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Global Challenges, Local Responses in Higher Education

Higher Education Research in the 21st Century Series

Volume 6

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Global Challenges, Local Responses in Higher Education

The Contemporary Issues in National and Comparative Perspective

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ARJA HAAPAKORPI

A CAREER OUTSIDE THE ACADEMY? DOCTORATE HOLDERS IN THE FINNISH PROFESSIONAL LABOUR MARKET

INTRODUCTION

National policies and the strategies of the European Union and the OECD aiming at innovative technological and economic reforms have highlighted the importance of having a labour force with research and development capacity to contribute to innovation (Kehm, 2006; European Commission, 2008/209; OECD, 2012). According to Kehm (2006), these policies are necessitated by the challenges of global competition. Globalization has altered the landscape of economies through knowledge based production, collaborations between universities and companies and the non-profit sector, development of information and communication technology, and massification of higher education (Brown, Lauder & Ashton, 2011; Rhoades and Sporn 2002; Castells, 2000). It can be assumed that doctorate holders are expected to have employment and career prospects outside the academy, because they have research capacity, which may be applicable to the domains of research and development (R&D) (Gibbons, Limoges, Nowotny, Schwartzman, Scott & Trow, 1994. Doctoral education is expected to supply resources for economic growth (Kehm, 2009).

In the European Union, this positive view of doctoral employment and of the benefits of the innovative capacity of doctoral holders has not been realized as expected. Massification of higher education has multiplied the number of people in the academic labour force and despite the growth of employment in the R&D sector, competition in the professional labour market has tightened (Brown, Lauder & Ashton, 2011). Moreover, the European Commission considers that the quality of research and doctoral education is high, but slow and ineffective in relation to knowledge dissemination (European Commission, 2003). In higher education policy at the national and European Union level, a common subject of concern is how to promote employment of doctorate holders outside the academy, as transition from doctoral programmes to employment is uneven and limited by the discipline and industry (Kehm, 2006). Thus, there is a promise of the demand for the doctoral labour force outside the academy, but it is not met across industries and sectors. This raises a question of the balance of demand and supply of doctoral labour force. The discussion on the over-supply of higher education graduates, including doctorate

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holders, and the mismatch of education and job (Teichler, 2007) continues the debate of the assumed imbalance.

In this article, employment of doctorate holders outside the academy is investigated in two ways. Firstly, job descriptions and positions at work sites are examined, and secondly, competence requirements and reasons for recruiting doctorate holders are studied. The careers of doctoral graduates are explored in relation to those having a lower level degree as the labour market consists of interrelated "territories," which are dominated by groupings of employees with different backgrounds (Abbott, 1988).

The data are based on a survey and an interview study; the latter represents the main data while the former offers complementary data for the analysis.

Despite the country-specific research subject, the findings and analysis can be generalized to some extent as similar tendencies related to higher education and the professional labour market can be detected across nation states, for example problems in the transfer from university to non-academic sectors.

DEMAND FOR AND SUPPLY OF A DOCTORAL LABOUR FORCE IN THE KNOWLEDGE-BASED ECONOMY

Higher education policy, knowledge-driven economy, and the growth of R&D affect the employment opportunities of labour force with higher education. However, massification of higher education increases competition on the labour markets. As there has been a remarkable growth of doctoral labour force, doctorate holders cannot avoid this competition either.

The national policies and the strategies of the European Union have stressed the importance of having a labour force with research and development capacity to contribute to innovation (European Commission, 2003). A flagship initiative is addressed to promote innovation: the need to continue to invest in education, R&D, innovation and ICTs is stressed (European Commission, 2010). Social and economic benefits are expected to be gained with the innovation policy (European Commission, 2010).

However, the national higher education policy in most European nation states and the EU strategies dealing with economic growth, R&D and employment share a common concern about doctoral employment outside the academy and the utilization of the research capacity of doctoral labour force in research & development activities (Kehm, 2006). As academic research institutes are not able to absorb the growing academic labour force, employment possibilities should grow in non-academic sectors (see: Enders, 2004; 2005).

