

The employment situations and career prospects of postdoctoral researchers

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Abstract

Purpose – The purpose of this paper is to draw on the employment situation of postdoctoral researchers (postdocs) in the Netherlands, concerning their career prospects and embeddedness within their organisation, in order to discuss theoretical perspectives on academic careers.

Design/methodology/approach – This multi-method study consists of three parts: a survey, in-depth interviews, and three focus group meetings with postdocs as well as representatives of the human resource staff and the Dutch Research Council (NWO). This paper reports on the findings from the focus group meetings, which concentrated on how postdoctoral researchers consider their employment situation and career prospects.

Findings – The three focus group discussions revealed that postdocs are caught within a dual controversy, the first involves their lack of clarity concerning their career prospects and developments despite their highly valued work, the second regards the fact that they are specialized staff, contributing to the primary process of their employing organisation but faintly connected. Although the postdocs' formal position seems weak, their situation in terms of academic socialising is much stronger and active than appears at first sight, particularly due to their personal agency.

Practical implications – The postdocs require and appreciate guidance and support, particularly when they must leave academia.

Originality/value – The paper provides new and additional insights into the position of postdocs and their career prospects. Their personal agency in pursuing further career steps is more active than expected in previous studies.

Keywords Academic careers, Career prospects, Personal agency, Postdoctoral researchers

Paper type Research paper

1. Introduction

Academic organisations have changed quite substantially in recent decades in terms of their tasks, structure, and culture due to increased internationalisation, lowered government influence and funding, and a larger impact from external stakeholders (Enders *et al.*, 2011). Like other public organisations, universities are increasingly financed in an output-oriented manner, and therefore emphasis on performance has grown (e.g. Decramer *et al.*, 2013; Häyrynen-Alesto and Peltola, 2006; Pollitt and Bouckaert, 2004). It is important and urgent to study academic careers: while the knowledge economy itself deserves increased attention, the altered financial structure of universities has changed their employee relationships extensively and at different levels.

Developments such as financial cutbacks in institutional research funding and focus on individual performance (Baruch and Hall, 2001) demonstrate that traditional career prospects with vertical career steps within a single organisation no longer dominate in academia. However, the alternative and opposite approach, the boundaryless career (Arthur, 1994), is unable to explain what is currently happening in this area. Dany *et al.* (2011, p. 972) considered the contrast between the bounded and boundaryless career too



simple and propose alternative approaches (see also Sullivan and Baruch, 2009) that account “better for the simultaneous influences of both individual choices and environmental constraints on careers”.

The specific focus of this paper will be postdoctoral researchers (postdocs) and their relationship with their employers, universities in the Dutch higher education system. We define postdocs here as “newly qualified researchers with PhD and/or MD backgrounds, working autonomously in research at universities or related institutions but without a tenured contract” (Stanford *et al.*, 2009, p. 3). Within the universities, we will look at the postdocs’ direct working environment (e.g. their supervisors) as well as more indirect factors (institutional and HRM policies).

The purpose of this paper is to understand how, in the context of labour market instability, postdoctoral researchers experience their working conditions and their prospects and opportunities. We have narrowed our research question to:

RQ1. How do postdocs perceive their personal career developments, and the relationship with their employing organisation?

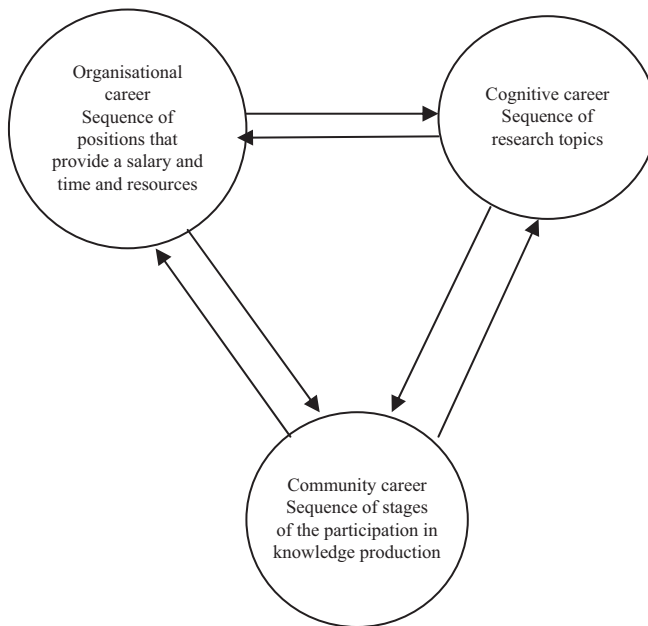
The contribution of this paper is to critically explore the reality of the postdoc’s work conditions and the sustainability of their prospects. The next section presents the conceptual framework, followed by the empirical context, the research methods, and our data analysis. The paper then discusses the findings of our study on how postdocs perceive their career prospects and their relationship with their organisation. It concludes by discussing the theoretical and empirical significance of the content.

