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Preface

The working paper is based on data gathered in the frame of the three-year Polish-Norwegian research project “Gender Equality at the University” (2013-2016). The project was funded by the Polish-Norwegian Research Programme and the National Centre for Research and Development (NCBiR). The research being subject of the paper was implemented within the WP 2 “Ph.D. graduates 5 years after receiving diploma” by the Robert B. Zajonc Institute for Social Studies in the frame of cooperation of the Department of Economics and the Robert B. Zajonc Institute for Social Studies at the University of Warsaw, and a Norwegian partner – the Nordic Institute for Innovation, Research and Education (NIFU).

The paper compares perceptions of doctoral studies from the perspective of professional careers of male and female PhD graduates in Poland and Norway.

The survey used in 2007 by NIFU among Norwegian PhD graduates was the starting point for developing the Polish survey questionnaire. The Norwegian questionnaire was adapted to Polish situation and some new problems were incorporated to enlarge the gender perspective. In Autumn 2014 the Polish survey was conducted by CBOS (Public Opinion Research Center).

This working paper will be followed up by publications with more complete analysis and contextualization of data.

The project was directed by Dr. Michał Krawczyk, the Department of Economics, University of Warsaw. The research within the WP1 and WP2 was implemented by the Polish team headed by Professor Renata Siemieńska, the Robert B. Zajonc Institute for Social Studies, University of Warsaw, in collaboration with NIFU.

Oslo, January 2017

Sveinung Skule
Director

Nicoline Frølich
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Summary

The working paper is based on data gathered in the frame of the three-year Polish-Norwegian research project “Gender Equality at the University” (2013-2016). The project was funded by the Polish-Norwegian Research Programme and the National Centre for Research and Development (NCBiR).

The paper compares perceptions of doctoral studies from the perspective of the professional careers of male and female PhD graduates in Poland and Norway. The survey used in 2007 by NIFU among Norwegian PhD graduates was the starting point for developing the Polish survey questionnaire.

Gender and fields of science; national characteristics

The survey material reflects that in Poland, more people earn their PhD in humanities in comparison with Norway, while the latter has more graduates of natural sciences. There are also some statistically significant differences in the number of women and men. In the Polish population, more women represent natural sciences and medical sciences, in the Norwegian – humanities and social sciences. Men tend to earn their PhD in engineering and technology more often than women, in both Poland and Norway.

Perceptions of competence and skills

The study finds that a decisive majority of respondents from both countries declared that, during their doctoral period, they gained competences and skills of an academic nature. They acquired theoretical and methodological knowledge, they learned to think analytically, solve complex problems, plan research and present the results obtained.

Professional networking abroad

The most striking difference between both countries relates to experience of professional networking abroad. 63 per cent of Norwegian PhD graduates and only 36.9 per cent of Polish ones indicated that they made important disciplinary contacts outside the country during their doctoral period.

In Poland, the PhD graduates working at universities, colleges or in the research sector pointed out relatively more often that they gained experience with collaboration in a research group and professional networking abroad.

Relevance of knowledge and competence gained

The majority of PhD graduates from both countries indicated that they have used the knowledge from their dissertation work to a very large or a large degree in their present professional position. The percentage of such answers amounted to 67.2 per cent in Poland and 67 per cent in Norway.

However, our respondents, especially the Norwegian ones, were much more sceptical about the relevance of the knowledge gained during their course work.

In both countries, the respondents currently working in academia or the research sector slightly more often indicated the congruence with knowledge from their course work as well as dissertation work in their present position.

In the case of Polish academics and researchers, the greater coherence between knowledge gained during the doctoral period and the requirements of the present job is observed in the case of collaboration in a research group, interdisciplinary cooperation, professional networking abroad and in the home country. In the case of Polish PhD graduates working elsewhere, the greatest coherence is observed concerning experience with interdisciplinary cooperation and collaborating with industry or private enterprise, as well as professional networking within the country. In Norway, the strongest correlations are observed in the case of training in handling complex systems, insight into research management, as well as insight into project planning for those who work in academia or research, and experience in cooperating with industry or private enterprise for those who work elsewhere. The data show the differences in professional requirements related to academic or research positions in both countries, as well as the discrepancy between doctoral education and professional requirements in and outside academia.

Respondents in Poland less satisfied

The respondents in Poland are much less satisfied with the content of their doctoral education than their Norwegian counterparts. The great majority of Polish respondents pointed out that their doctoral programme should have emphasised more activities, such as research management, making disciplinary contacts outside the country, project planning, career planning and information about alternative career paths, commercialisation and technology transfer of research results, interdisciplinary cooperation, as well as professional networking in the country.

The Norwegian respondents would improve the doctoral education primarily in terms of project planning, research management and collaboration in a research group. It seems that doctoral education in Norway is seen by our respondents as more satisfying as regards establishing professional relationships in and outside the country, as well as collaboration with other sectors and partners outside academia.

Significance of career trajectories for perceptions on relevance

In Norway, the type of the current workplace clearly affects the answers related to cooperation with the private sector. Both male and female respondents working outside academia or research, in comparison with their counterparts working at universities, colleges or the research sector, more often pointed out that cooperation with industry and private enterprise as well as commercialisation/transfer of technology results should have been more emphasised in the doctoral education.

The discrepancies in terms of knowledge gained and needed are relatively smaller in the case of Norwegian respondents, especially those who work in universities, colleges or the research sector.

The Norwegian PhD graduates are more satisfied with their doctoral period than their Polish counterparts.

Taking into account the type of the respondents' current workplace, the Norwegian PhD graduates are almost equally satisfied with their doctoral education regardless of their current professional position. The least happy with their doctoral period are the Polish respondents working outside universities, colleges or the research sector.

1 Ambiguity around goals of doctoral studies

“Scientists who attain a PhD are rightly proud — they have gained entry to an academic elite. But it is not as elite as it once was. The number of science doctorates earned each year grew by nearly 40 per cent between 1998 and 2008, to some 34,000, in countries that are members of the Organisation for Economic Cooperation and Development (OECD). The growth shows no sign of slowing: most countries are building up their higher education systems because they see educated workers as a key to economic growth (see ‘The rise of doctorates’). But in much of the world, science PhD graduates may never get a chance to take full advantage of their qualifications. In some countries, including the United States and Japan, people who have trained at great length and expense to be researchers confront a dwindling number of academic jobs, and an industrial sector unable to take up the slack. Supply has outstripped demand and, although few PhD holders end up unemployed, it is not clear that spending years securing this high level qualification is worth it for a job as, for example, a high-school teacher. In other countries, such as China and India, the economies are developing fast enough to use all the PhDs they can crank out, and more — but the quality of the graduates is not consistent. Only a few nations, including Germany, are successfully tackling the problem by redefining the PhD as training for high-level positions in careers outside academia.” wrote Cyranoski et al. (2011: 276) in their article “The PhD Factory – the World is producing more PhDs than ever before. Is it time to stop?”.

The authors summarised discussions focused on higher education, educational policies implemented around the world showing problems faced by new generation of highly skilled graduates. They have rightly pointed out that university studies are losing their elitist character. The number of students is constantly growing and changing. Nowadays, students represent many more social groups than before, while more and more women are entering university studies, including the doctoral ones. In addition, the teaching staff in higher education institutions becomes a product of mass education bringing systems of values, which are different from before. Moreover, there is also an urgent question concerning the content and the use of the educational programmes offered at the first, second and third levels of education, because it becomes clear that highly skilled graduates are needed in different sectors of economy, not only in academia (in the area of teaching and research) as it has been earlier.

Earlier discussions have shown that it is necessary to distinguish different expectations of different types of mass students who are entering doctoral studies: the researcher type, the non-academic type and the random type (Vuolanto et al. 2006: 31–56). In many countries, including Poland, the discussion on goals and programmes of doctoral studies stresses that PhD graduates should have broad, general competences, which are not linked to any particular discipline (Wendler et al. 2010, *Doctoral Programmes...* 2007, *The European Higher Education...* 2012, Kraśniewski 2013, Sobkowiak

2015).[1] However, it is necessary to say that in Poland, like in many other countries, there are some scientists and politicians who believe that it would be good to have two types of doctoral studies: one traditional and another one less scientific, addressed to young people who after receiving MA/MS degrees would like to make a professional career outside of the academia. This idea is not, however, very popular among scientists.

Kyvik and Olsen (2012: 223) conducted a study of Norwegian PhD graduates who evaluated the value of knowledge, skills and competences obtained during their studies compared with those expected by employers in the labour market. The authors conclude: "These findings trigger the question whether PhD training still should be common to all PhD students, or whether this training to a larger extent should be tailor-made to meet the various needs of PhD holders and employers in different labour markets. On the one hand, this study shows that there is a relatively clear relationship between career plans and labour market affiliation, indicating that it might be possible to adapt the PhD training to the career aims of the students: a university or college, a research institute or industrial laboratory, or another segment of the labour market. On the other hand, a substantial share of the PhD recipients enter a different career than initially planned or hoped for. Moreover, elements in the research training such as experience with research management, project planning and interdisciplinary collaboration – abilities and skills that are traditionally viewed as more important for those undertaking research in an applied non-university context than in an academic setting – are even higher esteemed by those pursuing a career in a university than in a research institute or industrial laboratory." Kyvik and Olsen analysed the following aspects of the doctoral education: the relevance of doctoral thesis, the relevance of coursework, as well as the relevance of generic skills, defined as "types of ability that do not specifically relate to the development of disciplinary knowledge or methodological competence", which also "include communication and management skills, the capacity to deal with complex problems, to engage in multidisciplinary work, and, often, the experience of working in international environments" (Borrell-Damian 2009). In this paper, we will concentrate on doctoral studies (third level, according to terminology used in the Bologna Process) in the era of mass education as was done by Kyvik and Olsen (2012).

Our goal is to analyse and compare the new Polish data and the quoted Norwegian data on evaluation and perception of doctoral studies and their use in professional work by PhD graduates five years after graduation. The comparison is interesting because discussion on types of the PhD programmes started in Norway earlier than in Poland and the Norwegian experience can be valuable in planning Polish reforms of higher education. In our paper we have recalculated Norwegian and Polish datasets in the same way. In both cases we divided population of the PhD graduates into two groups: 1) those working at universities, colleges, research institutions and 2) those working in the other sectors of economy. In our analyses we took into account differences/similarities among PhD graduates in different fields of science as well as gender differences – women's and men's experience during doctoral studies and after graduation. We consider possible gender differences as important because the share of women among the PhD students and graduates entering the labour market is growing. In Poland in particular, doctoral studies, as well as work as PhD graduates, have been traditionally perceived as mainly a male domain. Several studies showed that the women's situation is different from men's in many aspects, such as the treatment during doctoral studies and later in the labour market (e.g. see Xie and Shauman 2003, Siemienska and Zimmer 2007). For example, male and female American PhD graduates (the sample of 10,000 respondents), mentioned different types of barriers experienced in their professional career: "The four primary barriers that caused male colleagues to leave the science field were grants/funding, scarcity of job openings, low pay, and balancing life and career. In contrast, the reasons given why female colleagues left the field were more varied. Of the nine barriers cited, the top four were balancing life and career, having/raising children, grants/funding, and gender biases." (AAAS 2010).

[1] See also Eurostat and Eurostudent data.

1.1 Methodology of the study

The paper is based on data gathered in the frame of the three-year Polish-Norwegian research project "Gender Equality at the University" (2013-2016), which aimed at identifying persistent cases of unequal treatment in academia and good practice in dealing with it in Poland and Norway. The project was funded by the Polish-Norwegian Research Programme and the National Centre for Research and Development (NCBiR). The research was implemented by two institutions from Poland, the Department of Economics and the B. Zajonc Institute for Social Studies (ISS) at the University of Warsaw, and a Norwegian partner, the Nordic Institute for Innovation, Research and Education (NIFU). The paper based on data collected by ISS and NIFU is focused on the comparison of the perception of doctoral studies from the perspective of the professional careers of male and female PhD graduates in Poland and Norway.

The survey used in 2007 by NIFU among Norwegian PhD graduates was the starting point for developing the Polish survey questionnaire. The goal of the quantitative study in Poland in 2014 was to gather information on professional careers of Ph.D. graduates five years after obtaining the degree and to compare it with similar data collected in survey conducted by NIFU in 2007. The Norwegian questionnaire was adapted to Polish situation and some new problems were incorporated to enlarge the gender perspective.

In autumn 2014 the Polish survey was conducted by CBOS (Public Opinion Research Center). Out of 4,579 people who received PhD degrees in 2009, 800 graduates were interviewed: 418 women and 382 men working in different types of institutions and in different parts of the country. This survey covered the following fields of learning: humanities, social sciences, natural sciences, medical and health sciences, technology and agricultural sciences. This field classification follows the guidelines for research statistics suggested by UNESCO (1978). The population for our study was drawn from data possessed by OPI (National Information Processing Institute). The quota sample/population from the above quoted data was drawn according to following criteria: discipline, gender, location of higher education institution in different parts of Poland.

1.2 This working paper will be followed up by publications with more complete analysis and contextualization of data, which also takes into account that the Norwegian data were collected nearly a decade before the Polish study. Enrolment in the doctoral programme in Poland and Norway

According to our data, the great majority of Polish and Norwegian respondents have been enrolled in the doctoral programme while working on their PhD thesis. However, the Norwegians participated in PhD studies more often than the Poles - the respective percentages amounted to 86.02 per cent and 67.88 per cent. In Poland, slightly more often the graduates were male (70.05% versus 65.76% in the case of women), in Norway, the number of women earning their PhD was higher (90.82% versus 82.61% in the case of men), and the difference was statistically significant. Similar differences between countries and women and men are observed also when we examine the data taking into account the type of the respondents' current main workplace: university/college/research *versus* other (see Table 1).