In line with this trend, Gibbons (1994) and Nowotny (2001) with their colleagues claim that the increasing supply of doctorate holders in the labour force generates new employment opportunities. They justify the claim with the following argument: the increase of higher education creates a supply of employees competent in research, and this supply creates demand for specialist knowledge of all kinds (Gibbons, Limoges,

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Nowotny, Schwartzman, Scott & Trow, 1994, p. 12). In addition, work organization and patterns are transformed with staff that has research capacity (Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow, 1994; Novotny, Scott & Gibbons, 2001). With institutionalization of R&D, firms, universities and research institutions tend to converge as universities absorb business-like practices and knowledge-intensive firms adopt "collegial" forms of organisational control resembling academic communities (Kleinman & Vallas, 2001). In addition, academic-mannered work mode is adopted in non-academic work sites (Novotny, Scott & Gibbons, 2001). With this tendency, working patterns and methods and knowledge bodies are also diversified as they are applied in various non-academic sites.

Studies dealing with innovation and R&D claim that the globalised knowledge economy is based on networks of universities with companies and governmental agencies. The networking is carried out with information and communication technology across nation state boundaries (Castells, 2000). Innovation policy is implemented with alliances of universities, research institutions, firms and public agencies and the dominant organizational form of R&D is the network (Etzkowitz, 2003).

The highest academic degree and the membership in the academic community can be assumed to promote a career outside the academy, as the formal degree strengthens the position of doctorate holders on the labour market (see: Abbott, 1988, pp. 60-70). It can be claimed that the institutionalized evidence of the highest academic competence is valued, because it provides its holder with extra credibility in the era of massification of higher education. The value of a doctoral degree is related to academic system, which consists of universities, academic societies and other related organizations with their own practices (Abbott 1988, pp. 65-66, 80-90). The gate keepers of the academic profession regulate the membership in the academic domain, which supplies credential power to doctorate holders (Abbott, 1988).

In spite of the value of the highest academic degree, at work sites, recruitment of doctorate holders is organization-, sector- and industry-specific and related to professional particularities. The niches are negotiated and struggled at work sites with management and employee groupings, clients and stake holders on the basis of requirements, needs and organizational contexts (see: Abbott 1988, pp. 60-70). For example, firms are different as regards to science and innovation strategies, and because of this the requirements for research-specific qualifications vary. Herrmann and Peine illuminate this with the following: firms imitating and diffusing knowledge-based products do not need research capacity, but they need employees with skills connected to markets and expertise in the industry. The need for research competence varies according to the industry, market, products and quality of knowledge (Herrmann & Peine, 2011).

In Finland, the doctorate holders have not been given preference in R&D, although science and innovation policy has been promoted. In Finland, as in Sweden and Denmark, the R&D resources are the highest in the European Union; the intensity

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was 3.87 of the GDP in 2010 (Eurostat, 2012). R&D personnel from all sectors together also made up more than 2.0 % of the labour force in 2010 (Eurostat, 2012). The high intensity in R&D gives promises on employment opportunities for doctorate holders, but these promises have not been fulfilled as expected. In the business sector and the higher education sector, the number of R&D personnel has increased between 2000 and 2008, although in the business sector, the growth has been minor compared to the substantial growth of the resources (Tohtoritarve 2020-luvulla, 2010). The increase of doctoral labour force in R&D has been relatively slow, taking into account the growth of doctoral labour force. The proportion of those having the highest academic degree was only 14% of the R&D personnel in 2008 (Tohtoritarve 2020-luvulla, 2010). Thus, the employment prospects of doctorate holders on the labour market outside the academy are not extensive and R&D is not an exception in this regard.

A popular discussion related to massification of higher education is the assumed mismatch of education and work. The substantial growth of number of higher education graduates is often considered to be related to inflation of higher education. As a consequence, higher education graduates are claimed to have difficulties to find a job, which match their education. The other tract of this discussion focuses on changing qualifications in work life: in addition to the professional and academic qualifications, “working life skills” are required. (Teichler, 2007) With regard to the doctorate holders, one may assume that the growth of doctoral labour force leads to similar consequences: inflation of degrees, difficulties to find an appropriate job, competition for jobs with those, who have a lower level degree and mismatch of education and job requirements. According to Teichler (2007), the problem of the matching of education and job is multi-layered and it has to be approached from different perspectives.