2. Conceptual framework

While studies on academic careers have continued to proliferate, the literature lacks a more elaborate and consistent framework to investigate such careers. The ongoing development of a researcher throughout an academic career is rarely addressed, particularly studies taking a holistic perspective are scarce (Åkerlind, 2005).

In order to investigate the mutual interaction between personal agency and social structures, we will use here the model as proposed by Gläser and Laudel (2015), who attempted to contribute to close the gap between research on academic careers and career theory. They explained the peculiarities of academic careers in contrast with general career research by distinguishing three different types of careers through which academics move simultaneously:

- (1) A cognitive career, which refers to the content of their work. This type of career consists of diachronic structures in research with different but also overlapping branches.
- (2) The community career, involving status-related experiences of the scientific career and work roles in communities. This type makes a distinction between four stages (apprentices, colleagues, masters, and elite). Typical collegial features involve assessing the relevance, validity, reliability of the community’s body of knowledge, acquire valid and reliable knowledge that is deemed relevant for their work, identify gaps in such knowledge bases and consequently assess capabilities and opportunities.
- (3) The organisational career, which refers to a narrower conceptualisation of the academic career, and contains typically a sequence of jobs. This type of career differs per nation, such as the chair system (e.g. Germany), tenure systems (the Netherlands) and tenure-track systems (USA-American). Purpose of the organisation is to equip researchers with resources, despite that the work roles defined by these organisational positions are rather unspecific (Figure 1).



Source: Gläser and Laudel (2015, p. 18)

Figure 1.
The three career
types and their
interrelations

Gläser and Laudel emphasised the importance of the basic relationships between these three career types. Given our research topic (the embeddedness of postdocs within the university) we shall first discuss the current state of literature concerning the link between the organisational and community career and second between the organisational and cognitive career.

2.1 The link between organisational and cognitive career

This link involves the availability and requirement of time and resources for current research. Concerning academic career progress, on the one hand, we see coincidence as a major factor, which Van Balen (2010) and Van Arensbergen *et al.* (2013) have demonstrated. Their studies show that initial small differences and “being in the right place, at the right time” can eventually produce major differences between different individual’s career progress over the long term. Likewise, the interviewees in the study by Dany *et al.* (2011) considered external factors rather than individual choices as decisive to their promotions and felt little control over critical events, making the management of their career much more demanding. Personal agency plays an important role regardless of the environment’s impact (whether strong or weak), but this agency is directed and restrained by individual perceptions of environmental factors, such as the rules and models for promotion.

On the other hand, several studies (Ates and Brechelmacher, 2013; Baruch and Hall, 2001; Kwiek and Antonowicz, 2015) show an increased one-dimensionality in postdocs’ career perspective. Ates and Brechelmacher (2013), Gemme and Gingras (2012) and Felisberti and Sear (2014) discussed that the professorship is still considered highly attractive and academics’ single most valued career objective. Academic careers tend to be increasingly identical, and divided into a number of similar steps of uniform length. Whereas such careers were once quite unstructured, they are now sliced into comparable timeframes, must be carried out within a limited timeframe, and consist of: doctoral systems, postdoctoral

positions or junior functions, followed by employment in lower-level and consequently higher-level senior positions such as a full professorship. For each period, certain output criteria have been formulated, and these criteria are increasingly similar across several countries (e.g. Kwiek and Antonowicz, 2015).

Several studies have investigated the postdoctoral appointment's impact on a further academic career. Horta's (2009) study reveals that academics who had a postdoc period experienced greater production in terms of scientific output as well as greater integration into international scholarly communities, helping them become key players in the scientific and higher education field. Yang and Webber's (2015) longitudinal study in the USA over a ten-year period (1999-2008) shows that taking one, but not two or more postdoctoral positions, increases an academic's written scholarly productivity, despite the fact that no link with a higher salary could be discovered. Åkerlind (2009) demonstrated that postdocs have to devote a large percentage of their time to non-research duties, such as teaching, supervision of students and management-related tasks.

2.2 *The link between the organisational and community career*

This link refers to role expectations concerning abilities to conduct research vs expectations concerning the provision of resources and specially refers to the embeddedness of the postdoc within his or her organisation. We will use academic career and employment theories to highlight two particular aspects of postdoctoral employment: first, the postdocs' relationship with their university as an employing organisation; second, the nature of guidance and support the postdocs receive from a supervisor or others within their organisation.