Table 1. Were you enrolled in the doctoral programme while working on your PhD dissertation? By country, gender and the type of current workplace.

	Poland				Norway			
	University/college/research		Other		University/college/research		Other	
	N	%	N	%	N	%	N	%
TOTAL								
Yes	464	68.14	79	66.39	274	85.63	132	86.84
No	217	31.86	40	33.61	46	14.37	20	13.16
WOMEN								
Yes	232	66.29	35	62.50	133	91.72	45	88.24
No	118	33.71	21	37.50	12	8.28	6	11.76
MEN								
Yes	232	70.09	44	69.84	141	80.57	87	86.14
No	99	29.91	19	30.16	34	19.43	14	13.86

The respondents' enrolment in the doctoral programme according to the country, gender and the field of science has been presented in the Annex (see Table 14A).

In the populations examined, the structure of representatives of individual fields varies slightly (see Table 2). In Poland, more people earn their PhD in humanities in comparison with Norway, while the latter has more graduates of natural sciences. There are also some statistically significant differences in the number of women and men: in the Polish population, more women represent natural sciences and medical sciences, in the Norwegian – humanities and social sciences. Men tend to earn their PhD in engineering and technology more often than women – in both Poland and Norway.

Table 2.Field of science for the respondents' doctorates, by country and gender.

Country	Field of science for doctorate	Women		Men		Total	
		N	%	N	%	N	%
Poland	Humanities	79	22.57	62	18.51	141	20.58
	Social Sciences	65	18.57	73	21.79	138	20.15
	Natural Sciences	**84**	**24.00***	52	15.52	136	19.85
	Engineering and technology	31	8.86	**106**	**31.64***	137	20.00
	Medical sciences	**91**	**26.00***	42	12.54	133	19.42
Norway	Humanities	**34**	**17.89***	30	11.11	64	13.91
	Social Sciences	**44**	**23.16***	41	15.19	85	18.48
	Natural Sciences	57	30.00	96	35.56	153	33.26
	Engineering and technology	17	8.95	61	**22.59***	78	16.96
	Medical sciences	38	20.00	42	15.56	80	17.39

*The results are based on two-sided tests, the level of significance 0.05. The tests are adjusted for all pairwise comparisons by using the Bonferroni's correction.

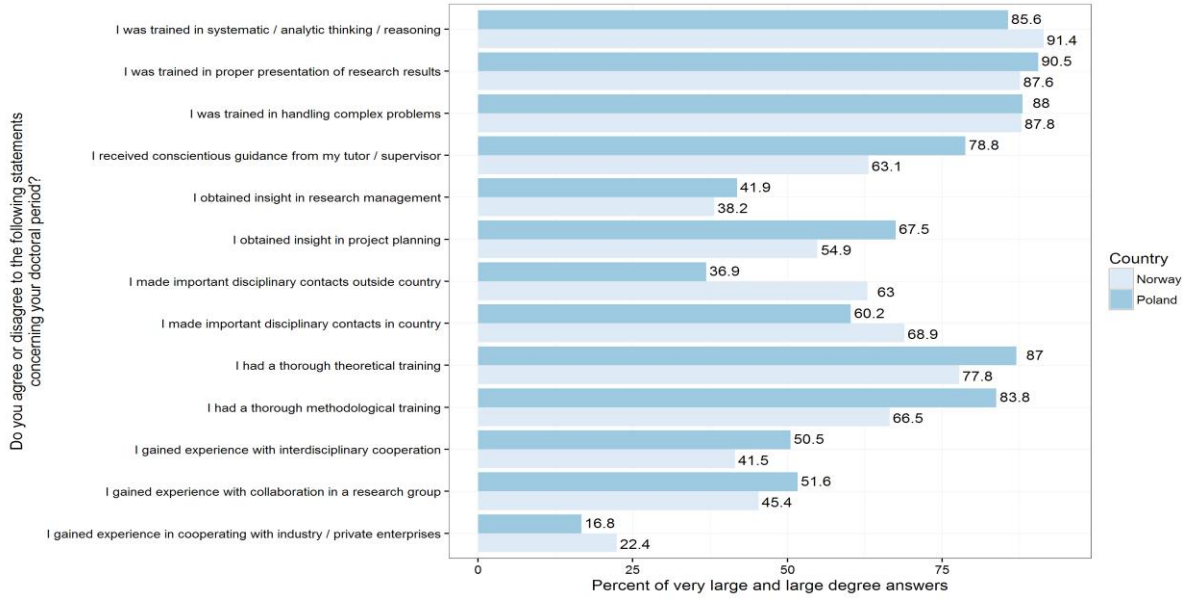
These different representations of fields of science reflect to some extent the actual differences, when we compare the statistical data on the number of PhD graduates in both countries.

1.3 Knowledge gained during the doctoral period

According to our study, a decisive majority of respondents from both countries declared that, during their doctoral period, they earned competences and skills of an academic nature, that is, they acquired theoretical and methodological knowledge, they learned to think analytically, solve complex problems, plan research and present the results obtained. A visibly less frequent group pointed to gaining experience in cooperation within research teams and management of research projects. The smallest group declared having experience in cooperation with enterprises of the private and public sector and establishing of important international contacts within their field of study (see Figure 1). The most striking difference between both countries relates to experiences of professional networking abroad.

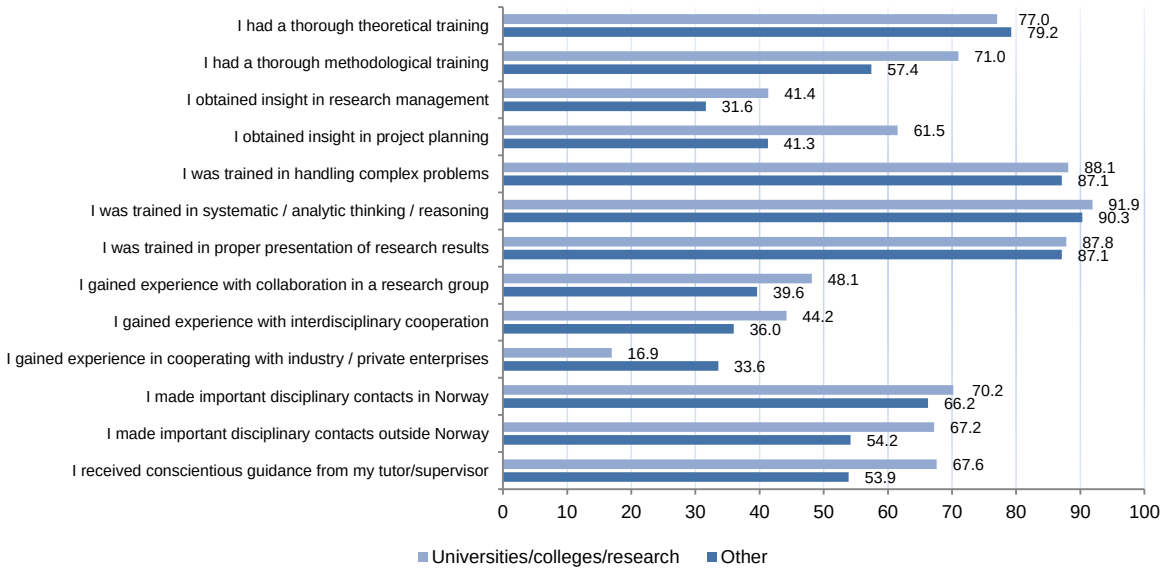
63 per cent of Norwegian PhD graduates and only 36.9 per cent of Polish ones indicated that they made important disciplinary contacts outside the country during their doctoral period.

Figure 1. Evaluation of knowledge, skills and competences gained during the doctoral period (answers: "to a very large" and "large" degree), in %.



In both countries, our respondents' type of the current main place of work differentiated, to some extent, their assessment of knowledge and experiences gained during the doctoral period. The majority of our respondents, however slightly more often in Poland than Norway, agreed that they received conscientious guidance from their tutor or PhD supervisor. However, such statements were relatively less often pointed out by those Norwegian PhD graduates who currently work outside academia or the research sector (see Figure 2). Also, in Norway, the respondents working in universities, colleges or in the research sector more often than their counterparts working in other places indicated that they obtained insight into project planning. Interestingly, the PhD graduates working outside academia and research significantly more often pointed out that they gained experience in cooperating with industry or private enterprises during their doctoral period.

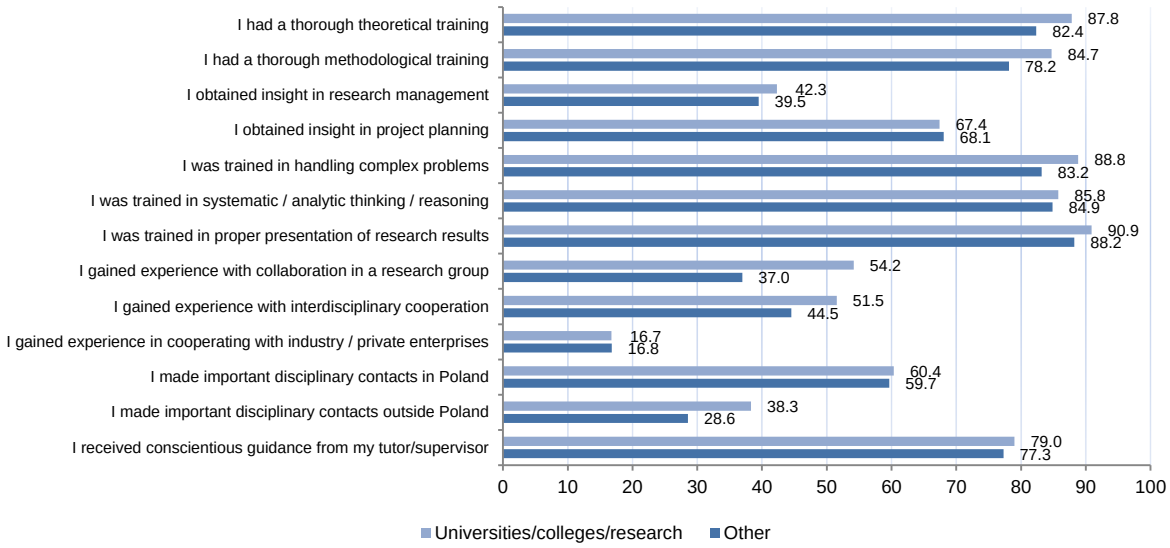
Figure 2. Norway: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to a very large" and "large" degree), by the type of the current workplace, in %.



Both Norwegian women and men working at universities, colleges or in the research sector relatively more often than their counterparts working elsewhere pointed out various types of knowledge and competences gained during the doctoral period. The only exception is the collaboration with private industry/enterprises, which was mentioned more often by those working outside academia or research. In the case of Norwegian women, the greatest differences according to the type of the current workplace related to methodological training, insight into research management and guidance from tutor or supervisor. In the case of Norwegian men, the answers seem to be slightly more differentiated by the main workplace in comparison with women. The male respondents working in academia or research, apart from the types of knowledge mentioned above, emphasised also project planning, collaboration in a research group, interdisciplinary cooperation, as well as important disciplinary contacts outside the country. The respondents from this subcategory mentioned them relatively more often than their counterparts working outside academia or the research sector (see Annex, figures 12A and 13A).

In Poland, the PhD graduates working at universities, colleges or in the research sector relatively more often pointed out that they gained experiences with collaboration in a research group and professional networking abroad (see Figure 3).

Figure 3. Poland: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to a very large" and "large" degree), in %, by the type of the current workplace, in %.



In the case of Polish male and female respondents, it seems that the type of the current workplace differentiates their answers to a relatively lesser extent than in the case of Norwegian PhD graduates. Among women, the greatest differences, always in favour of those working in academia or the research sector, concern methodological training, interdisciplinary cooperation, important disciplinary contacts outside the country and the guidance from the tutor or supervisor. In the case of men the differences were quite similar (see Annex, Figures 14A and 15A).

1.4 Congruence with knowledge gained during the doctoral period

The majority of PhD graduates from both countries indicated that they have used the knowledge from their dissertation work to a very large or a large degree in their present professional position. The percentage of such answers amounted to 67.2 per cent in Poland and 67 per cent in Norway. However, our respondents, especially the Norwegian ones, were much more sceptical about the utility of the knowledge gained during their course work. 45 per cent of Polish PhD graduates and 35 per cent of Norwegian ones declared that they have used the knowledge from their coursework in their present workplace. This might indicate that the courses offered within PhD programmes in Norway and Poland are not really adjusted to the professional needs of PhD holders working in or outside academia. Similar trends are observed when we analyse separately the answers of Polish and Norwegian respondents working at universities, colleges, research institutes and other places (see Tables 3 and 4).

Table 3. To what degree have you used the knowledge you obtained during your doctoral period in your present position? By country and the type of current workplace.