Doctoral Training and Employment Prospects

The Finnish doctoral education has been shaped by following a national tradition, but following transnational tendencies. The mode of PhD training and academic socialization is influenced by national tradition (Clark 1993). The German mode is based on independency and personal development of doctoral students. The American mode emphasizes systematic training, and instead of the dissertation, coursework is crucial (Bennish-Björkman 1997). In recent years, the American tradition has gained popularity, since it has been considered better for enhancing efficiency of the training and employability of doctorate holders (Kehm 2006). For the purpose of enhancing the employability, a particular program, professional doctorate, has been promoted (Enders 2005; Huisman and Naidoo, 2006), which can also be recognized in Finland (Ministry of Education and Culture, 2013).

In Finland, the aim is to raise the proportion of doctorate holders from 1% (2009) to 1,5% (2020); the corresponding numbers for higher education graduates is 22% and 30% (Ministry of Education and Culture 2013). The systematization of doctoral

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training has been promoted by regulating the access to doctoral programs, establishing a more intensive pattern of program, “doctorate schools” and developing a more systematized funding model. In addition, a system of tenure track for promoting professional research careers in universities has been created. The purpose of the systematization has been to make the training more efficient (Ministry of Education and Culture, 2013).

Despite of the systematization, a proportion of the training is funded by externally funded research projects. As a consequence, PhD students have a double role in the externally funded projects, as they are independent researchers and PhD students (Hakala, 2009). Although externally funded projects have been argued to be inefficient from the perspective of PhD training (Gumport, 1993), it has also been claimed that they may provide the students with opportunities to develop new types of skills and promote contacts to financiers (Harman, 2002). According to Hakala, the different contexts of carrying out PhD studies deliver new combinations on competence and research patterns on the basis of the academic and non-academic practices (Hakala, 2009).

Study Problem

In this article, the aim is to study employment prospects of doctorate holders outside the academy. First, careers, job descriptions, and positions at work sites are studied. Job descriptions are related to the content of the work and the term ‘positions’ refers to a hierarchical status in the employer organization. Are there particular tasks for doctorate holders and do they hold special positions in the organizational hierarchy? The position of doctorate holders is compared to those, who have a lower degree.

Second, the reasons to employ doctorate holders and competence requirements are explored to answer the question dealing with the value of doctoral degree. What are the employers’ expectations related to the doctoral labour force? What kind of competences do employers value? What do the doctorate holders themselves consider important competences?

METHODOLOGY AND DATA

Methods used in this research are a survey and an interview; the survey was addressed to doctoral degree holders and the interview data dealing with employers’ experiences and views were collected from the managers of the employer organisations. The application of both qualitative and quantitative approaches is chosen in order to increase the validity of the study findings.

The aim of the survey was to study the early careers of doctorate holders and the value of the doctoral degree in working life. The data consisted of survey-based material on those who completed the doctoral examination in the academic year 2004-2005 and interview data from their employers. The questionnaire asked doctorate holders about their study motives and funding source of their doctoral studies as well

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as details on employment and careers. Further queries were made concerning job description, the quality of work and the benefits of doctoral education as preparation for a career. The respondents were also asked to describe what qualifications or competencies were required for the current position held.

The questionnaire was addressed to all those who had completed their examination in the following universities: Helsinki, Jyväskylä, Oulu, Turku and Tampere. The Tampere University of Technology, the Swedish School of Economics and Business Administration, and Åbo Akademi were also among the chosen venues of higher education. The University of Art and Design, Helsinki, which was amalgamated to become Aalto University in 2010, was also included. These universities, in addition to the University of Kuopio and the University of Lapland, had collaborations on studying employment of their doctorate graduates. In Finland, there were 21 universities at the time of the survey and the data was collected from the doctoral graduates of the nine universities. All disciplinary fields except fine arts and theatre were included.