2.2.1 *Relationship with the university as an employer.* Postdocs comprise quite a large part of universities' body of employees and contribute directly to the primary process of research, and should therefore be considered as high-level academic talent and universities' most valuable resource (Thunnissen, 2015). The quality, talent and perseverance of academic staff, who create academic output, determine a university's academic impact. The quantity and quality of published papers are widely seen as the most important measuring rod for the academic impact and excellence of universities and researchers (Hessels, 2010). To balance their various activities, postdocs seem to need "institutional resources" (McAlpine and Emmioğlu, 2014) such as a form of agency to balance their work, a supportive supervisor who can provide academic and career guidance, and a broad and accessible network (Chen *et al.*, 2015).

In terms of the individual's relationship with the organisation, there is ambiguity about the postdoctoral period at universities. The role of postdocs has been reshaped, and it remains unclear whether they can be considered temporary employees for university research production, without a guaranteed future research career, or as apprentices, learning the academic trade and gaining academic and human capital (Callegari and Polka, 2015; Cantwell and Taylor, 2013). The relatively low wages of postdocs help to minimise labour costs, given that they work for a low salary but have high research productivity. Although postdocs are not tenured employees, they contribute directly to their organisations' primary process.

The decline in the number of tenure track positions increases the necessity of choosing careers outside academia (e.g. Fitzenberger and Schulze, 2014; Dietz and Bozeman, 2005), calling into question the academic and social capital that postdocs have gained (Yang and Webber, 2015). Academic capitalism refers to the financial relationship of the university with the state: when universities act like profit-making organisations, wanting to market the knowledge that they can give to students. This has reshaped academic employment, with an emphasis on utilisation of knowledge and budgets, and receipt of higher extramural funding (Yang and Webber, 2015).

2.2.2 Guidance and support. Guidance and support refer here to the assistance and management the postdocs either receive or expect from their direct supervisors or manager. Their supervisors are usually full professors or principal investigators, often responsible for the grants the postdocs are hired on. A specific form of guidance and support is mentorship. When discussing interactions between academics in different career phases, Boeren *et al.* (2015) distinguished between formal and informal mentorship. Since we did not discover any institutionalised mentorships for postdocs, we will focus here on informal mentorship, involving the personal and individual relationship between the postdoc and his or her direct supervisor.

Recent research confirms the importance of guidance and support on the individual level, especially when preparing for the future. Most postdocs do receive some kind of guidance from their direct supervisors, but these supervisors usually limit their role to guiding the postdoc's professional development. Studies by Van Balen *et al.* (2012) and Fitzenberger and Leuschner (2012) revealed a direct link between guidance and postdocs' career success, where having a mentor is a direct indicator of career success in combination with networking. Relatively small measures such as setting up a research plan and conducting formal reviews can produce great effects (Davis, 2009).

However, guidance about career opportunities, general career advice and guidance about private matters such as work-life balance are highly valued by postdocs (Chen *et al.*, 2015). The advantages of an involved supervisor include an increased awareness of the need to prepare for the future and therefore more agency to do so (Scaffidi and Berman, 2011; Davis, 2009). This advantage is accompanied by the fact that postdocs who feel supported are more confident (Van der Weijden *et al.*, 2016; Scaffidi and Berman, 2011). They also seem to experience less stress about their future (De Boer, 2013; Drost, 2014), which will not only lead to a more positive postdoc experience (Scaffidi and Berman, 2011), but will also better prepare them for a future career (Chen *et al.*, 2015; McAlpine and Amundsen, 2011; Van der Weijden *et al.*, 2016).

Therefore, guidance would be a successful way to improve the postdoc experience and postdocs' future career opportunities: it boosts confidence and the chance of acquiring institutional resources and provides better career chances. Furthermore, guidance also improves scholarly performance and leads to a more positive attitude towards the work environment (Van der Weijden *et al.*, 2016).

After going into the research context and methods of our postdoc study, we will view the findings of our study within these two links (Gläser and Laudel, 2015), and as part of the interrelations between the three career types.

Particularly interesting is that Gläser and Laudel (2015) wanted to avoid the so-called overemphasis on personal agency when discussing academic careers. However, both Dany *et al.* (2011) and Lam and De Campos (2015) used personal agency in a variety of scales and forms to shed new light on developments concerning academic careers. They demonstrated how young scientists proactively shape their careers and distinguish two types of activities in their relationship with professors: collaborative research vs commercial ventures.