Degree to which knowledge obtained during doctorate has been used in present position: From your dissertation work		Type of workplace							
		Universities/colleges		Research institutes		Other		Total	
		N	%	N	%	N	%	N	%
Poland	To a very large degree	208	34.61	35	43.75	23	19.66	266	33.33
	To a large degree	215	35.77	30	37.50	25	21.37	270	33.83
	To some degree	134	22.30	12	15.00	36	30.77	182	22.81
	To a little degree	38	6.32	2	2.50	25	21.37	65	8.15
	Not at all	6	1.00	1	1.25	8	6.84	15	1.88
	Total	601	100.00	80	100.00	117	100.00	798	100.00
Norway	To a very large degree	76	37.44	48	40.34	33	22.45	157	33.48
	To a large degree	76	37.44	39	32.77	42	28.57	157	33.48
	To some degree	42	20.69	26	21.85	50	34.01	118	25.16
	To a little degree	7	3.45	4	3.36	16	10.88	27	5.76
	Not at all	2	0.99	2	1.68	6	4.08	10	2.13
	Total	203	100.00	119	100.00	147	100.00	469	100.00

Table 4.To what degree have you used the knowledge you obtained during your doctoral period in your present position? By country and the type of current workplace.

Degree to which knowledge obtained during doctorate has been used in present position: From your course work		Type of workplace							
		Universities/colleges		Research institutes		Other		Total	
		N	%	N	%	N	%	N	%
Poland	To a very large degree	97	16.14	12	15.00	9	7.69	118	14.79
	To a large degree	151	25.12	24	30.00	18	15.38	193	24.19
	To some degree	153	25.46	16	20.00	40	34.19	209	26.19
	To a little degree	77	12.81	8	10.00	22	18.80	107	13.41
	Not at all	44	7.32	5	6.25	12	10.26	61	7.64
	Does not apply	79	13.14	15	18.75	16	13.68	110	13.78
	Total	601	100.00	80	100.00	117	100.00	798	100.00
Norway	To a very large degree	33	16.50	11	9.40	11	7.43	55	11.83
	To a large degree	46	23.00	29	24.79	27	18.24	102	21.94
	To some degree	69	34.50	45	38.46	61	41.22	175	37.63
	To a little degree	36	18.00	18	15.38	38	25.68	92	19.78
	Not at all	8	4.00	7	5.98	8	5.41	23	4.95
	Does not apply	8	4.00	7	5.98	3	2.03	18	3.87
	Total	200	100.00	117	100.00	148	100.00	465	100.00

However, in both countries, the respondents currently working in academia or research sector slightly more often indicated the compliance with knowledge from their course work as well as dissertation work in their present position. In both countries the work on dissertation has been considered as much more important and useful in the current work places than course work by all graduates: those who are working in university/college or research institutes as well those working in other types of institution.

The differences between male and female PhD graduates in terms of the compliance with knowledge from the course work according to their current professional position seem to be relatively more visible in Poland than Norway, especially among men (see Table 5).

Table 5. To what degree have you used the knowledge you obtained during your doctoral period in your present position? From your course work, by country, gender and the type of current workplace.

To a very large and large degree	Poland						Norway					
	Women		Men		Total		Women		Men		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
University/college/research	130	44.52	154	52.20	284	48.38	60	42.86	59	36.42	119	39.40
Other	13	26.53	14	26.93	27	26.73	15	32.61	23	23.23	38	26.21

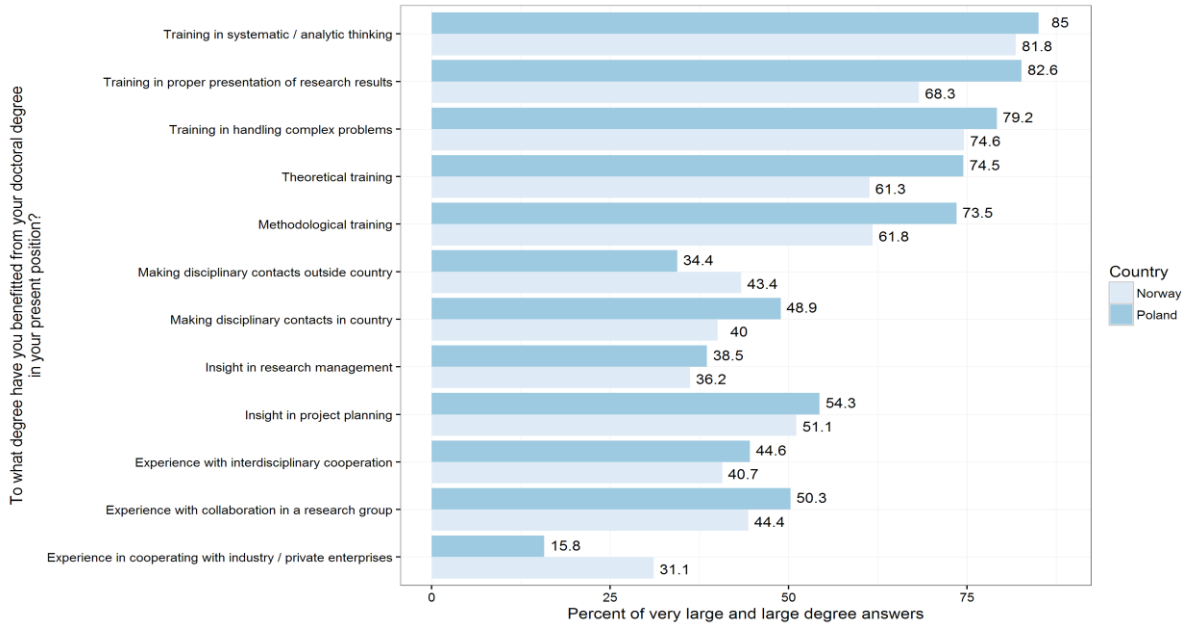
In the case of the compliance with knowledge from their doctoral dissertation work, in Poland men tend to benefit from it in their current workplace slightly more often than women, especially among those working outside the academia or the research sector (see Table 6). In Norway, on the contrary, women, especially those working in other places than universities, colleges or research, relatively more often than men declared that they have used the knowledge from their dissertation work.

Table 6. To what degree have you used the knowledge you obtained during your doctoral period in your present position? From your dissertation work, by country, gender and the type of current workplace.

To a very large and large degree	Poland						Norway					
	Women		Men		Total		Women		Men		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
University/college/research	242	69.14	246	74.32	488	71.66	113	76.87	126	72.00	239	74.22
Other	20	35.72	28	45.90	48	41.03	27	58.69	48	47.52	75	51.02

In the case of specific types of knowledge and experience gained during the doctoral period which our respondents benefited from in their present position, the top three answers in both countries were related to competences which could be useful in high-skilled jobs in and outside academia (see Figure 4).

Figure 4. To what degree have you benefited from your doctoral degree in your present position? (answers: "to a very large" and "large" degree), in %.



More Polish than Norwegian graduates consider that that benefited from doctoral studies in their present positions. But in both countries they have emphasised the same characteristics of the doctoral degree with a few exceptions. Poles less often have considered that the doctoral studies provided disciplinary contacts outside country and experience in cooperating with industry and private

enterprises. However, in both countries graduates have been less satisfied with these aspects of doctoral training than with others. Poles more often pointed out the usefulness of methodological training.

This leads us to ask questions about the role and nature of doctoral studies: should the academic activity be limited to the necessary minimum, while greater emphasis should be put on earning competences and skills which are useful not only in research work (both in the academic world and outside it), but also in positions not related directly to research? The correlation analysis shows that the respondents, especially in Poland, see greater compatibility between the competences gained during the doctoral period and those required in their present job position in case of team cooperation, research work and cooperation with public and private companies., The theoretical and methodological training with which they were provided as doctoral candidates seem to be less relevant from the perspective of their current job (see Table 7.).

Table 7. Correlation between assessment of education during doctoral period and q31 "To what degree have you benefited from your doctoral degree in your present position?"

Poland	Item	Norway
0.438	Theoretical training	0.391
0.438	Methodological training	0.436
0.559	Insight into research management	0.504
0.522	Insight into project planning	0.521
0.571	Training in handling complex problems	0.529
0.537	Training in systematic / analytic thinking / reasoning	0.508
0.516	Training in proper presentation of research results	0.499
0.676	Experience with collaboration in a research group	0.529
0.670	Experience with interdisciplinary cooperation	0.498
0.616	Experience in cooperating with industry / private enterprises	0.544
0.614	Important disciplinary contacts in country	0.441
0.641	Important disciplinary contacts outside country	0.478

*conf. level = 0.95

In Poland, the type of respondents' current place of work differentiates quite significantly the assessment of the utility of knowledge and experience gained during the doctoral period in their present position (see Figure 5). It seems that the greatest differences concern competences related to the research activity: project planning, methodological training and presentation of research results. The PhD graduates working at universities, colleges or in the research sector benefited from them in their current workplace much more often than their counterparts working elsewhere. The respondents working outside academia or research slightly more often pointed out that they benefited from the experience in cooperating with industry or private enterprises, but the difference is not statistically significant.

In Norway, the experience of collaborating with industry or private enterprises gained during the doctoral period was pointed out as beneficial in the present position much more often by the PhD graduates working outside academia or research (44%), than by their counterparts working at universities, colleges or in the research sector (23.7%) (see Figure 6). The other relatively greater differences in the case of Norway concerned academic and research competences, such as theoretical and methodological training and presentation of research results, as well as professional contacts established abroad. However, in general, it seems that in the case of Norway the analysed

answers are relatively less differentiated depending on the type of the respondents' current workplace than in Poland.

Figure 5. Poland: To what degree have you benefited from your doctoral degree in your present position? (answers: "to a very large" and "large" degree), by the type of the current workplace, in %.

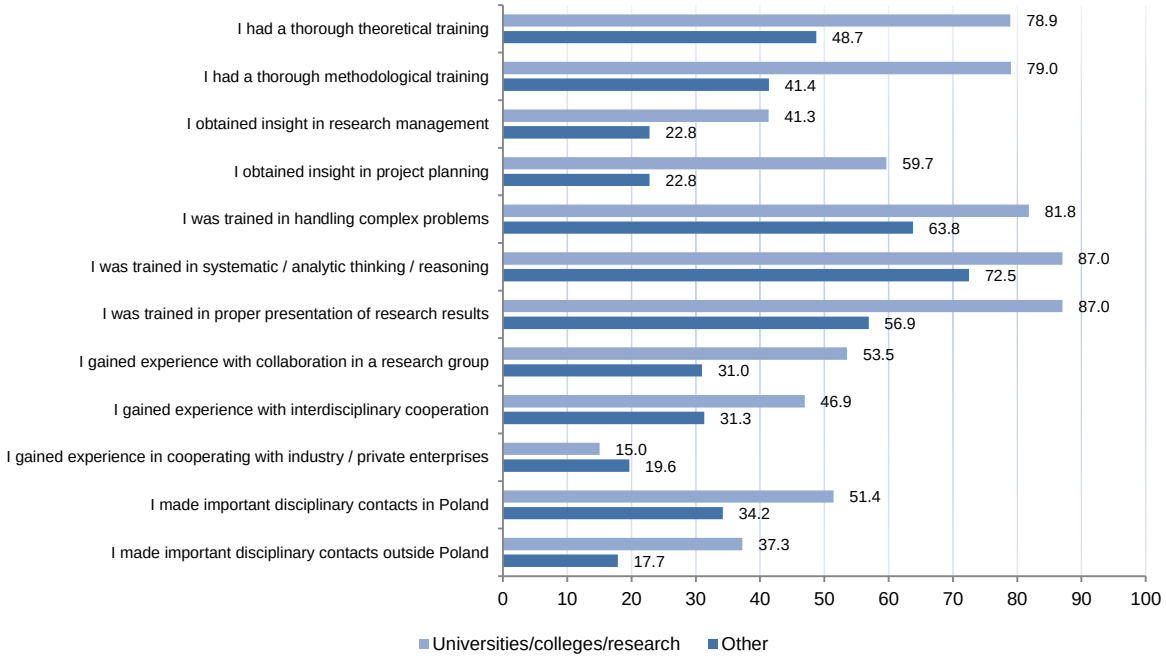
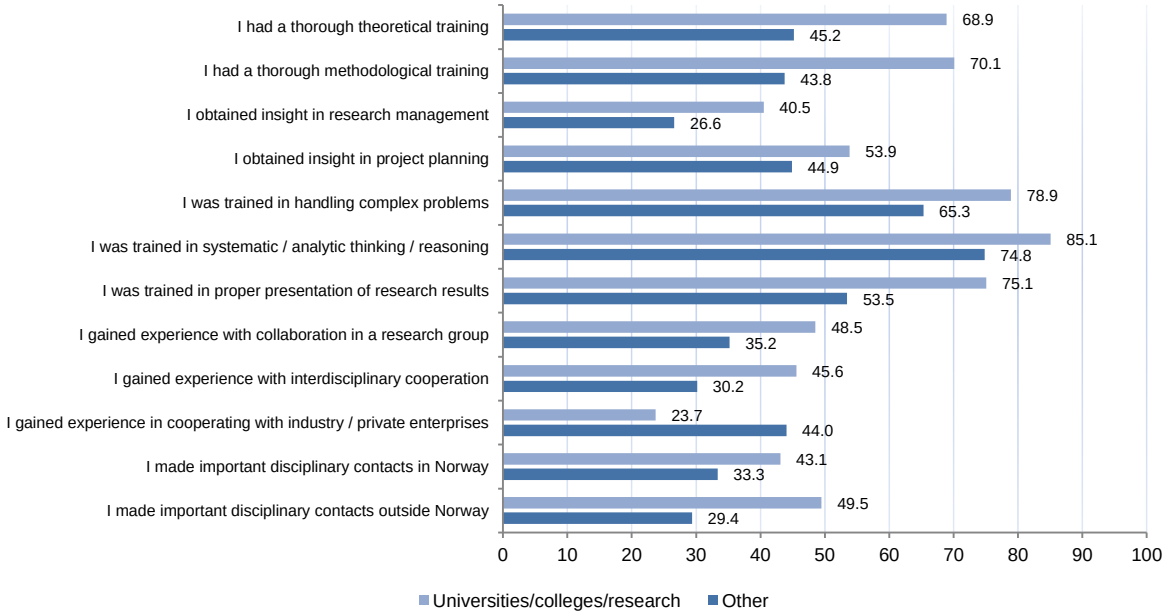


Figure 6. Norway: To what degree have you benefited from your doctoral degree in your present position? (answers: "to a very large" and "large" degree), by the type of the current workplace, in %.