The questionnaire was planned and the data collection was carried out in collaboration with a Finnish network of universities (Aarresaari-network) and funded by the network and the Ministry of Education and Culture. The universities implemented the data collection themselves during 2006 and 2007 and the data from different institutions were integrated. There were 1183 responses to the questionnaire and the response rate was 61% of those who had received the questionnaire and 58% of all those who had completed their degree. The final dataset consisted of 39% respondents from the University of Helsinki and from the universities of Jyväskylä, Oulu, Tampere and Turku each representing 10-13% of the total sample. The doctorate holders from the Swedish School of Economics had the lowest response rate (47%). Women were majority representing 56% of the respondents and the men were in the minority with 44%. In regard to discipline, science (23%) and medicine (21%) were the most common. The doctorate holders in the field of technology had the lowest (44%) response rate and in the field of agriculture and forestry the highest (70%).

Attached to the questionnaire, was a piece of paper on which the respondents were asked to write the name and contact information of their manager for the purpose of conducting an interview. The request was addressed to those respondents, who were employed outside the academy, because the aim was to collect data on non-university employers' views with respect to the doctoral labour force and related industry- and organisation-specific conditions. The aim was to focus on the employers in the private and non-profit private sector. Only 53 respondents wrote their manager's name on the questionnaire and 49 of them were valid as four of these respondents were employed in university institutions.

Twenty-six interviews with employers are included in the data. Most of the organizations were in the private sector (14) while the rest were in some other sector: non-profit, (4); government, (4); municipal, (1), and municipal polytechnics. (3). In the private sector, the lines of business were social and health services, the

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pharmaceutical industry, media and publishing, consulting services, insurance and telecommunication. The size of the companies were large (6), medium-sized (2), and small (6) measured by the number of employees. A master's degree was the most common requirement for recruitment in these organizations; only in exceptional cases a doctoral degree was required. The analysis was based on the perspectives of employers and management and organizations and their needs and requirements for staff and the institutional environment were studied.

Before the interviews, the R&D activities of the organizations, educational background of the staff and the size of the organization were investigated; the aim was to obtain background information for the interviews. The data were mostly collected from the web pages of these organizations and from authorities funding R&D activities outside the academy. Most (21) of these organizations had R&D or education-related collaborations with universities and research institutes; 15 of them had their own R&D departments. The scale of research activities and collaboration with universities and research institutes varied. Some organizations had a long history of R&D collaboration with universities; some of them purchased research services from universities, while others carried out training programmes with universities. The employers with R&D and training-related collaboration were more positive to the query to be interviewed compared to those employers not actively networked to universities.

The interviews were semi-structured. The interview themes were the following: the purpose, strategy and structure of the organization, staff policy and strategy, positions and tasks of doctorate holders, recruitment and need for a doctoral labour force, benefits of employing doctorate holders, and finally, the future prospects and demand for a doctoral labour force. The interview data, collected during the spring and autumn of 2007, were recorded and written into text files. They were analysed using text analysis methods.

FINDINGS AND ANALYSIS—EXPLORING EMPLOYMENT

Doctoral Employment

The active labour force participation rate was high, which refers to employment opportunities. In addition, the quality of employment was high. The work was usually appropriate to the high level of education. Three per cent of the doctoral degree holders had been unemployed for a while after completing the doctoral thesis. However, 13% of all those who had responded to the questionnaire, had had problems finding employment; most of them held degrees in the disciplines of science (21%), social science (23%) and arts and humanities (16%). The unemployment rate was rather low at the data collection point.

The most obvious problems were the short-term contracts in the labour market, which are common in the European countries (OECD, 2009). One-third of the respondents had short-term employment in 2007. Many worked in universities as

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scientists and lecturers on short-term contracts. In 2007, the employment situation in Finland was rather favourable and the increasing supply of doctorate holders met the demand for a highly educated labour force. The overall unemployment rate was 6%, as the rate was 8% in 2011 (OECD iLibrary, 2013).

The employment sectors of those doctoral holders who were employed were distributed as follows: universities, 41%; polytechnics, 5%; state and municipal offices, 32%; private sector companies or entrepreneurs, 16%, and private non-profit organizations, 4%. Research as a profession was most common (38%) and the other titles held were teacher (21%); manager (8%); medical doctor or veterinarian (15%); coordinator (3%); officer in public administration (2%), and professional in engineering, agriculture and forestry (6%).