3. Research context

Like other European countries, the Dutch higher education system is increasingly seen as influenced by private sector elements (Boyne, 2002). This implementation of New Public Management (NPM) should lead to a more market-oriented higher education system, one that is able to compete for clients, funding, and prestige and to meet the growing pressure to cut costs (Scharitzer and Korunka, 2000; Christensen and Lægheid, 2001). A key feature of NPM is its focus on performance in all aspects of management, primarily through NPM instruments such as pay for performance, performance appraisal, performance budgeting

and performance indicators. To develop new modes of academic governance, for example in relation to research where emphasis is placed on self-governmentality and changing funding mechanisms, has begun to significantly affect academic work and employment relations (Kehm and Lanzerdorf, 2006; Leisyte, 2015). As research is increasingly funded on a project basis, the number of postdocs is growing extensively, while fewer tenured positions are available.

Studies on academic careers have been growing in recent decades, but only a limited number of publications deal explicitly with the career prospects of postdocs. Table I presents an overview of studies concerning postdocs and some of their features.

As explained, our multi-method study consists of three parts:

- (1) A preliminary comparative study amongst two Dutch universities contained a survey with both closed and open questions for 225 respondents (Van der Weijden *et al.*, 2016). Statistical analysis was carried out with the help of SPSS 21.0.0.1. Nearly all postdocs (85 per cent) want to stay in academia, but only less than 3 per cent were offered a tenure track position. The postdoc population is substantial and growing; the average duration of postdocs' employment is approaching the length of the PhD trajectory, about 48 months. We found that the length of their postdoc employment negatively affects their career satisfaction and career prospects.

And field of science plays a role, as postdocs in the social sciences and humanities are obviously less satisfied than their counterparts in the hard sciences.

Generally, postdocs are quite satisfied with their work environment, despite their restricted prospects. Their preparations for a non-academic career path are quite limited, which coincides with the restricted availability of any policies or coaching provided by their university. Under a third of the postdocs attempted to develop any transferable skills, although the importance of networking was recognised.

- (2) After the survey was completed, questions about the postdocs' motives remained unanswered. Out of the respondents, we approached 20 postdocs for in-depth interviews at one of the universities. This is a general, traditional, research-oriented university containing all scientific disciplines. In contrast with the survey, the interviews revealed that the postdocs were generally dissatisfied with their employment situation. Reasons for their dissatisfaction came from the lack of appreciation and visibility they experienced from their employer, and they were worried for the insecurity of their employment perspectives. The level of dissatisfaction was closely related to demographics, as especially women with young children found it hard to combine their professional and personal lives. Experiences with personal

Study	Country	Average age (years)	Female (%)	Average length of postdoc position (month)	Scientific field
National Institute of Science and Technology Policy (2008/2009)	Japan	30-34	25	31 months	All fields
Davis (2009)	USA	30-35	42	Not reported	All fields
Fitzenberger and Leuschner (2012)	Germany	38	34	60 months	Social sciences and economics
Mitchell <i>et al.</i> (2013)	Canada	34	46	38 months	All fields
De Goede <i>et al.</i> (2013)	The Netherlands	30-34	44	24-36 months	All fields
Felisberti and Sear (2014)	UK	26-40	62	Not reported	Life sciences and psychology

Table I.
Summary of studies of postdocs employed in different countries

guidance and support they received varied widely as approximately equal shares of the postdocs were satisfied, neutral and dissatisfied. The dissatisfied group perceived no involvement at all from their supervisor, the neutral group only concerning the content of their work, but not their career or their personal circumstances. None of the postdocs had experienced any positive involvement of their human resource (HR) department (Zemmouri, 2015). The combination of the extensive diversity in experienced satisfaction with guidance and support and the complete lack of contribution of HR triggered our next step in the data collection.

4. Research methods

To investigate the complex relationships between postdocs and their employers, and as a follow-up to our previous rounds of data collection, we chose to organise three focus group meetings at a Dutch university in April 2015. A focus group is a “group interview – centred on a specific topic (focus) and facilitated and coordinated by a moderator or facilitator – which seeks to generate primarily qualitative data by capitalising on the interactions that occurs within group settings” (Sim and Snell, 1996, p. 189). Focus groups are particularly useful to reflect the social realities within a certain group (McLafferty, 2004) and participants are forced to explain themselves to each other, and able to compare their experiences very directly (Kitzinger, 1995).

The participants in these meetings consisted of four to five postdocs, who were pulled from the two previous rounds of data collection. Representatives from the Dutch Research Council and of the HRM department of this university contributed as well. In addition, two facilitators and three observers were present. The choice for this combination of respondents was made because we wanted to encourage a direct confrontation between these three groups, as we expected that sharing their different social realities would provide the most relevant discussion. Preliminary to the focus group meetings, we organised an interactive brainstorming session with HRM and P&O staff members from the University in December 2014.