In Poland, there are no significant differences between male and female PhD graduates working in universities, colleges and the research sector. However, in the case of the respondents currently working elsewhere, men relatively more often than women declared that they have benefited at work

to a very large or large degree from the methodological training obtained during their doctoral period (50% versus 32.14%) as well as training in proper presentation of research results (63.94% versus 49.09%) (see Annex, figures 16A and 17A). In Norway, relatively more gender differences were observed. In the case of the PhD graduates working outside academia or research, women tend to benefit more from their doctoral education than men. Such differences concern the following statements: insight into research management (40% versus 20.24%), experience with interdisciplinary cooperation (42.5% versus 24.41%), and making disciplinary contacts in Norway (50% versus 25.53%) as well as outside the country (40% versus 24.42%). Among those who work in universities, colleges or the research sector, women tend to benefit more than men from: insight into project planning (63.08% versus 46.15%); and experience with interdisciplinary cooperation (53.66% versus 38.92%) (see Annex, figures 18A and 19A).

The correlation analysis between the types of knowledge and experience gained during the doctoral period and types of knowledge and experience beneficial in the respondents' present position confirm previously mentioned observations (see Table 8). First of all, in both countries, the correlations are relatively higher for the respondents working at the universities, colleges or in the research sector in comparison with those working elsewhere. In Poland and Norway, in the case of the PhD holders working in academia or research, the relationships concerning professional networking, especially abroad, are slightly stronger than in the case of their counterparts working outside academia or research.

Table 8. Correlation between assessment of education during doctoral period and q31 "To what degree have you benefited from your doctoral degree in your present position?" by country and the type of the current place of work (University/college/research vs. Other).

Poland		Item	Norway	
University/college/ Research	Other		University/college/ research	Other
0.461	0.375	Theoretical training	0.421	0.381
0.491	0.288	Methodological training	0.414	0.388
0.592	0.402	Insight into research management	0.573	0.342
0.582	0.330	Insight into project planning	0.571	0.381
0.552	0.571	Training in handling complex problems	0.631	0.415
0.528	0.578	Training in systematic / analytic thinking / reasoning	0.537	0.429
0.592	0.354	Training in proper presentation of research results	0.560	0.434
0.704	0.489	Experience with collaboration in a research group	0.569	0.424
0.680	0.608	Experience with interdisciplinary cooperation	0.519	0.431
0.620	0.598	Experience in cooperating with industry / private enterprises	0.509	0.556
0.626	0.580	Important disciplinary contacts in country	0.477	0.375
0.650	0.551	Important disciplinary contacts outside country	0.504	0.390

*conf. level = 0.95

In the case of Polish academics and researchers, the greater coherence between knowledge gained during the doctoral period and the requirements of the present job is observed in the case of collaboration in a research group, interdisciplinary cooperation, professional networking abroad and in the country. In the case of Polish PhD graduates working elsewhere, the greatest coherence is observed concerning experience with interdisciplinary cooperation and collaborating with industry or private enterprises, as well as professional networking within the country. In Norway, the strongest correlations are observed in the case of training in handling complex systems, insight into research management, as well as insight into project planning for those who work in academia or research, and experience in cooperating with industry or private enterprises for those who work elsewhere. The data show the differences in professional requirements related to academic or research positions in both countries, as well as the discrepancy between doctoral education and professional requirements in and outside academia.

After introducing gender to the analysis, it occurs that in Poland the correlations are relatively stronger in the case of men than in that of women, especially among those who currently work outside academia or the research sector (see Table 9). However, in few cases the greater coherence between doctoral education and the requirements of the current workplace is observed more among women than men. The most visible examples are: experience with collaboration in a research group (respondents working in academia or research) and important professional contacts established in the country (respondents working elsewhere). In general, it seems that the type of the respondents' current workplace affects the correlations slightly more in the case of men in comparison with women.

Table 9. Correlation between assessment of education during doctoral period and q31 "To what degree have you benefited from your doctoral degree in your present position?" by country, gender and the type of the current place of work (University/college/research vs. Other).

Poland				Item	Norway			
Women		Men			Women		Men	
University/ college/ research	Other	University/ college/ research	Other		University/ college/ research	Other	University/ college/ research	Other
0.437	0.378	0.501	0.403	Theoretical training	0.431	0.462	0.413	0.332
0.415	0.315	0.582	0.303	Methodological training	0.424	0.339	0.416	0.429
0.525	0.321	0.665	0.512	Insight into research management	0.597	0.362	0.549	0.328
0.521	0.323	0.642	0.355	Insight into project planning	0.547	0.267	0.569	0.413
0.579	0.625	0.527	0.636	Training in handling complex problems	0.584	0.336	0.572	0.465
0.541	0.583	0.521	0.613	Training in systematic / analytic thinking / reasoning	0.525	0.380	0.564	0.456
0.514	0.189	0.662	0.562	Training in proper presentation of research results	0.539	0.219	0.585	0.468
0.730	0.325	0.673	0.642	Experience with collaboration in a research group	0.549	0.045	0.597	0.558
0.657	0.552	0.709	0.655	Experience with interdisciplinary cooperation	0.452	0.222	0.602	0.518
0.646	0.497	0.588	0.673	Experience in cooperating with industry / private enterprises	0.276	0.648	0.669	0.510
0.633	0.627	0.621	0.522	Important disciplinary contacts in country	0.429	0.307	0.519	0.417
0.655	0.418	0.645	0.655	Important disciplinary contacts outside country	0.516	0.280	0.497	0.439

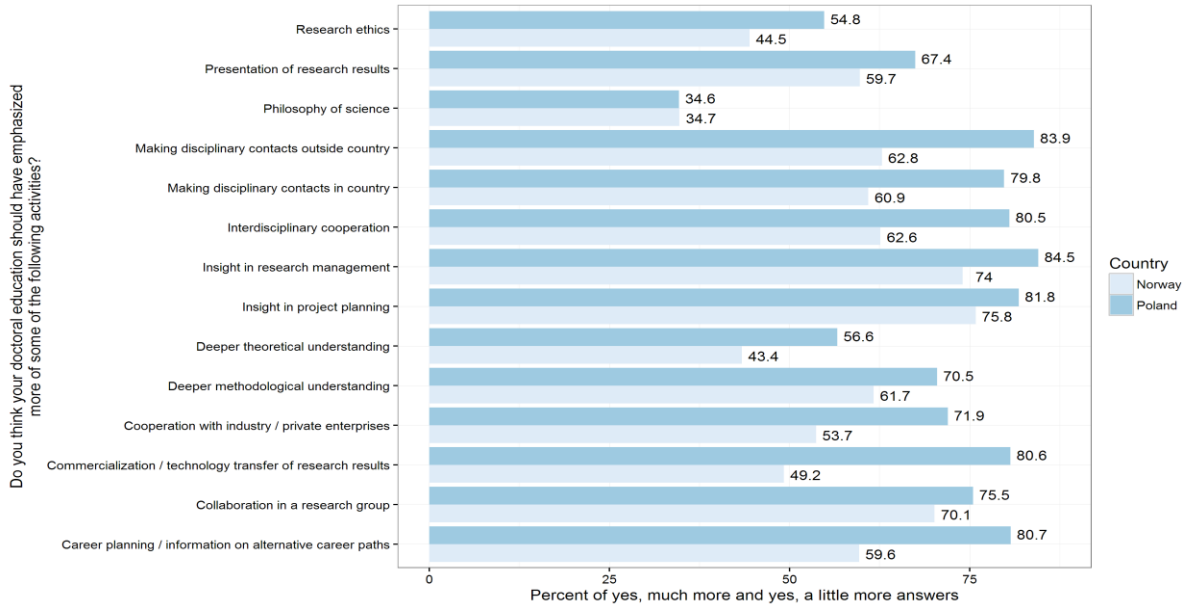
*conf. level = 0.95

In Norway, the differences in correlations between those who work at universities, colleges or in the research sector and those who work elsewhere, are relatively more visible among women than men. The most striking examples include insight into project planning, training in proper presentation of research results, experience with collaboration in a research group, interdisciplinary cooperation, and establishing professional contacts outside Norway. Norwegian female respondents working outside academia or research are the category where the greatest gaps between the doctoral education and the requirements of the current workplace were observed.

1.5 Shortcomings of doctoral education in Poland and Norway

The respondents in Poland are much less satisfied with the content of their doctoral education than their Norwegian counterparts (see Figure 7). The great majority of Polish respondents pointed out that their doctoral programme should have emphasised more such activities as: research management, making disciplinary contacts outside the country, project planning, career planning and information about alternative career paths, commercialisation and technology transfer of research results, interdisciplinary cooperation, as well as professional networking in the country. The Norwegian respondents would improve doctoral education primarily in terms of project planning, research management and collaboration in a research group. It seems that doctoral education in Norway is seen by our respondents as more satisfying as regards establishing professional relations in and outside the country, as well as collaboration with other sectors and partners outside academia.

Figure 7. Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: "yes, much more" and "yes, a little more"), in %.



The correlation analysis between the types of knowledge and experience gained during the doctoral period and the respondents' opinions about the types of knowledge and experience which should have been more present in their doctoral education confirms the observations described above (see Table 10).

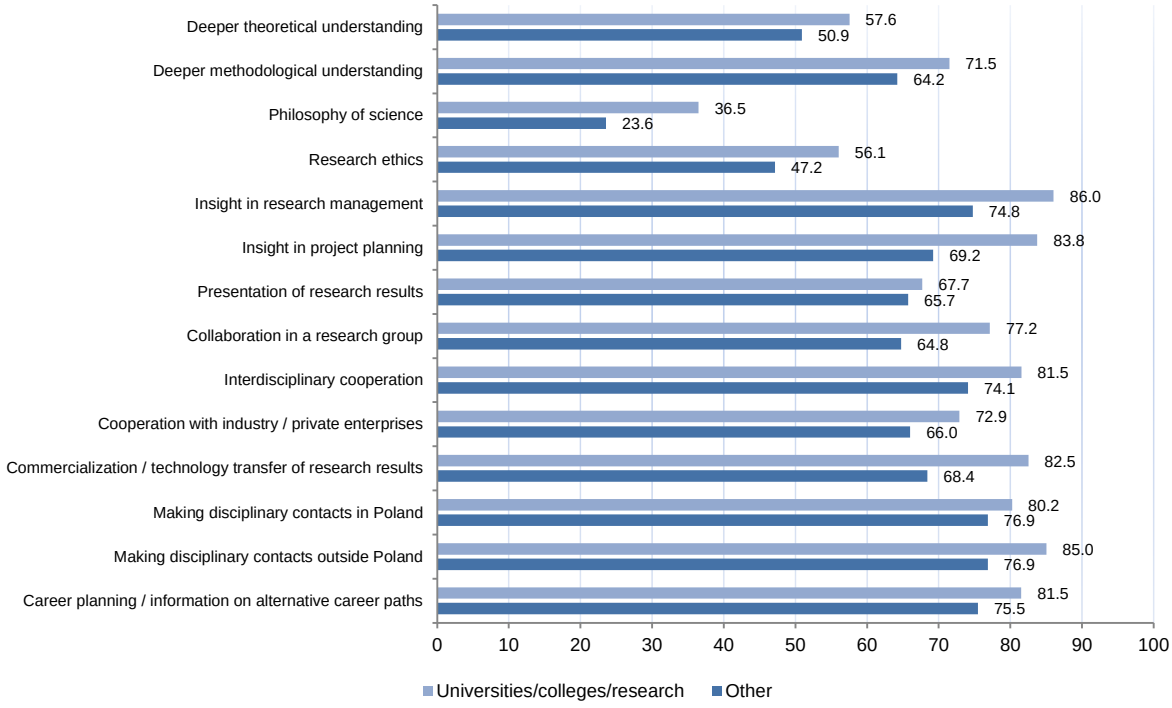
Table 10. Correlation between assessment of education during doctoral period and q32 "With regard to your work tasks in your present main position, do you think your doctoral education should have emphasised more of some of the following activities?"