The placement was focused on a limited field on the labour market; over half of them were situated in research and education positions in public sector organizations. From the perspective of the current cut-backs in university funding in Finland, it is probable that employment opportunities in the academy will decline. In Finnish higher education policy, the aim is to increase the number of doctorate holders in R&D and outside the academy (Niemi et al., 2011), but the goal has not been achieved to the extent as expected. The labour market has not been able to absorb the flow of doctoral degree holders as in most business fields, doctorate holders are rare in the labour force. However, in the industries, which specialize in R&D, the doctorate holders make up a relatively high proportion of the labour force. In the biotechnology industry, 75% of the professional staff has a doctoral degree, while in the electronics industry, this number is 2-3% (Kestävä ja dynaaminen kumppanuus, 2005). The high proportion of academic labour force correlates with the close relationship to universities. For example, a part of biotechnology industry emerged as spin-off of universities.

No Niche but Opportunities for a Career

In the academic domain, doctoral careers are structured into a four-stage model strengthening the value of doctorate, but in the non-academic domain, there was no special labour market niche for doctoral degree holders. In Finland, doctorate holders compete with master's degree holders on the labour market. Thirty-eight per cent of doctorate holders were researchers and the corresponding number of those holding a master's degree is 11% (Korhonen & Sainio 2006, pp. 14-15). Research careers are not niches for doctoral holders. Recruitment practices are shaped on the basis of organization-, and industry-specific practices and needs. In addition, a doctoral degree does not qualify a person for a management position in non-academic domains. The studies of Enders across nation states supports this finding, as it is common that no added value is related to the doctorate, except in Germany (Enders, 2004).

According to the analysis of the employer interviews, doctoral degree holders did not have higher positions in the organizational hierarchy compared to the other

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personnel in only a few organizations. In these organizations, doctoral degree holders were managers of R&D departments or education programmes. In addition to R&D, education, marketing, legislative work, management and media, work and tasks related to publishing were carried out by doctorate holders outside the academy. The doctoral degree holders had usually the same kind of job descriptions as the staff members with a master's degree. In general, the research mode was not academic as the aim was to produce knowledge for practical purposes. Thus, doctoral competence was not utilized in an academic way.

We are required to work fast and carry out applied research as the purpose of our main organization is to influence political decision-making. In our research department, it is clear that our task is to produce knowledge for the purposes of our main organization. Scholars have to take the role of a professional expert. We must have the competence of journalists: write fast and delimit subjects.
(Research manager, non-profit private organization)

In many employer organizations, the salaries of doctorate holders did not exceed the average level of professional employees, which describes their position. The size of the salary tends to be related to the valuation of the employee. In the private sector companies, the doctoral degree holders were not better paid, but the employers improved their salary or position, if they considered that the doctoral education had benefits for the company.

However, there were differences between employer organizations as regards to the job descriptions of the doctorate holders. Some of the employers reported that they could not provide sufficient challenges and adequate tasks for doctorate holders and the qualifications of their doctoral staff were slightly under-utilized. These employer organizations did not have extensive R&D activities or the doctoral staff referred to in the interview did not work in R&D tasks.

A majority of employer organizations indicated that they could utilize the doctoral competence of their employees and provide them with special professional challenges. They performed some special tasks or roles, for which the degree provided competence. These special tasks were the following: experts on committees, specialized journalists, leaders of educational programmes, or as marketers in the pharmaceutical industry.

Sure, when we want *the* most competent experts for committees, parliament and groups preparing new legislation, they are doctorate holders. Their competence is more appropriate for communication, conceptual thinking and writing. (Manager, governmental sector)

The survey data from the doctorate holders did not raise the mismatch of education and job as a substantial problem and the respondents reported rather high rates of matching. On the basis of the survey analysis the jobs were matching as regards to their education, since 76-93% of all respondents considered that the rate was excellent and only small minority reported weak match. However, there was variation by the

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employment sector. The respondents in the municipal and non-profit private sector organizations reported lower rates compared to the others (table 1). In addition, in the municipal sector organizations, a smaller proportion of the respondents could apply their doctoral training than the other respondents (table 2). In the business and government sector organizations, the mismatch had decreased with time (table 1). The reason for this is probably career promotion.