See Table II for background information about the participants, such as gender, personal and professional background. The number behind nationality refers to the amount of countries they have worked in. The data about the postdocs in the last two columns were derived from interviews and the focus group meetings. It is interesting to see that most postdocs want to stay in academia, despite perceiving a rather weak relationship with their organisation. Only two respondents acknowledged a stronger relationship with the organisation, but they said they intended to leave academia. Three respondents (B4, C2, C3) stated that they wanted to stay in academia but under conditions of a longer-term perspective only. A mixed link (last column in Table II) with the organisation means that the respondents have miscellaneous feelings about their connection with their employer.

The core of each focus group lasted two hours and consisted of three rounds of discussions, in a structured manner. After a brief introduction, the facilitators presented the findings of our studies up until that point. Consequently, we provided the group with two topics: “Academic work and research conditions” and “Career opportunities and conditions”. The final part entailed a discussion about prioritising further career possibilities and requirements. The contents of these meetings were audiotaped and transcribed fully into documents of about 12,000-14,000 words. Data analysis of the focus group discussions was conducted on the basis of qualitative, interpretative investigation (Boeije, 2005, Thomas, 2006). Three rounds of analysis were carried out: in the first stage focus was placed on the opinions of the different groups of respondents and the data were analysed as openly as possible, second, a comparison was being made between the three meetings resulting in a number of topics and third, these major topics which came forward in our analysis were confronted with the three career types and their mutual links.

Table II.
Focus group participants

Focus group	Code	Gender	Spouse/Children	Position (No. of contracts)	Nationality (No. of countries)	Organisation/field of research	Intention to stay in academia	Link with the organisation
1	A1	Female	No/no	Postdoc (sr)	Spanish (3)	Arts and humanities	Yes	Mixed
1	A2	Male	Yes/yes	Postdoc (1)	British (2)	Social and behavioural science	No	Mixed/Strong
1	A3	Male	Yes/yes	Postdoc (sr)	Dutch (2)	Science	No	Strong
1	A4	Male	Yes/yes	Postdoc (1)	French (2)	Science	Yes	Mixed
1	A5	Male	No/no	Postdoc (1)	Estonian (2)	Science	Yes	Mixed/Weak
1	A6	Male		Head of Grants and Procedures	Dutch	NWO		
1	A7	Female		Career Advisor	Dutch	University		
1	A8	Female		HR Policy Officer	Dutch	University		
2	B1	Female	Yes/yes	Postdoc (3)	Dutch (2)	Arts and humanities	Yes	Mixed/Weak
2	B2	Female	Yes/yes	Postdoc (4)	German (3)	Science	No	Weak
2	B3	Male	No/no	Postdoc (2)	Italian (4)	Science	Yes	Weak
2	B4	Male	Yes/yes	Postdoc (1)	Dutch (1)	Science	Yes (but)	Weak
2	B5	Female		Career Advisor	Dutch	University		
2	B6	Female		HR Policy Officer	Dutch	University		
3	C1	Male	Yes/yes	Postdoc (2)	Irish (3)	Arts and humanities	No	Weak
3	C2	Female	Yes/yes	Postdoc (2)	Dutch (2)	Science	Yes (but)	Mixed
3	C3	Male	Yes/yes	Postdoc (2)	Dutch (2)	Arts and humanities	Yes (but)	Mixed
3	C4	Female	Yes/yes	Postdoc (3)	Dutch (2)	Social and behavioural science	Likely	Mixed
3	C5	Male		Grants and Procedures	Dutch	NWO		
3	C6	Female		HR Officer	Dutch	University		
3	C7	Female		Career Advisor	Dutch	University		

5. Main findings

During the analysis of the focus group data two types of links emerged: between the HRM staff and the postdocs and (most interestingly) within the group of postdocs. Both parts are illustrated with quotes.

When asked about the influence of HRM, in general, the postdocs demonstrated little awareness of the roles and activities of the HRM department and its staff, but they do recognise that these could be enhanced. They are particularly in favour of activities that are especially developed for postdocs instead of for PhD students and postdocs together. Several postdocs mentioned that they would appreciate personal and specialised efforts such as individual coaching, which enables (critical) self-reflection.

While the HR representatives explained that various types of information and activities are provided at the university website, the postdocs seemed ignorant of this partly because the website is much less elaborate in English than in Dutch (B4). The HRM staff members acknowledged their limited role and appeared eager to change this but have found that they are understaffed. The postdocs favoured a rather pragmatic role for HRM (e.g. B1, B3, see also Thunnissen, 2015) – for example, facilitating networking, peer meetings and coaching;

distributing vacancies; and raising awareness about training options such as teaching certificates for higher education.