Poland	Item	Norway
-0.195	Theoretical training	-0.420
-0.287	Methodological training	-0.418
-0.182	Insight into research management	-
-0.130	Insight into project planning	-0.144
-0.109	Training in proper presentation of research results	-0.205
-0.216	Experience with collaboration in a research group	-0.269
-0.109	Experience with interdisciplinary cooperation	-0.131
-	Experience in cooperating with industry / private enterprises	-
-0.145	Important disciplinary contacts in country	-0.242
-0.118	Important disciplinary contacts outside country	-0.225

*conf. level = 0.95

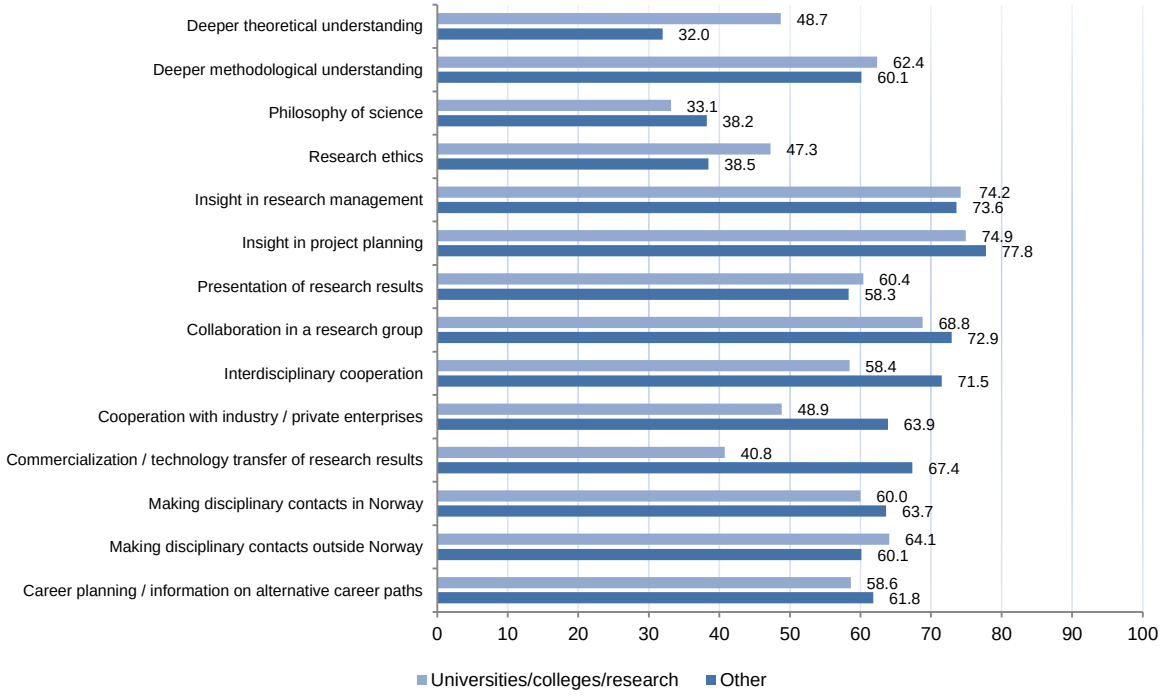
In Poland, the respondents currently working at universities, colleges or the research sector seem to be relatively less happy with their counterparts working elsewhere, however the differences are not striking (see Figure 8). The largest differences concern insight into research management and commercialisation / technology transfer of research results.

Figure 8. Poland: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: "yes, much more" and "yes, a little more"), by the type of the current workplace, in %.



In Norway, the interesting differences between those working in academia or research and elsewhere are related to the cooperation with the private sector (see Figure 9).

Figure 9. Norway: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: "yes, much more" and "yes, a little more"), by the type of the current workplace, in %.



In Poland, no particular gender differences were observed in terms of the types of competences which should be more emphasised in the doctoral education. However, in comparison with their female counterparts, men working outside academia or research more often pointed out the following activities: deeper theoretical and methodological understanding; and collaboration in a research group. The type of the respondents' current workplace does not much affect the answers among Polish women and men, except for the methodological understanding, insight into project planning, and the commercialisation/technology transfer of research results, which were mentioned more often by female PhD graduates working at the universities, colleges or research than their counterparts working elsewhere (see Annex, figures 20A and 21A). In Norway, the type of the current workplace clearly affects the answers related to cooperation with the private sector. Both male and female respondents working outside academia or research, in comparison with their counterparts working at universities, colleges or the research sector, more often pointed out that the cooperation with industry and private enterprises as well as commercialisation/transfer of technology results should have been more emphasised in the doctoral education. Some gender differences were observed only among those who work in academia or the research sector. Such issues as insight into research management, interdisciplinary cooperation, establishing disciplinary contacts in Norway and career planning/providing information on alternative career paths were mentioned relatively more often by women than men (see Annex, figures 22A and 23A).

The correlation analysis between the types of knowledge and experiences gained during the doctoral period and the respondents' opinions about the types of knowledge and experience which should have been more present in their doctoral education depending on the type of their current workplace confirms the observations described above (see Table 11). It seems that the discrepancies in terms of knowledge gained and needed are relatively smaller in the case of Norwegian respondents, especially those who work at the universities, colleges or in the research sector.

Table 11. Correlation between assessment of education during doctoral period and q32 "With regard to your work tasks in your present main position, do you think your doctoral education should have emphasised more of some of the following activities?" by country and the type of the current place of work (University/college/research vs. Other).

Poland		Item	Norway	
University/college /research	Other		University/college /research	Other
-0.197	-0.211	Theoretical training	-0.469	-0.287
-0.294	-0.296	Methodological training	-0.446	-0.400
-0.192	-0.139	Insight into research management	-0.093	0.033
-0.185	0.177	Insight into project planning	-0.121	-0.158
-0.153	0.118	Training in proper presentation of research results	-0.192	-0.233
-0.232	-0.208	Experience with collaboration in a research group	-0.368	-0.036
-0.117	-0.089	Experience with interdisciplinary cooperation	-0.139	-0.093
0.018	-0.060	Experience in cooperating with industry / private enterprises	0.107	-0.078
-0.141	-0.170	Important disciplinary contacts in country	-0.305	-0.102
-0.138	-0.076	Important disciplinary contacts outside country	-0.284	-0.123

*conf. level = 0.95

The similar trends are observed after including the gender factor to the correlation analysis (see Table 12). Apart from that, there are no striking differences between women and men according to their current place of work.

Table 12. Correlation between assessment of education during doctoral period and q32 "With regard to your work tasks in your present main position, do you think your doctoral education should have emphasised more of some of the following activities?" by country, gender and the type of the current place of work (University/college/research vs. Other).

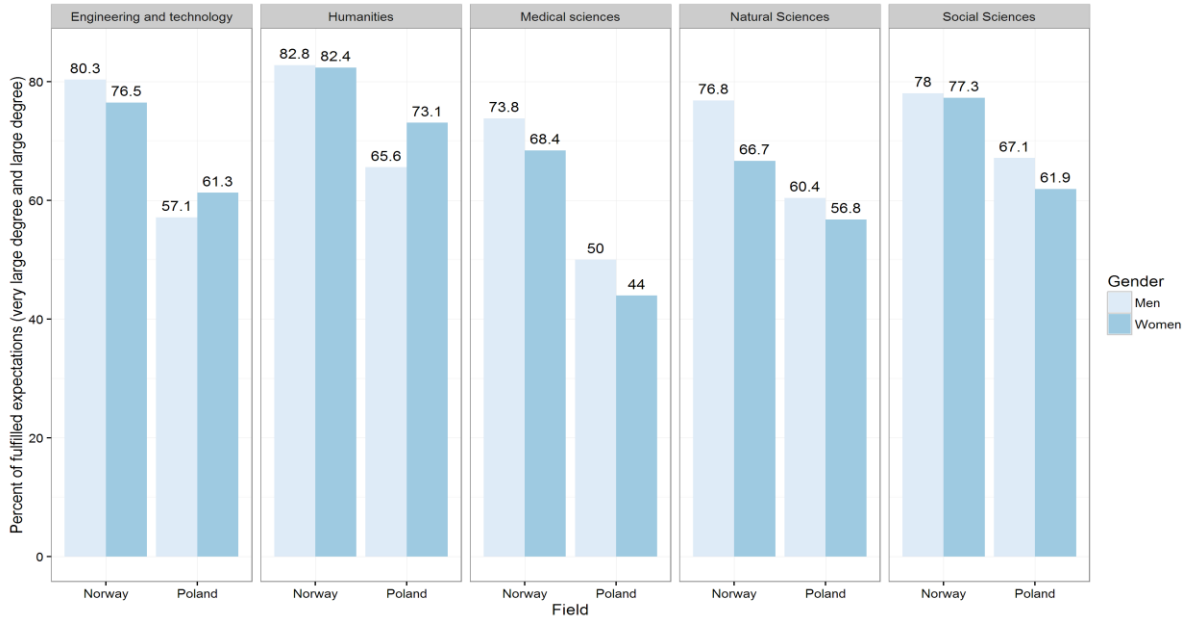
Poland				Item	Norway			
Women		Men			Women		Men	
University/ college/ research	Other	University/ college/ research	Other		University/ college/ research	Other	University/ college/ research	Other
-0.120	-0.100	-0.270	-0.339	Theoretical training	-0.484	-0.149	-0.453	-0.344
-0.267	-0.291	-0.319	-0.288	Methodological training	-0.464	-0.326	-0.430	-0.430
-0.191	-0.200	-0.197	-0.081	Insight into research management	-0.154	0.116	-0.062	-0.015
-0.188	0.152	-0.185	0.223	Insight into project planning	-0.228	-0.177	-0.072	-0.151
-0.185	0.030	-0.122	0.234	Training in proper presentation of research results	-0.190	-0.265	-0.202	-0.219
-0.282	-0.452	-0.175	0.056	Experience with collaboration in a research group	-0.313	-0.061	-0.394	-0.023
-0.234	-0.273	0.005	0.078	Experience with interdisciplinary cooperation	-0.146	-0.178	-0.130	-0.051
0.008	-0.207	0.041	0.052	Experience in cooperating with industry / private enterprises	0.117	0.191	0.132	-0.202
-0.169	-0.099	-0.106	-0.261	Important disciplinary contacts in country	-0.383	-0.170	-0.234	-0.071
-0.205	-0.069	-0.071	-0.085	Important disciplinary contacts outside country	-0.267	-0.129	-0.273	-0.142

*conf. level = 0.95

1.6 Doctoral period: expectations and reality

The Norwegian PhD graduates are more satisfied with their doctoral period than their Polish counterparts. 75.3 per cent of Norwegian respondents (72.86% of women and 76.98% of men) and 58.8 per cent of Polish respondents (57% of women and 60.57% of men) indicated that, from today's perspective, the doctoral programme met their expectations. These tendencies are observed regardless of the field of science (see Figure 10). In most cases, male PhD graduates are more satisfied with their doctoral period than their female counterparts. The exceptions are Polish women who obtained their PhD degree in Engineering and Technology, and Humanities. The former is traditionally highly masculinised field, while the latter is highly feminised.

Figure 10. In retrospect, were your expectations to the doctoral period fulfilled? (answers: "to a very large" and "large" degree), in %.



Taking into account the type of the respondents' current workplace, it is clear that the Norwegian PhD graduates are almost equally satisfied with their doctoral education regardless of their current

professional position (see Table 13). The least happy with their doctoral period are the Polish respondents working outside universities, colleges or the research sector.

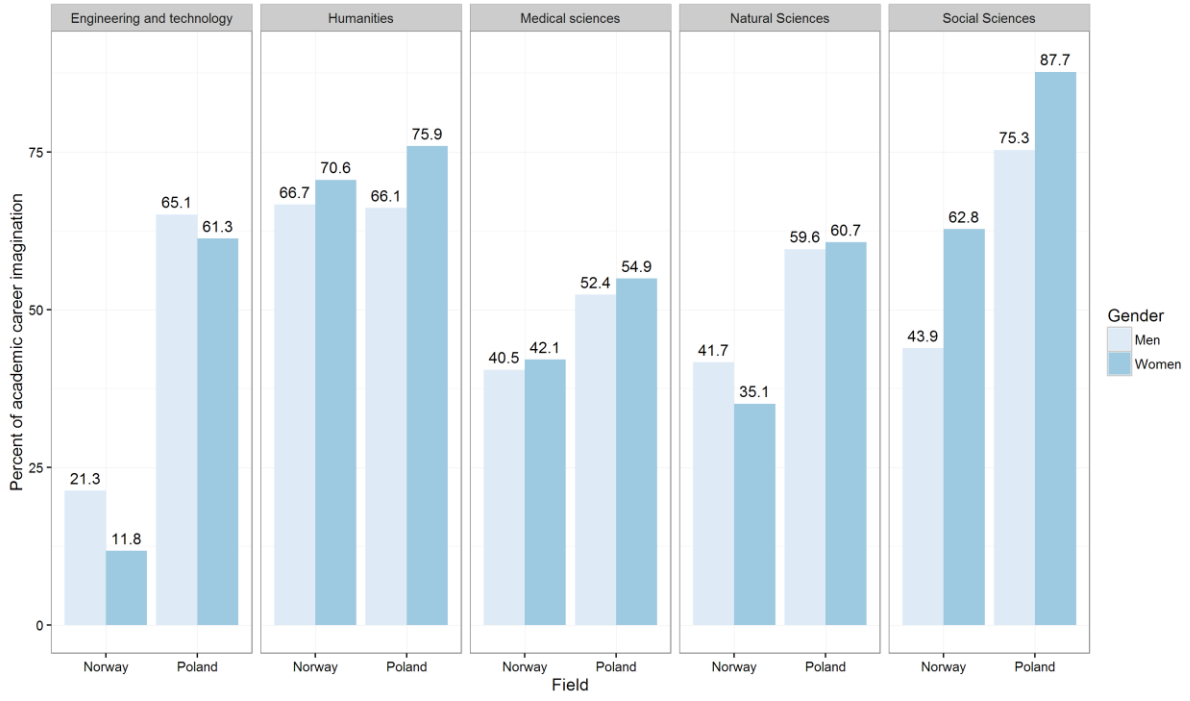
Table 13. In retrospect, were your expectations to the doctoral period fulfilled? By country and the type of current workplace.