The question of mismatch is quite complicated as the concept of matching refers to many layers of competence and work (Teichler, 2007). A good example are the doctorate holders in the non-profit private sector organizations 4 years after graduation: they reported rather good opportunities to apply their doctoral education, but considered the matching of education and job lower compared to organizations in the other sectors, the municipal sector excluded. The explanation may be related to profession and organization.

First, in the non-profit private sector organizations, the doctorate holders were often researchers, and the respondents who worked as researchers had better opportunities to apply their education. The proportion of those researchers, who reported “I use my amassed knowledge/ skills all the time” was 82% and the proportion of those researchers, who responded “I can apply what I have learned to some extent” was 15%. The corresponding numbers of the all respondents were 61% and 31%. The proportion of researchers was 51-55% in the government and non-profit private sector organizations, 24% in the private sector organizations, 4% in the municipal sector organizations, 55 % in universities and 14% in polytechnics.

Second, non-profit private sector organizations are usually small-sized, which may be correlated to the lower matching of education and job. The size of the organization can be judged to be related to career opportunities as large organizations have usually better opportunities to provide career prospects. The lower matching of education and job may indicate poorer career prospects despite the opportunities to apply doctoral education. However, a more profound research at work site is needed for validation or re-interpretation of this result. In addition, it should not be forgotten that the respondents were in the early stages of their careers and their experiences and perspectives were close to doctoral studies. This is supported by the discovery of low importance attributed to the management skills (Table 3).

It can be assumed that doctoral employment opportunities are reinforced in the labour market for two reasons: first, the increase of the doctoral labour force tends to transform working modes at work sites, and second, the specialized tasks and roles tend to be institutionalized. R&D activities and collaboration with universities and other research institutions generated work for which doctorate holders were eligible. In the employer organization, a doctoral degree of the manager or the core professional staff advanced such activities, which favoured doctorate holders in recruitment. Once one doctorate holder had been recruited; more professionals with scholarly competence were employed, which is also recognized by other researchers (Cruz-Castro & Sanz-Menéndez, 2005; Kleinman & Vallas, 2001). The reason was not only a particular human resource policy, but a transformation in working methods

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Table 1. Which of the following describes your work most accurately? Matching of education and job/Employment sector

6 month after completing my doctoral degree	Municipal	Non-profit, private	Private	Government	University	Polytechnic
My job matched/matches my education well	75%	77%	71%	82%	88%	76%
My job was/is partly less demanding than my level of education	17%	17%	22%	15%	10%	20%
My job was/is clearly less demanding than my level of education	6%	3%	4%	2%	2%	4%
Can't say.	2%	3%	3%	1%	0%	0%
Total %, N	100%189	100%39	100%120	100%138	100%395	100%57
4 years after graduation	Municipal	Non-profit, private	Private	Government	University	Polytechnic
My job matched/matches my education well	76%	78%	89%	93%	89%	93%
My job was/is partly less demanding than my level of education	17%	22%	11%	7%	11%	7%
My job was/is clearly less demanding than my level of education	5%	0%	0%	0%	0%	0%
Can't say.	2%	0%	0%	0%	0%	0%
Total%	100%	100%	100%	100%	100%	100%
N	187	41	123	136	404	55

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Table 2. How well you can apply what you have learned during your doctoral studies to your current job? Responds/employment sector

	<i>Municipal</i>	<i>Non-profit, private</i>	<i>Private</i>	<i>Government</i>	<i>University</i>	<i>Poly technic</i>
I use my amassed knowledge/ skills all the time	37%	74%	44%	66%	81%	70%
I can apply what I have learned to some extent	54%	24%	48%	29%	17%	28%
I don't have much use of my studies	9%	2%	7%	5%	2%	2%
Total%, N	100%191	100%42	100%124	100% 137	100%406	100%57

Table 3. The most important competence according to the employment sector (%). "What proficiency is most important in your current job?" There were no ready-made alternatives for responding the question

<i>Competence</i>	<i>Municipal</i>	<i>Non-profit private</i>	<i>Private</i>	<i>Government</i>	<i>University</i>	<i>Polytechnic</i>
Expertise *	50	36	48	43	11	28
Research	3	33	12	28	43	33
Education	7	2	9	2	10	10
Knowledge acquisition & analysis	10	14	11	7	5	10
Management & coordination	4	2	7	4	3	7
Skills of interaction	5	2	2	1	3	0
No respond	21	11	11	15	25	12
Total %	100	100	100	100	100	100
N	191	42	126	138	406	59

*Industry-specific expertise

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and practices. As staff with academic competence was recruited, working methods were re-shaped reinforcing systematic knowledge production and application which followed research designs; There was a tendency in work organizations to reinforce doctoral careers. This tendency was related to networking with universities. There is interplay between collaboration with universities and recruitment of doctorate holders, as collaboration with universities promotes the employment of doctorate degree holders and increasing the number of staff with research-based capacity strengthens contacts with academic institutions.