The majority of the communications between the HRM staff and the postdocs contained that the former asked the second questions about their needs and requirements and whether they desired a career inside or outside academia.

A typical example of such a communication involves (from focus group 1):

A8 (HRM): There are lots of trainings and career support systems here in our University. But the numbers show that not a lot of postdocs participate.

A1: Maybe they are not even aware.

A8: Yes that is the first problem

A1: They are not even aware of the resources. At least, when I hear from colleagues they do not even know that these things exist. So I think it is a question of visibility in terms of this thing being requested from a postdoc position at the university, so that you know what the resources are.

Other communications between both groups concerned the support of their supervisor, financial issues (mainly grants) and their experiences with teaching as demonstrated by this quote from focus group 2:

B6 (HRM): We do not have really a policy on teaching by postdocs.

B4: How much teaching do you do, for example?

B1: Nothing, not anymore, I stopped with that. So I did one course last semester and several lab courses last year. And I was lucky because I know people who got really bad with the amount of courses they taught.

However, the majority of the contents of the focus groups involved the discussions between the postdoctoral researchers, and these parts entailed the richest conversations. These findings are consequently presented, based on comparisons within and between the meetings.

5.1 *Career development*

The postdocs' considerations over whether to continue their work in science or to attempt alternatives are very important. These contain a continuous struggle that occupies their thoughts, and which takes place both consciously and unconsciously. When considering their further career prospects, the following issues emerged: the positive aspects of their work, their career prospects and the connection with their life course.

5.1.1 *Positive aspects of working in academia.* The postdocs are generally very satisfied with the content of their work. In all three of the focus group meetings, the postdocs appeared to be fully aware of how important their field of science is, their department, and their research group. They are generally highly motivated and very fond of their work; they enjoy the autonomy and creativity of academic work:

B1: [...] It is a very creative process and very diverse, a lot of space for different talents. It is never boring, and you can more or less make your own hours, which is also nice but complicated for the same reason.

C2: I myself get the feeling that I am doing something worthwhile; advancing human knowledge, to be very cliché [...] and then I also like working together with other scientists, it is very inspiring; having the discussions and everything.

5.1.2 *Career prospects and life course.* The opacity of their further career prospects causes a great deal of stress, while in many cases, the idea of discussing or even mentioning any

options outside academia with their supervisor or direct colleagues is considered inappropriate or even a disqualification:

B2: For a postdoc who does not want to stay in academia, there is a pretty awful shame effect. Because you do not have it in you to go further (emphasis added).

The postdocs balance the dilemma of continuing to work in academia on a temporary, insecure basis against the idea of seeking employment outside academia. Nearly all postdocs are highly conscious of the necessity of seeking alternative options. Depending on their personal details such as the length of their contract and their family situation, they have developed initiatives to do so. For example, one postdoc obtained teaching certificates for secondary education.

Obtaining a PhD is often a threshold process, which means that if certain criteria are met, at some point you will pass and get your PhD degree. In contrast, getting a tenured position depends on a large number of undetermined factors. A postdoctoral appointment raises the likelihood of achieving a tenured position in academia, but only up to a certain point: “Having a second postdoc is not good for your CV”. This situation contributes to the postdoc’s uncertainty and frustration, particularly if these continue over a longer period of time. Postdocs reach a stage in their life course where they want to settle down and have children (see also Table II, column 3):

A1: Because otherwise you get to be – I know people who are in their early forties and have children, and they still have no security, no job security. They have done all they could through all the years, and they still asked to find another grant to provide their own financial security.

The postdocs contribute substantially to their field of science in terms of output, particularly publications and funding (see O’Grady and Beam, 2011). In addition, their activities for their department or research group are substantial. They do so by taking over management and supervision tasks or by carrying out teaching at a relatively low cost. C4 explained that “But then suddenly you find yourself transferring to this, uh, associate or assistant professor position, whereas you are still a postdoc. But you have to do it all on your own, well with your supervising students, you cannot really tell them what to do or whatever, because there is still a professor above you. So, you are really trying to keep the balls up in the air. I think I feel that is one of the most difficult positions to be in as a senior postdoc.”

5.2 *The positioning of postdocs within the organisation*

Issues discussed here include the postdocs’ link with the organisation, guidance and support, particularly the relationship with their supervisor.

Despite the breadth of their activities, the postdocs generally feel weakly linked to their university as an employing organisation (see Table II), which is partly due to the nature of their contracts. The postdocs have to admit that they are rather invisible as a group of employees. B4 explains “I mean, what I notice here is, postdocs, I do not see them. I do not see anybody outside of my group. I am in science. There are actually quite a few, I think, but I do not know any of them. Yeah, so in one field, at some point, somebody sent around a message saying we should meet. And we did, once. Well actually, a few people did, and the amount of people who actually responded to this email is quite shockingly low.”