	Poland				Norway			
	University/college/ Research		Other		University/college/ research		Other	
	N	%	N	%	N	%	N	%
To a very large degree	165	24.55	13	11.21	75	23.29	24	15.48
To a large degree	259	38.54	26	22.41	178	55.28	82	52.90
To some degree	202	30.06	43	37.07	68	21.12	42	27.10
To a little degree	34	5.06	22	18.97	1	0.31	5	3.23
Not at all	12	1.79	12	10.34	0	0.00	2	1.29
Total	672	100.00	116	100.00	322	100.00	155	100.0

1.7 Role of PhD programmes in Poland and Norway

The traditional image of career at the beginning of doctorate was definitely dominant among the Polish graduates (see Figure 11). About 70 per cent of both women and men wanted to stay at the university – in Norway, this group was also the most numerous, but it was much smaller (46.6% women and 39.6% men). In Norway, the group of those wanting to work in non-academic research institutions was much bigger in comparison with Poland. In both countries, such intent was expressed by men more often than women. More than 10 per cent of all respondents in both countries wanted to work elsewhere (not in any of the institutions listed), and this percentage was the highest among the male PhD graduates in Norway (18.57%).

Figure 11. When you started your doctoral period, which career did you see for yourself? (Academic career), in %.



The comparison of the plans preceding commencement of work on their doctoral thesis and the situation of PhD graduates five years after they earned their degree shows that their plans were realistic. In Poland, as well as Norway, similar numbers of people became employed by institutions in

which they wanted to work when starting their doctorate. In Poland, more than 71 per cent of women and 72 per cent of men indicated working for universities, with 29 per cent of women and 28 per cent of men indicating working for other types of institutions. In Norway this distribution is different: 46 per cent of women and 38 per cent of men found jobs at the university/institution where they earned their PhD, while more than half (50% of women and 55% of men) in other institutions. The regression analysis on chosen factors affecting the fulfilment of expectations concerning professional work after obtaining the PhD degree is displayed in the Annex (see Tables 16A and 17A). In Poland, the fulfilment of such expectations is clearly related to the field of science in which our respondents obtained their doctoral degrees, whereas in Norway we do not observe such patterns.

Our data show that the individual concept of earning a PhD as a way to get a satisfactory job in Norway is closer to the function of PhD studies, which has been popularised in the recent years – to secure highly qualified human resources for the economy, not only for teaching and research as before. Those planning to complete doctoral studies are aware of the possibility of getting different types of jobs, and, in fact, they often get them, although in writing this, we are aware of the fact that the studied populations of PhD graduates are not representative in either country, and, probably, some of our respondents do not work where they wanted to. In this paper we are not describing differences in educational systems at the third level in Norway and Poland which influence the conditions in which students are studying and looking for jobs. The basic difference is the degree of financing of the PhD studies: in Norway they are fully covered by the state, while in Poland only in some cases. Also, the Norwegian government finances study abroad related to doctoral dissertations, while in Poland this rarely happens. These differences have to be a subject of a separate paper.

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Appendix

Table 14A. Respondents' enrolment in the doctoral programme while working on your PhD dissertation. By country, gender and the field of science (N,%).

Field of science		Poland				Norway			
		Women		Men		Women		Men	
		N	%	N	%	N	%	N	%
Humanities	Yes	50	63.29	46	74.19	30	88.24	25	83.33
	No	29	36.71	16	25.81	4	11.76	5	16.67
Social sciences	Yes	41	63.08	43	58.90	43	97.73	35	85.37
	No	24	36.92	30	41.10	1	2.27	6	14.63
Natural sciences	Yes	67	79.76	44	84.62	49	89.09	75	79.79
	No	17	20.24	8	15.38	6	10.91	19	20.21
Engineering and technology	Yes	26	83.87	67	63.21	14	87.50	53	89.83
	No	5	16.13	39	36.79	2	12.50	6	10.17
Medical sciences	Yes	35	38.46	23	54.76	34	89.47	34	80.95
	No	56	61.54	19	45.24	4	10.53	8	19.05
Total	Yes	219	62.57	223	66.57	170	90.91	222	83.46
	No	131	37.43	112	33.43	17	9.09	44	16.54

Table 15A. Type of the respondents' current main workplace by country, gender and the field of science.

Imagined type of professional career	Poland						Norway					
	Women		Men		Total		Women		Men		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
HUMANITIES												
Universities/colleges	63	79.75	42	67.74	105	74.47	23	67.65	20	66.67	43	67.19
Research institutes	6	7.59	2	3.23	8	5.67	3	8.82	5	16.67	8	12.50
Other	10	12.66	18	29.03	28	19.86	8	23.53	5	16.67	13	20.31
Total	79	100.00	62	100.00	141	100.00	34	100.00	30	100.00	64	100.00
SOCIAL SCIENCES												
Universities/colleges	56	86.15	56	76.71	112	81.16	28	63.64	22	53.66	50	58.82
Research institutes	2	3.08	2	2.74	4	2.90	12	27.27	10	24.39	22	25.88
Other	7	10.77	15	20.55	22	15.94	4	9.09	9	21.95	13	15.29
Total	65	100.00	73	100.00	138	100.00	44	100.00	41	100.00	85	100.00
NATURAL SCIENCES												
Universities/colleges	50	59.52	41	78.85	91	66.91	18	31.58	30	31.25	48	31.37
Research institutes	24	28.57	6	11.54	30	22.06	21	36.84	33	34.38	54	35.29
Other	10	11.90	5	9.62	15	11.03	18	31.58	33	34.38	51	33.33
Total	84	100.00	52	100.00	136	100.00	57	100.00	96	100.00	153	100.00
ENGINEERING AND TECHNOLOGY												
Universities/colleges	24	77.42	84	79.25	108	78.83	5	29.41	10	16.39	15	19.23
Research institutes	4	12.90	12	11.32	16	11.68	3	17.65	11	18.03	14	17.95
Other	3	9.68	10	9.43	13	9.49	9	52.94	40	65.57	49	62.82
Total	31	100.00	106	100.00	137	100.00	17	100.00	61	100.00	78	100.00
MEDICAL SCIENCES												
Universities/colleges	63	69.23	27	64.29	90	67.67	19	50.00	25	59.52	44	55.00
Research institutes	7	7.69	1	2.38	8	6.02	8	21.05	4	9.52	12	15.00
Other	21	23.08	14	33.33	35	26.32	11	28.95	13	30.95	24	30.00
Total	91	100.00	42	100.00	133	100.00	38	100.00	42	100.00	80	100.00
TOTAL												
Universities/colleges	256	73.14	250	74.63	506	73.87	93	48.95	107	39.63	200	43.48
Research institutes	43	12.29	23	6.87	66	9.64	47	24.74	63	23.33	110	23.91
Other	51	14.57	62	18.51	113	16.50	50	26.32	100	37.04	150	32.61
Total	350	100.00	335	100.00	685	100.00	190	100.00	270	100.00	460	100.00

Table 16A. Poland: Fulfilment of expectations concerning work. The linear regression model.

	Est.	Sig.
(Intercept)	52.734	***
Men	-4.149	
Social Sciences	19.538	*
Natural Sciences	2.671	
Engineering and technology	-3.696	
Medical sciences	-13.806	.
Men: Social Sciences	-1.060	
Men: Natural Sciences	14.702	
Men: Engineering and technology	31.316	*
Men: Medical sciences	5.846	

Poland; R^2: 0.085 ;df: 10 ;f: 5.774
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 16A. Norway: Fulfilment of expectations concerning work. The linear regression model.

	Est.	Sig.
(Intercept)	18.333	**
Men	4.943	
Social Sciences	8.992	
Natural Sciences	12.470	
Engineering and technology	18.431	.
Medical sciences	13.246	
Men: Social Sciences	-3.518	
Men: Natural Sciences	-5.311	
Men: Engineering and technology	-8.656	
Men: Medical sciences	-5.424	

Norway; R^2: 0.014 ; df: 10 ;f: 0.672
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Figure 12A. Norway: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to very large" and "large" degree), by the type of the current workplace. Female respondents, in %.

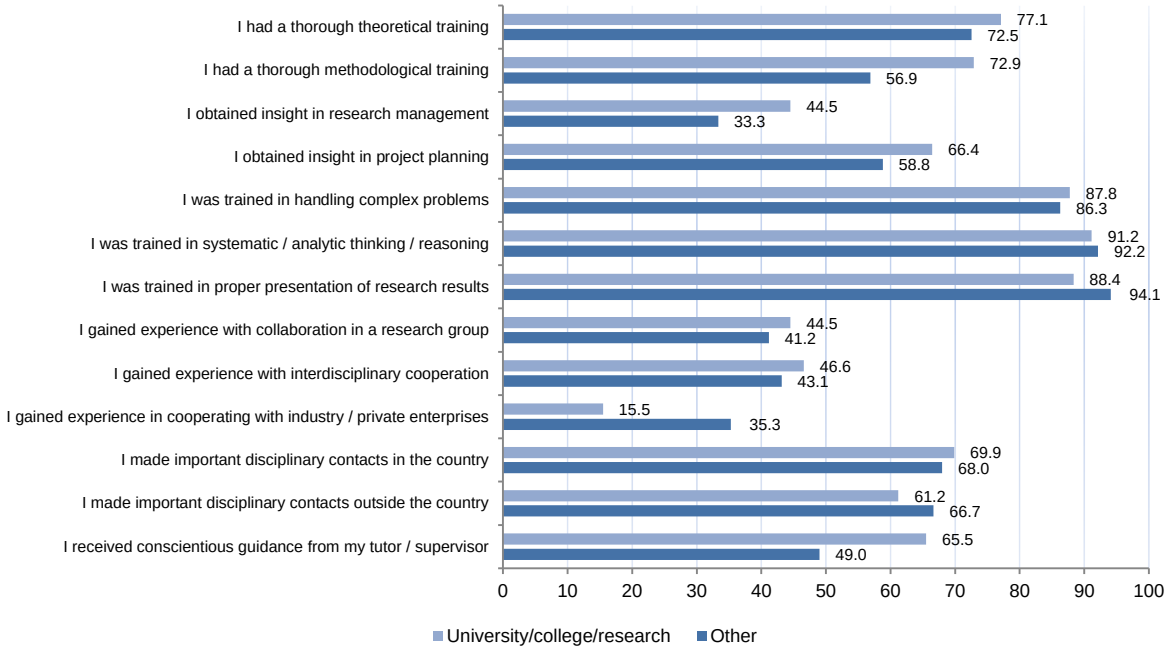


Figure 13A. Norway: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to very large" and "large" degree), by the type of the current workplace. Male respondents, in %.

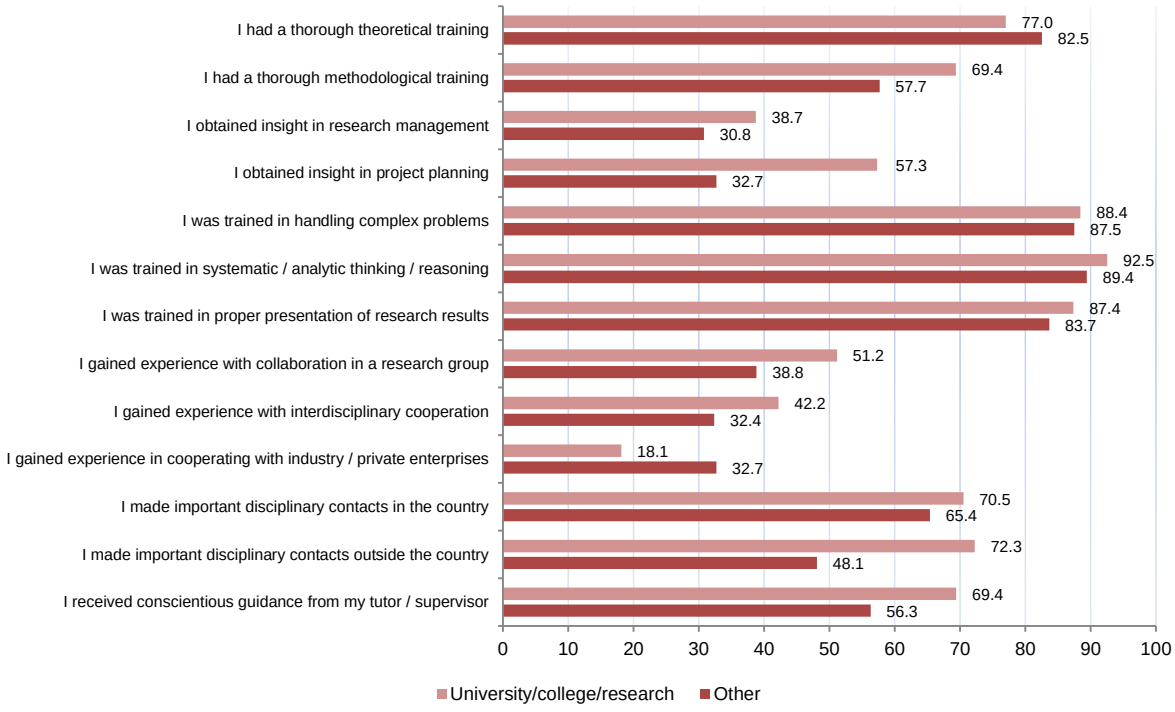


Figure 14A. Poland: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to very large" and "large" degree), by the type of the current workplace. Female respondents, in %.