In our (consultant) network, we have some professionals who have specialized in research and working with patients. This has made *it* possible to constantly strengthen our competence. The boundaries between the university and our clinic carrying out patient work are much lower now. (A network of consultants, health services industry)

With the tendency to increase special tasks and roles, it is possible that the doctoral work domains in the labour market will be incrementally developed. Although there is not a career niche for doctorate holders, there are career opportunities for professionals with academic competence and status (Borel-Damian, 2009, p. 78). New job descriptions are usually developed when some members of a profession begin to specialize in a particular field. Step by step, their job descriptions will be institutionalized as a separate work domain and with this tendency, the positions in an organizational hierarchy will be re-shaped. However, promoting the higher position and special job descriptions has to be negotiated at work sites, in local conditions, which does not suggest a rapid change in this respect. There has to be strong arguments to legitimise a niche in the labour market for doctorate holders.

Motives to Recruit Doctorate Holders: Knowledge-based Competence, Networking Capacity and Academic Status

According to the employers, the most recognized qualification of doctorate holders was research capacity and doctorate holders were mostly employed for R&D. In addition, the membership in the academic community and the status of the highest academic degree were important for the purpose of developing networks and collaborations with universities.

Knowledge-Based Competence. Employers in both the public and private sector organizations recruited doctoral degree holders to undertake R&D functions as research capacity was mentioned as a special qualification for improving R&D in these organizations. According to the employers, competence on knowledge, acquisition and analysis was also crucial qualifications.

Although research capacity was often mentioned as an employment requirement, the utilization of research capacity varied according to labour division and industry. The R&D based organizations employed doctorate holders for research positions, but in employer organizations without R&D departments, such as the media, research

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positions were rare. In addition, some R&D-based companies purchased research services by subcontracting rather than hiring full-time staff.

Research capacity was taken for granted, but generic capabilities were examined carefully. Industry- or profession-specific competence was required for research and non-research work.

Our doctorate holders get the same salary as the others. The level of salary depends on how much experience they have and their competence on our business-specific models. It is more important than a degree. (Research manager, pharmaceutical industry, a large company)

The importance of industry-specific expertise was taken into account in HR practices. Although the employer organizations considered recruitment of young doctorate holders as an easy and time-saving personnel strategy, a good solution was to encourage staff to undertake doctoral studies. Senior professional employees had the necessary industry-specific competence and the many of the interviewed managers considered it reasonable to have experienced doctorate holders. Graswell claims that senior staff is capable to apply their long experience and industry-specific knowledge to their doctoral studies (2007). When the doctoral thesis was regarded as beneficial for R&D purposes, working on the thesis was supported in many ways, particularly in large firms based on R&D activities.

They are competent to apply the models of our business. In addition, they write scholarly articles and their doctoral thesis when carrying out customer projects. That way we have staff who knows how to work in a private sector company. (Manager, pharmaceutical industry, a small firm)

Employers' support for doctoral studies is confirmed by other researchers (Borel-Damian, 2009, p. 8). However, the crossover of academic research and needs of non-academic domains can be problematic as there are inherent limits of transferability (Graswell, 2007). The senior staff may have better qualifications to cope with the problem, but the crossover may also put extra pressures on their doctoral studies.

The survey findings supported the analysis of the employers' views of the industry-specific expertise. According to the survey study (table 3), the doctoral respondents employed by universities highlighted the importance of research competence, while expertise of the industry or the professional field was most often reported by the respondents working outside the academy, particularly in the municipal and private sectors.