To put it even stronger: “The university uses postdocs to get stuff done at a low price and it needs to change, a little bit, at least. Well that needs to change since we need more jobs.” (B1).

Nearly all postdocs who participated in our focus groups are aware that remaining a postdoc for a longer time will harm their career eventually, making them aware of the ambiguous nature of their relationship with their university. “Postdocs are kind of in

between [...]. Do not do postdocs, or just like a small one and then get a job if you want to be successful. They want fresh meat to be molded" (A4).

5.2.1 Guidance and support. The focus group respondents find that the direct supervisor should ideally provide guidance and support to the postdocs. However, the relationship between the postdocs and their direct supervisors seems rather conflicted and diverse. The interviews demonstrated a variety of experiences (between satisfied and dissatisfied), similar to the focus groups.

The discussions in the focus groups revealed a variety of experiences when it comes to actual guidance by supervisors. A few postdocs are quite satisfied with their supervisors:

B3: Because I have been lucky, my supervisors always helped me through in their ways, which can be very biased. But they did help me, so I was lucky [...]. it's not like my boss is my mentor.

Most of the postdocs receive some form of guidance from their professors concerning the content of their work. They gain feedback on their research papers and progress. Some mentioned that they do not receive any kind of support that could be categorised as guidance for their further prospects.

The most common situation is that guidance and support across different departments and research fields are not arranged systemically, and that formal mentor programmes are not available. Large differences exist by field of research, department, and supervisor, consequently pointing to the lack of a clear structure. The quality of guidance and support depends completely on the supervisor's attitude and abilities:

B4: I have had two different advisors. One was a junior professor who was really on top of everything that I did and that did not work so well, but it is a difficult balance too, to find, and I think the issue is more, you know, do you have shared interests? Some supervisors are clearly not fit for management tasks: He is supposed to be a manager, supposed to be doing all of those things. And I think they seriously lack in the managerial part of it (B1).

In all three of the focus group meetings, the postdocs (A4, B1, B2, C6) expressed a certain ambivalence about their expectation of guidance and support from their supervisors. Although the role of their supervisors is rather limited and sometimes involves just one meeting per year, the postdocs did not censure them for it:

A4: So I do not think we have to blame the professors for the naiveté of the postdocs or PhD students. We all know when we start that it would be almost impossible to get a position because there is no money for everybody. So as postdocs, we know this.

Consequently, the postdocs believe it is their own responsibility to be independent, make educated choices, and seek help when they really need it. The importance of guidance becomes especially evident when postdocs change their career path and (have to) leave academia. There is hardly any interest in providing guidance for people who are leaving the field, which is partially due to the aforementioned academic culture. The postdocs explained that in this particular situation, the conflicts between a short term and a longer term are at stake:

A5: Especially for people who are encouraged to try for grants and are supported to do so, and they then have these for like, five years? And then after that, there is absolutely no interest in providing anything for them. Then they are in their late thirties, and then what?

It is not in the direct personal interest of the supervisor to help postdocs pursue a career outside academia: "[...] the chair wants to help you, but he or she has his own agenda. They want to do as little work as possible and do not really care about what is good for your career" (B1). Another postdoc puts it in even stronger terms by explaining, "the different career paths should be seen as an integral part of the education of postdocs. Then you will not have the problem where you cannot discuss it with other people [...] and where you have

to be totally reliant on whether your professor has any eye for that or support or whatever. It works in your disadvantage" (C2). It is only in terms of networking outside academia that some pragmatic support would be appreciated.

6. Discussion and conclusion

As explained, we frame our research gap here within the model constructed by Gläser and Laudel (2015), and have focused on the three career types and the links between organisational and cognitive and organisational and community careers.

Concerning the link between organisational and cognitive career, we see that whereas in principle, postdocs could continue their work on temporary contracts, such a pursuit is not very attractive for them, as it does not contribute to their personal and professional objectives. Their personal circumstances, for example whether they have a spouse and/or offspring, play an important role in the decision making concerning further career options.

The discussions that emerged out of our focus groups make clear how the postdocs struggled with the career development dimension. Where on one hand the criteria for promotion or a tenured position are clear, on the other hand, they are opaque and coincidence plays a large part. If a tenured position turns up, the likelihood of obtaining this position is small and dependent on many undetermined factors. In addition, extra investments as a postdoc diminish in value after a certain point (Yang and Webber, 2015). The gains from the investment in human capital and social networks at some point outweigh the costs of pursuing more postdoctoral training (Van der Weijden *et al.*, 2016). That is, the postdoc pile-up leads either to dropping out or to permanent posts (Callei and Polka, 2015), while the postdocs' satisfaction decreases during the time of their employment (Stanford *et al.*, 2009).