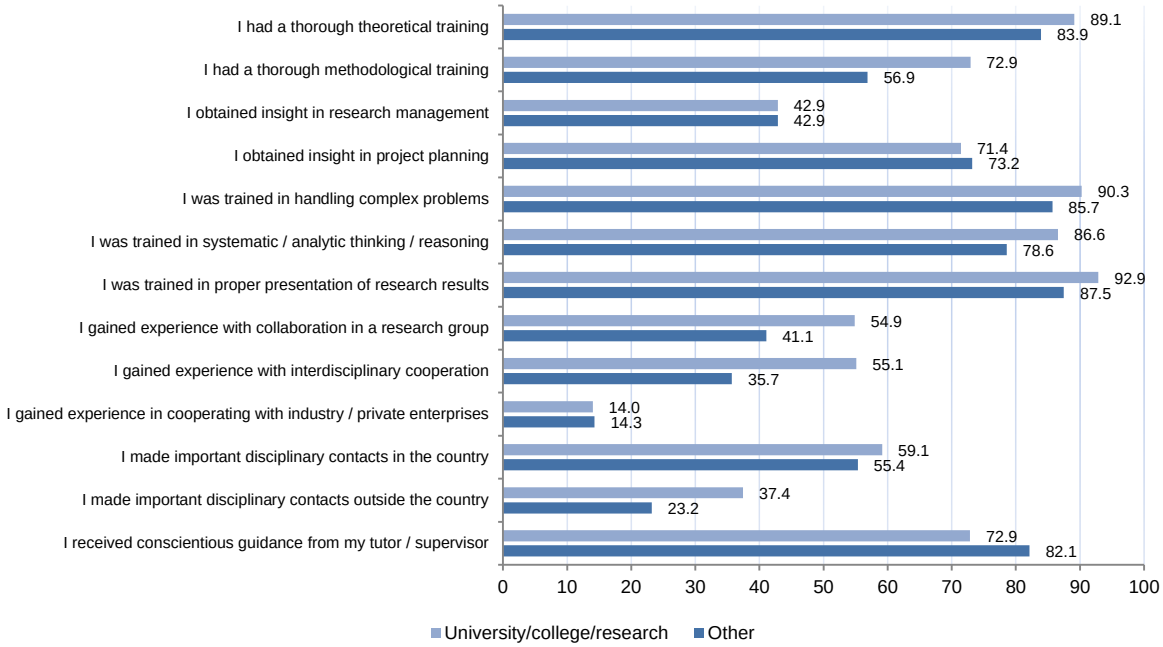


Figure 15A. Poland: Evaluation of knowledge, skills and competences received during the doctoral period (answers: "to very large" and "large" degree), by the type of the current workplace. Male respondents, in %.

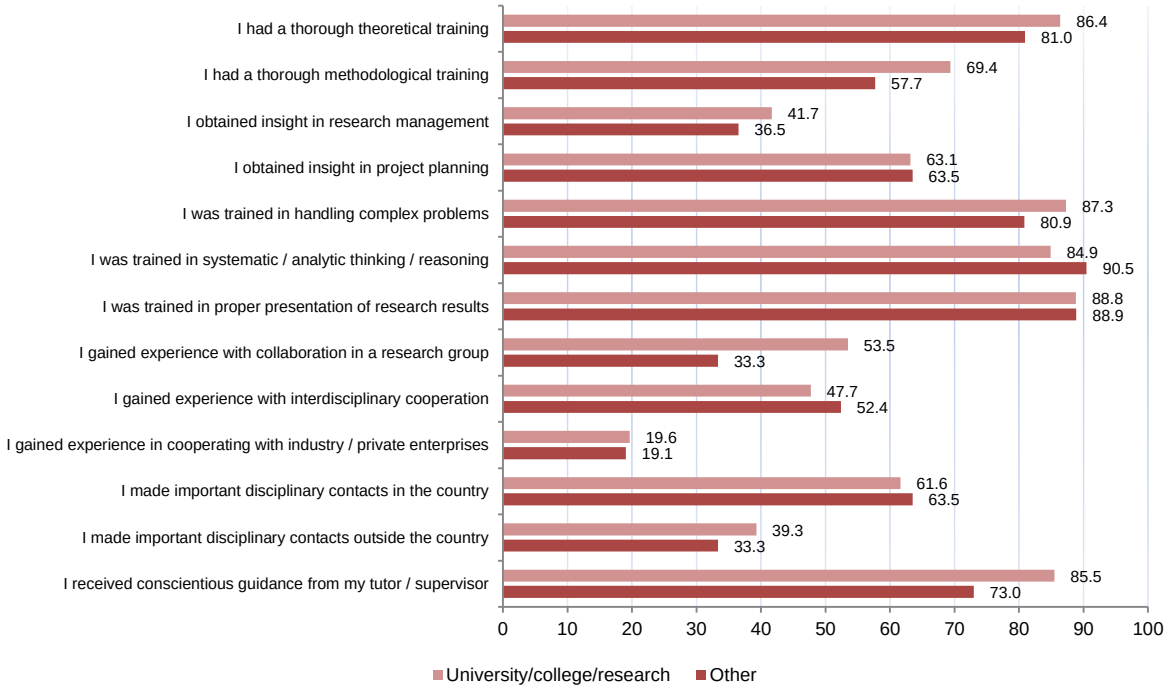


Figure 16A. Poland: To what degree have you benefited from your doctoral degree in your present position? (answers: "to very large" and "large" degree), by the type of the current workplace. Female respondents, in %.

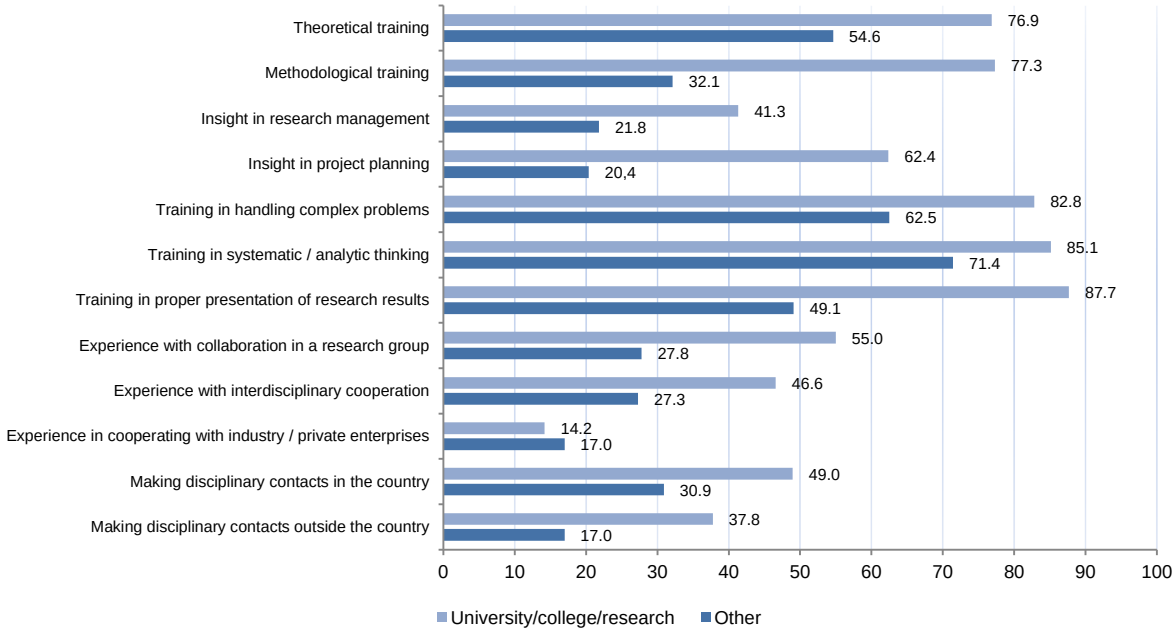


Figure 17A. Poland: To what degree have you benefited from your doctoral degree in your present position? (answers: "to very large" and "large" degree), by the type of the current workplace. Male respondents, in %.

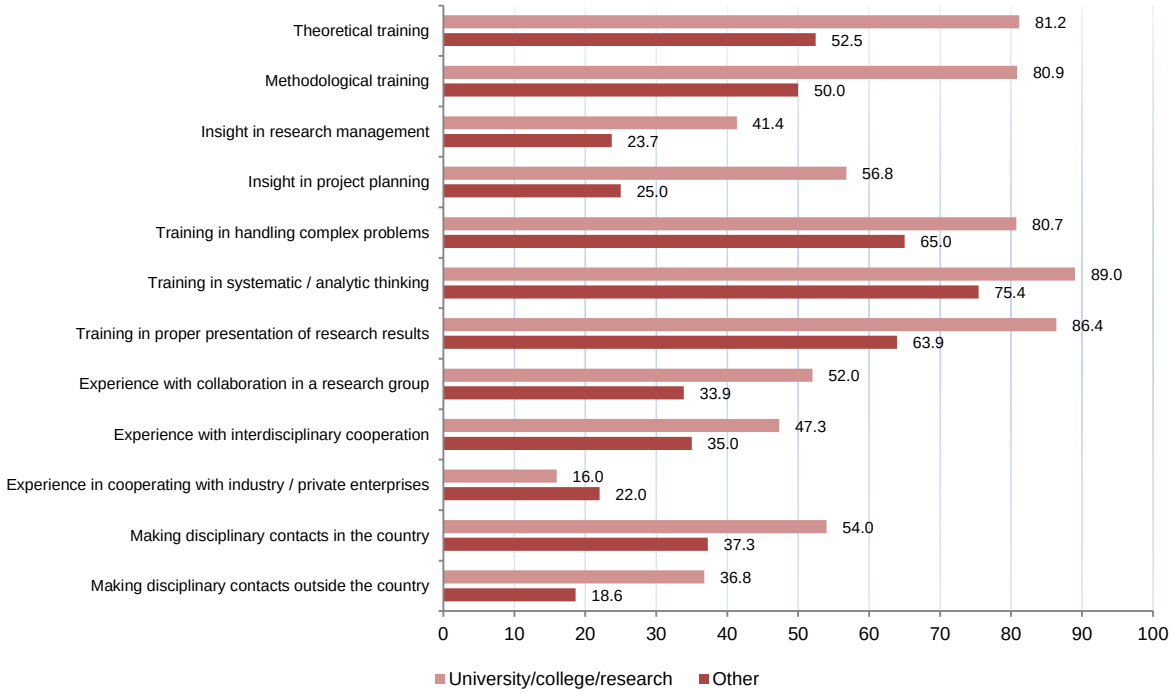


Figure 18A. Norway: To what degree have you benefited from your doctoral degree in your present position? (answers: "to very large" and "large" degree), by the type of the current workplace. Female respondents, in %.

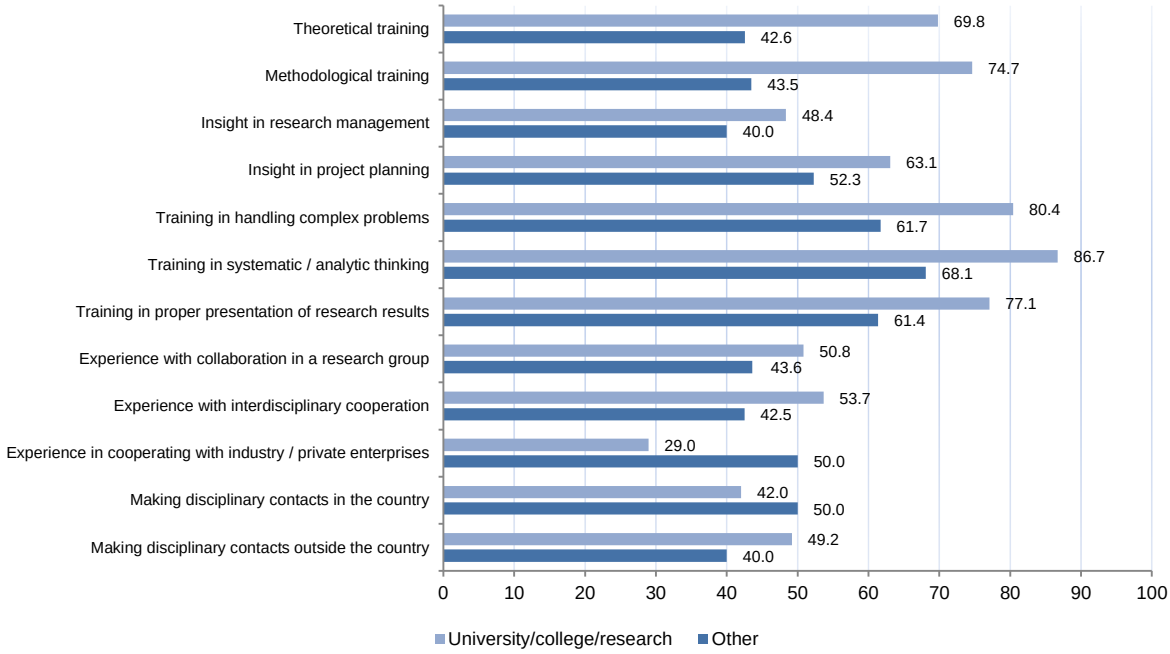


Figure 19A. Norway: To what degree have you benefited from your doctoral degree in your present position? (answers: "to very large" and "large" degree), by the type of the current workplace. Male respondents, in %.