Knowledge-based competence of doctorate holders is appreciated in the academy and outside the academy, but not in similar ways. Research competence is a crucial quality of the doctoral labour force, but outside the academy, generic capabilities are also needed.

Networking Capacity and the Status of the Doctorate. Research capacity and expertise are qualities attached to the doctorate, but the academic cultural and social

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capital should not be ignored. The degree provides its holders with a membership in the academic, community and the symbolic value of the highest academic degree. For the employer organizations, the reason for employing professionals with the highest academic degree was to strengthen R&D, but also to promote collaboration with universities and research institutions and enhance the professional credibility of the organization.

Most of the employer organizations pursued collaboration with universities and research institutions, as their strategy was to promote partnership-based R&D projects. Doctorate holders advanced collaboration with universities as they benefited from their personal contacts with the academy. Some interviewed managers reported that they had specifically recruited academic staff for that purpose:

The task of the recently employed doctorate holder is to coordinate the training project which presumes contacts with universities. (Manager, a private, non-profit private organization)

Collaboration with the academic domain was in particular wanted, when the employer organization's R&D was poorly developed or it did not meet academic criteria. In these organizations, collaboration with universities was expected to enhance the quality of research work by promoting higher criteria for R&D. According to studies of R&D, new and inexperienced firms in the R&D market strive for partnerships with universities and employ doctorate holders for this objective (Luo, Koput & Powell, 2009). The convergence of universities and firms promotes academic practices in the private sector (Kleinman & Vallas, 2001), because this convergence is advantageous for firms strengthening their position in knowledge economy.

Membership in an academic community is necessary for creating contacts and partnerships. Research professionals are a community, which crosses boundaries of organizations and sectors and this supplies for employers outside the academy an opportunity to benefit the extensive research capacity based on these communities (Luo, Koput & Powell, 2009). The academic profession unites the members with the particular knowledge body and institutionalized patterns as the members may not know each other.

The employers also recognized the cultural capital, the value of doctoral degree for enhancing the professional credibility of the organization. The highest academic degree was considered beneficial in negotiations and collaborations with academic institutions, because it equalized academic status differences between the partners. According to Luo, Koput and Powell (2009), a doctorate can take three forms in R&D: intellectual capital, network mediation and a signal of academic capital. Academic capital improves the credibility of the firm for partnership in the eyes of funding agencies. Luo, Koput and Powell claim that a staff member with a doctorate signals the following important qualities: it is observable, costly to obtain and correlates to the quality of the organization (2009).

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CONCLUSIONS

The research shows that there was no specific niche for doctorate holders outside academy, but the doctorate holders had special tasks or positions, for which the doctoral degree was regarded as appropriate. At work sites outside the academy, the industry-specific competence was considered important, which, however, did not invalidate the value of the highest academic degree. The membership in the academic community was a good reason to employ doctorate holders for the purpose of reinforcing collaboration with universities.

This tendency refers to incremental development of a doctoral career domain, which is judged on the basis of the fact that new professional territories emerge with differentiation and specialisation. The differentiation and specialization was addressed firstly to special tasks demanding doctoral competence and secondly to the membership in the academic community. Thus, the emergence of doctoral domains should be based on various qualities of the doctorate. However, the development of doctoral careers will appear to be uneven and slow, because the professional labour markets are varied and institutionalized employment patterns change slowly. The change will not be overarching but limited by the sector of employment. The national and EU-based science and innovation policy aims at increasing doctoral labour force in R&D outside the academy, but the proportion of doctorate holders has not grown as expected and the growth has been uneven. Relationship (collaboration, spin-off origin of the firm etc.) with university promotes recruitment of doctorate holders. This supports the result of this study: doctorate holders were also recruited for the purpose of reinforcing collaboration with universities or initiating of university cooperation.

Although there was not a niche for doctorate holders outside the academy, the doctorate holders themselves were rather satisfied with their jobs. They considered the matching of their education and jobs as rather high, although not everyone was able to apply what he/she had learnt during the education. The matching of education and job is more or less indirect outside the academy, because academic institutions and non-academic work sites are different. Although similarities and convergence has been recognized in R&D-based work, there are still differences with regard to the purpose of research and related working patterns. Doctoral qualifications have to be translated into industry-specific and organization-based doctoral competence.

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