Our study shows that postdocs are weakly linked to the formal structure of their organisation, as they do not have a tenured position or a strong political stance. It is at this point that Gläser and Laudel (2015) assist in explaining the tensions felt by the postdocs: their cognitive careers evolved further, but the link with the university as an employer remains fragile. Continuing this relationship, in other words, accepting a longer period as postdoctoral researcher may even be harmful. At a certain point the weak connection with their employing organisation takes precedence over the enjoyment and autonomy they experience in their daily work, and they will opt for other career paths.

Concerning the link between the organisational and community career, we see two manifestations of tension.

The first manifestation entails the supervisors' attitude. Supervisors are academically involved with the postdocs, but for topics beyond the content of their work such as further career options, postdocs have to rely on the individual willingness of their supervisors. The discussions revealed that if postdocs intend to leave academia, their personal interests do not coincide with those of their supervisor, making their mutual relationship even more fragile and susceptible to failure. Second, postdocs' expectations are unclear as well: they are insecure about what kind of engagement they are allowed to expect and feel they should not impose upon their professors/supervisors too directly. In this context, it seems that both the postdocs and their supervisors rely too much on the traditional academic socialisation (Khapova and Arthur, 2011; Yang and Webber, 2015), in other words, their contact is mainly about the content, while the postdocs could make their expectations for guidance and support in further career steps more explicit. The professors or heads of departments have a *de facto* responsibility for any guidance and support the postdocs need, but if they fail to take on that responsibility, and if their postdocs are not able or willing to remind them of their responsibilities, no one else will.

Within this second ambiguity, the rather small but nevertheless crucial role of the HRM departments becomes noticeable. The main challenge these HRM practitioners face is how to bridge the gap between managerial (moving in a strategic direction) and academic (maintaining academic freedom and autonomy) objectives (Mansour *et al.*, 2015).

The relation between personal agency and environment constraints (Dany *et al.*, 2011; Lam and De Campos (2015) appears in both links. We see here that individuals attempt to adapt to those existing career rules, and reproduced appropriate behaviour. Individuals faced with environmental weaknesses will need to find new clues and may have to create their own rules, meaning that promotion scripts should not be seen only as constraints but also as resources, which can provide added value in further shaping careers (Dany *et al.*, 2011). However, there is another side to this coin. Postdocs are fully aware of their personal options and possibilities, and through academic socialisation create their own academic environment. The postdocs' role seems rather passive and invisible, but in daily practice, they act strategically and their personal agency is much stronger than appears at first sight.

The postdocs use their personal agency to overcome the weaknesses in their environment, which are specially caused by their employer (see also Dany *et al.*, 2011; Lam and De Campos, 2015), to improve their position. Instead of attending unsuitable courses, they take over teaching and management tasks to enhance their positions, consequently acquiring transferable skills. They are fully aware of their contribution to the organisation and even more of their importance for their field science. They enjoy their job because of that. They know that their supervisor or full professor relies on them in terms of academic output. Concerning the content of their work, they feel equal to their supervisor. If he or she is active on their behalf, they consider themselves lucky, but if not, they do not bother and find someone else. In terms of Gläser and Laudel, it seems that the links between the cognitive and community careers in terms of role expectations and contributions to the communal knowledge are often strong and significant enough to reduce the relatively weak side of the Organisational career. Even the "awful shame effect" (B2), which was mentioned if postdocs decide to leave academia, proves the importance of postdocs for their employers and research community.

These insights help to further develop the currently existing dichotomy between long- and short-term prospects in academia, through a deeper understanding of the postdoctoral researcher within the context of the university as a labour organisation. We demonstrated that it is very urgent that universities take the postdoctoral researchers much more seriously into account within their current employment organisation. A simple starting point is more visibility, through their recognition of postdocs as a separate staff category. Second, universities should foster greater support of postdocs by developing appropriate, focussed, and pragmatic HRM policies. Examples of instruments which could be realized include: launching a postdoc community as has been done by Ghent University (2014); career guidance by offering training modules for personal and professional development, including mentorship programmes; and establishing contacts with organisations that employ postdocs or are interested in doing so in the future. In this way, postdocs will be encouraged to reflect on their own future prospects and career path, either in academia or outside the university.

A number of limitations to this study should be noted. The second and third phase of our study focuses at one Dutch university. Our further investigations will involve a round of interviews among the supervisors, in most cases full professors and academic leaders, in order to gain more insights into their important but fragile role. In addition, we want to explore the position of former postdocs in non-academic employment.

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