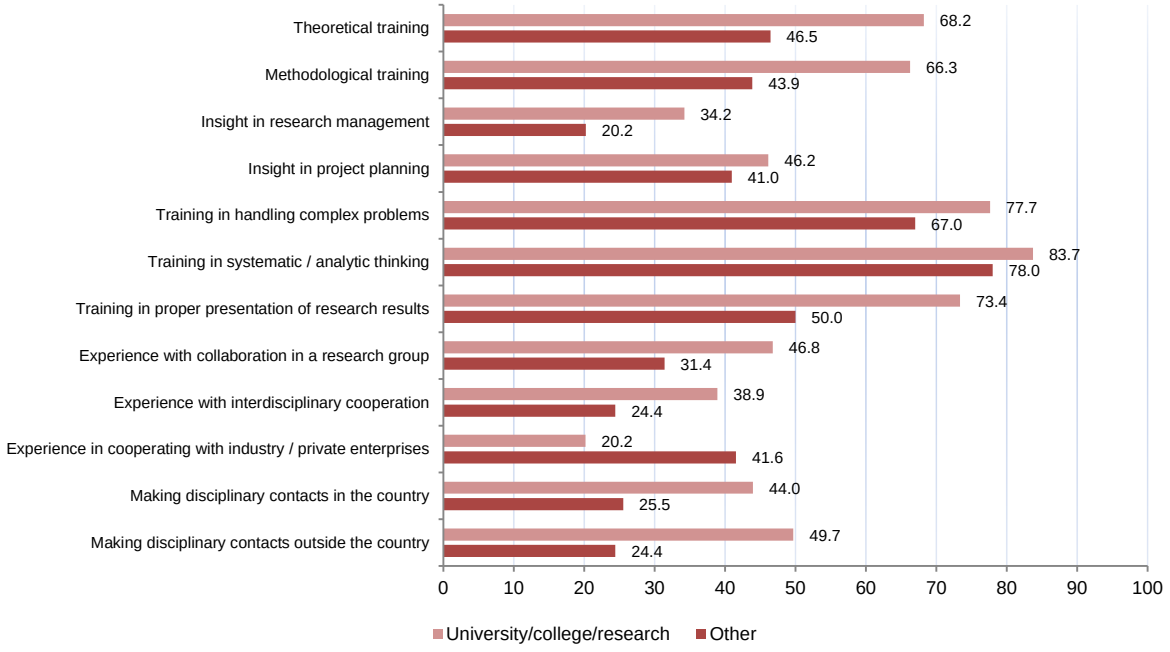


Figure 20A. Poland: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: “yes, much more” and “yes, a little more”), by the type of the current workplace. Female respondents, in %.

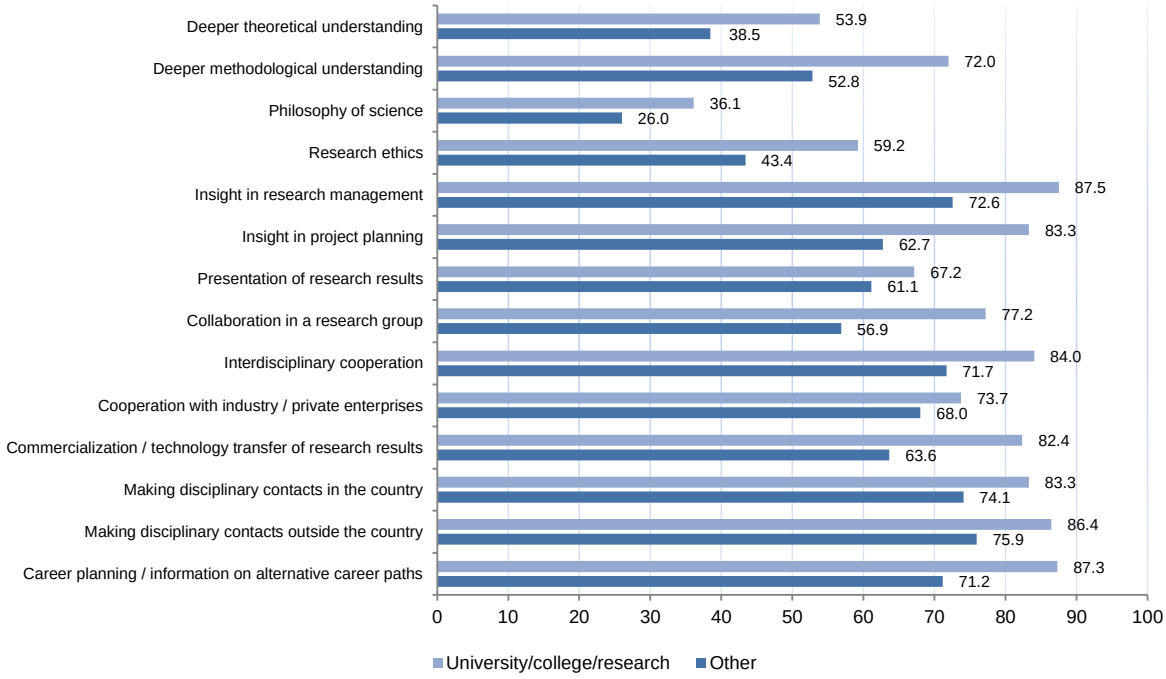


Figure 21A. Poland: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: “yes, much more” and “yes, a little more”), by the type of the current workplace. Male respondents in %.

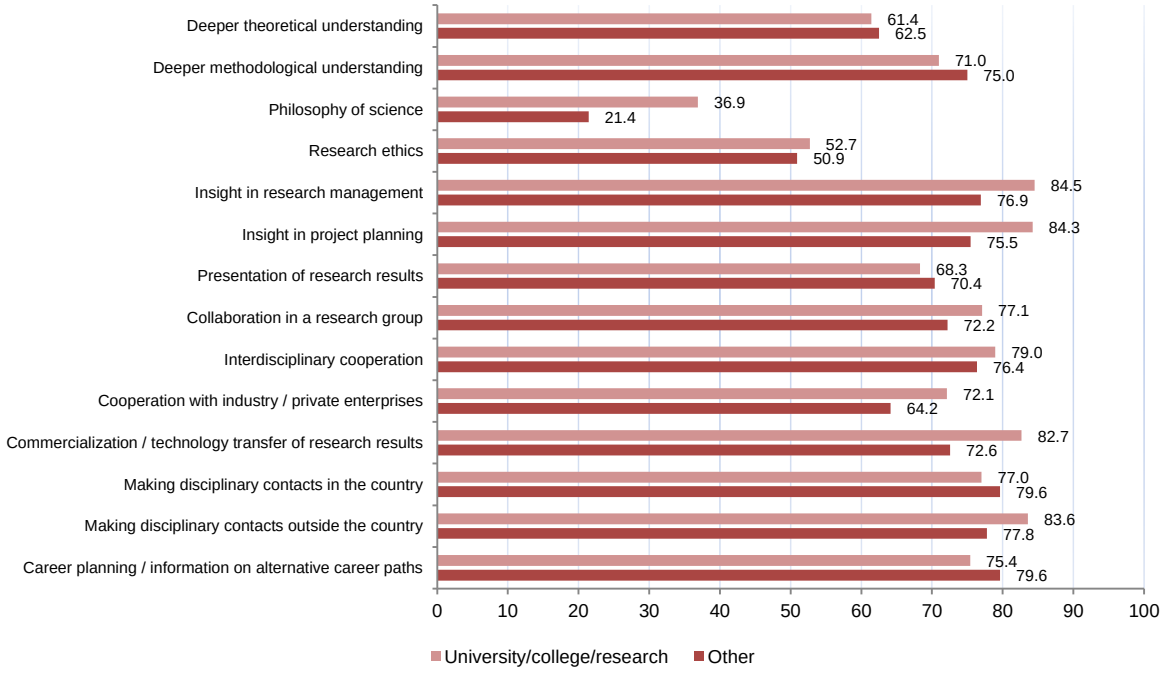


Figure 22A. Norway: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: "yes, much more" and "yes, a little more"), by the type of the current workplace. Female respondents, in %.

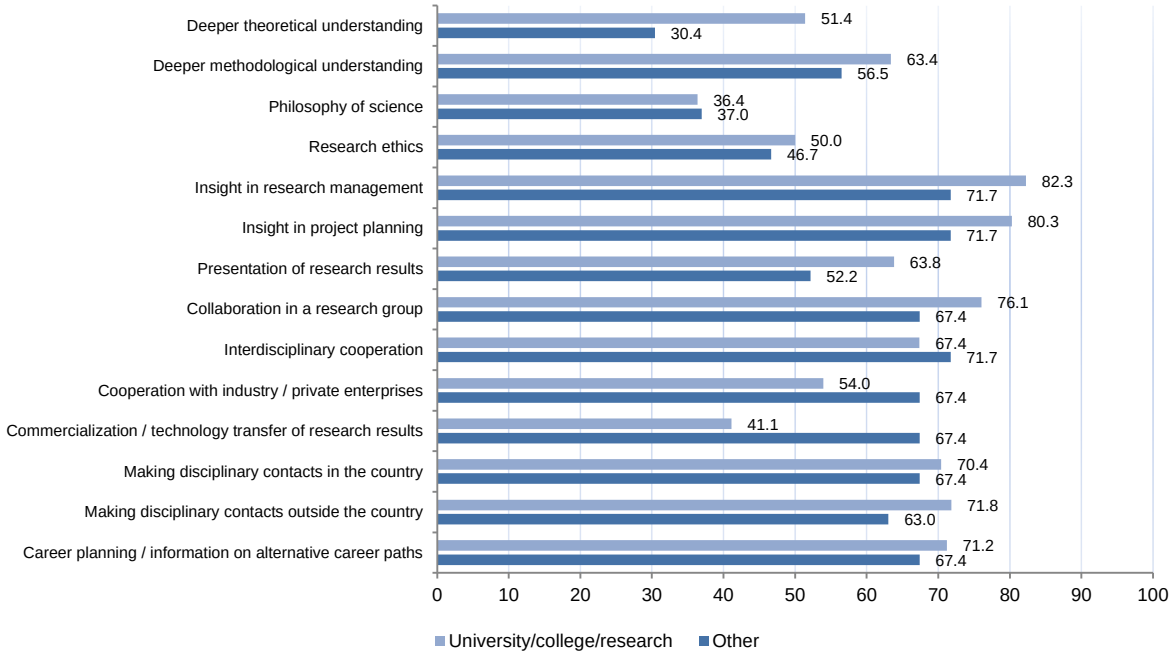
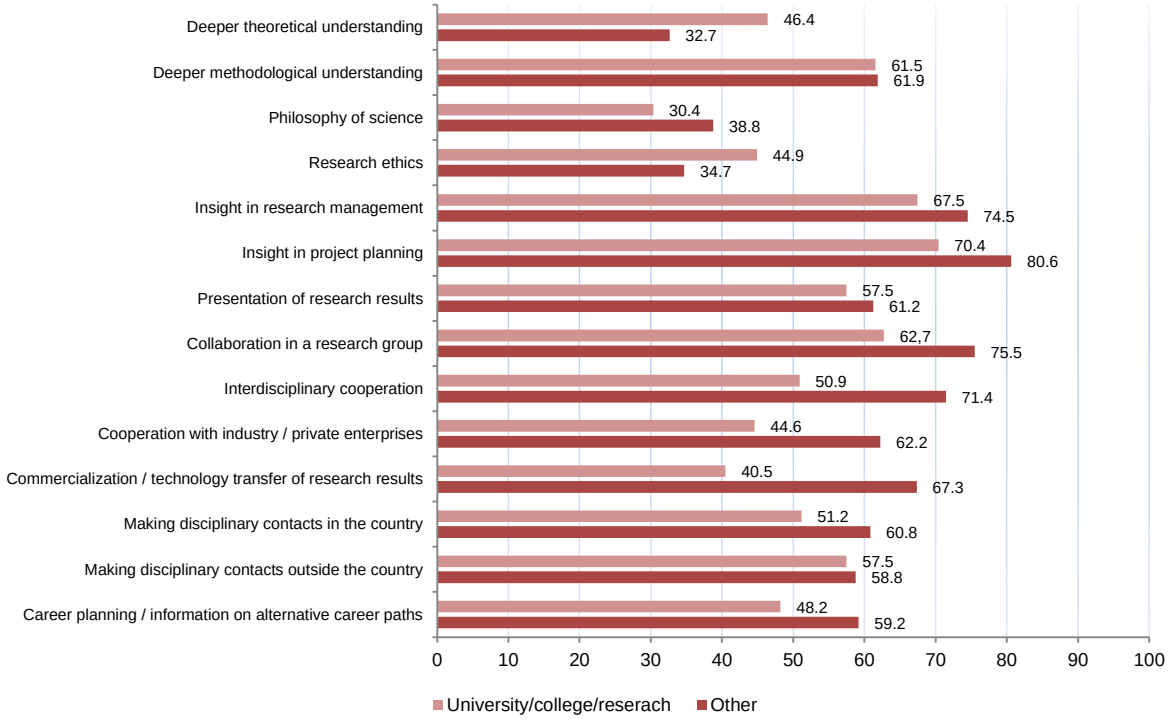


Figure 23A. Norway: Do you think that your doctoral education should have emphasised more of some of the following activities? (answers: "yes, much more" and "yes, a little more"), by the type of the current workplace. Male respondents, in %.



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