.30)	2.853*** (0.54)	2.249*** (0.57)
Adjusted R²	0.146	0.145	0.236	0.125	0.123	0.229	0.033	0.020	0.189
N	66	66	66	66	66	66	66	66	66

Entries are unstandardized regression coefficients; $^{***}p<=0.001$; $^{**}p<=0.01$; $^{*}p<=0.05$

Standard errors are displayed in brackets

'Mid-career academics' is a dummy variable consisting of two categories, with 1 being mid-career academics (assistant and associate professors) and 0 covering all other career groups. 'Transparency of evaluation criteria' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (low) to 5 (high). 'Promotion procedures and prospects' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (very negative evaluation) to 5 (very positive evaluation). Source: Leisyte and Hosch-Dayican 2014

been studied, since an emphasis on equal opportunities was found to alter this relationship to a remarkable extent.

Conclusions and Discussion

The first objective of this chapter was to investigate the extent to which NPM-inspired reforms are changing academic work in universities in general and in Dutch universities in particular. A comprehensive review of the pertinent literature has shown that these reforms as expressed through the increasing quantification of research outputs and increasing student numbers are moving the teaching-research nexus towards a post-Humboldtian pattern. This was further illustrated by the formal regulations on academic task division at different career levels. Lecturer and researcher positions with an emphasis on one of the two tasks (with 80–90 % of contract time devoted to either teaching or research) are already a part of the national academic employment agreement. Despite the challenge of higher teaching loads for mid-career academics, the establishment of these differentiated career paths is already perceived as a rational solution for enabling intra-organisational efficiency, effectiveness and professionalization (De Weert 2009).

However, university career advancement still relies on a tight Humboldtian teaching-research nexus, so that academics are expected to carry out both teaching and research, but where research is given more weight than teaching in the evaluation of academic work. The constraints on research time introduced by the changing teaching-research nexus can hinder the possibilities of career development for academics in general; yet it can be argued that this will have a stronger impact on female academics than their male counterparts. Women are traditionally disadvantaged in academic jobs, especially in the Netherlands where the proportion of female academics in senior positions is dramatically low. Furthermore, our review of the literature on the academic career prospects of women revealed that there is a subtle gender differentiation in the division of teaching and research roles (Bird 2011; Barrett and Barrett 2011). These factors are likely to inhibit the research performance of female academics, particularly of those at mid-career stages where research outputs are crucial for career development (Leisyte and Hosch-Dayican 2014).

We therefore explored the distribution of teaching and research among Dutch female academics and the consequences for their career prospects (research questions 3 and 4). First, we tested the hypothesis that women faculty experience a highly imbalanced teaching-research nexus in the sense that their workload allocation features more teaching than research. As we found that teaching and research took the same amount of time among female academics, this hypothesis could not be corroborated. Yet since the answers were measured on a scale which features large intervals of working hours in each category, we have to approach this finding with caution. Turning to our second hypothesis, we found that female academics at Dutch universities at a mid-career level (assistant and associate professors) are only slightly more overloaded with teaching tasks and have less time for research,

Table 5.6 Regression models with the dependent variable promotion procedures and prospects (index)

	Workload balance			Time spent on teaching			Time spent on research		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Workload balance	0.319** (0.10)	0.395*** (0.11)	0.228 (0.13)	–	–	–	–	–	–
Time spent on teaching	–	–	–	–0.331* (0.13)	–0.371** (0.14)	–0.111 (0.15)	–	–	–
Time spent on research	–	–	–	–	–	–	0.221 (0.12)	0.261* (0.13)	0.056 (0.13)
Mid-career academics	–	0.497 (0.33)	0.196 (0.33)	–	0.271 (0.33)	–0.036 (0.32)	–	0.258 (0.35)	–0.071 (0.33)
Gender balanced recruitment and promotion policies at university	–	–	0.264* (0.12)	–	–	0.275* (0.13)	–	–	0.284* (0.13)
Dedication for equal opportunities in department management	–	–	0.162 (0.11)	–	–	0.224* (0.11)	–	–	0.246* (0.10)
Constant	2.327*** (0.31)	1.736*** (0.50)	1.071* (0.53)	3.955*** (0.32)	3.837*** (0.35)	1.891** (0.69)	2.657*** (0.32)	2.359*** (0.52)	1.426* (0.54)
Adjusted R²	0.156	0.177	0.271	0.102	0.096	0.227	0.050	0.041	0.222
N	51	51	51	51	51	51	51	51	51

Entries are unstandardized regression coefficients; *** $p <= 0.001$; ** $p <= 0.01$; * $p <= 0.05$

Standard errors are displayed in brackets

'Mid-career academics' is a dummy variable consisting of two categories, with 1 being mid-career academics (assistant and associate professors) and 0 covering all other career groups. 'Transparency of evaluation criteria' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (low) to 5 (high). 'Promotion procedures and prospects' is an additive index of two items that were found to build a common dimension as a result of the factor analysis (see Table 5.4). The scale of the index varies from 1 (very negative evaluation) to 5 (very positive evaluation). Source: Leisyte and Hosch-Dayican 2014

whereas the differences between career groups were not very pronounced. In addition, the use of percentage intervals in the response scale hinders the estimation of actual time spent on each activity. Our second hypothesis was thus supported only to a limited extent. Finally, we proposed that an imbalanced workload division will affect the career prospects of female faculty negatively, and tested this assumption with bivariate analyses as well as regression models. Our findings have provided unequivocal support for this expectation. Both perceived workload imbalance and teaching overload turned out to have constraining effects on the career prospects of female academics, whereas belonging to the group of mid-career academics seemed to strengthen this effect.

These findings show that the preconditions for a change in the teaching-research nexus and the development of new academic career paths with a focus on either research or teaching exist in the Netherlands. Teaching-only and research-only positions are already a part of the national formal job classification system. Moreover, as the analysis of the survey shows, teaching and research tasks are being perceived to be competing rather than complementing, and a high load of teaching is being regarded as a burden for academic work (Leisyte and Hosch-Dayican 2014). Yet more data sources are needed to test whether or not the NPM is gender neutral in its effects, and whether the disruption of the Humboldtian model leads towards social differentiation in academe. In this study we utilized data from a survey which was conducted among female academics at a particular university and in this way we shed light on the state and consequences of the teaching-research nexus for female faculty in one organizational setting. By controlling for the effects of gender-neutral recruitment and promotion policies, we also drew preliminary inferences on whether we can speak of a gendered career development at this particular university.

However, the following questions still need to be addressed: Does the changing teaching-research nexus lead female academics to higher teaching workloads and less time for research than is the case for male academics? To what extent can we speak of gendered academic career progression prospects? And is there a difference between male and female academics with respect to the relationship between career advancement and the changing balance of academic work? To answer these questions it is necessary to compare the allocation of teaching and research duties as well as research productivity and career prospects among male and female academics. Case studies and cross-national studies in this direction are available (see e.g. Bentley 2011; Bentley and Kyvik 2012) but the Dutch case remains to be explored. Comparing different universities with different practices of NPM would help understand how organizational context matters in shaping gendered academic careers across Dutch universities. Therefore, more research in this direction is necessary.

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