



Doctorateness across Higher Education Institutions in Norway

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Abstract

This article investigates doctorateness in Norway by evaluating the juridical regulations for doctoral studies at all PhD-awarding universities and university colleges according to the following categories: admission, compulsory training, the PhD dissertation, supervision and evaluation, and completion. Descriptive qualitative document analyses were applied. As such, the article contributes to the growing field of knowledge on the assessment of PhD education. The findings indicate that the majority of the PhD regulations align on several descriptors of doctorateness. However, the article suggests improving the reliability of doctorateness by standardizing and unifying some areas in the regulations.

Keywords

Doctoral education, doctorateness, PhD, doctorate, PhD regulations

Introduction

PhD education (philosophiae doctor, PhD) has undergone major changes (Geschwind, 2018; Gudmundsson, 2008; Krumsvik, 2016a; Park, 2005). From being considered the pinnacle of one's career, where one obtained a PhD degree, the highest academic degree possible at the end of one's professional career, it has become more common to consider a PhD degree as a certification early in one's career (Baptista, 2011; Kehm, 2006). Both internationally and in Norway, there is more focus on research schools, mid-term evaluations,

annual reports of progression, research groups and the process of supervision (Kehm, 2005). There are also more students doing their PhDs by publication rather than monographs. The changes have led to more PhD students graduating (Kyvik & Olsen, 2014). However, there have been calls for clearer guidelines for the PhD process, including assessment criteria, in order to enhance transparency and predictability (Jones, 2013; Krumsvik, Øfstegaard & Jones, 2016; Morley, 2002; Taylor & Beasley, 2005; Tinkler & Jackson, 2004). Similar to the international context, an evaluation of PhD education in Norway indicates that the PhD regulations are unclear (Thune et al., 2012).

To our knowledge, there are few systematic studies of PhD education across a variety of disciplines among all institutions in a Nordic country (Nordic Council of Ministers, 2019). In Finland and Sweden, the whole doctoral educational system has been reformed or transformed (Ahola & Hoffman, 2012) following many of the European changes in PhD education development (Geschwind, 2018). The present article is a small contribution to the Nordic context by shedding light on the similarities and differences across all PhD-awarding higher education institutions in Norway regarding processes and products involved in a PhD education, also known as *doctorateness*. The purpose is to compare doctorateness across institutions in Norway and discuss possible strengths and weaknesses in relation to theories of, and empirical research on, doctorateness.

Doctorateness

Doctorateness is a part of the academic environment at a university or university college's educational context. This academic educational context in higher education has some typical hallmarks that color the context and give the PhD students some typical ways of being. The term doctorateness is relatively new, used the last 10–15 years, with its origin in the UK (Poole, 2015). According to Wellington (2013), the meaning of the term varies with time, and between countries and across disciplines. One could look for common features among the large diversity of doctorates (professional doctorates, doctorates in performing arts etc.) available around the world to obtain a better understanding of what doctorateness is. Doctorateness should be used for characteristics common to all or most doctorates. In a PhD dissertation, doctorateness could be assessed by the proportion of the dissertation material that could be published in acknowledged journals. Doctorateness may be viewed as the implicit or tacit knowledge about what it means to pass a standard or threshold. As pointed out by Trafford and Leshem, although PhD students “may not use the term doctorateness to describe how they view doctoral quality, it can explain their tacit understanding of this process” (Trafford & Leshem, 2009, p. 310). Trafford and Leshem's definition of doctorateness is more related to the PhD dissertation than to the PhD student (Poole, 2015). The term could also be viewed as reflecting both the doctoral research and the educational/personal development process during the doctorate period (Wellington, 2013). In this article, the term doctorateness is an overall concept which also includes the PhD educational programs.

Juridical PhD regulations

All Norwegian higher education institutions have their own juridical *regulations* for PhD education (available online at The Lovdata Foundation, 2014). These regulations complement the Norwegian laws. Its areas of responsibility include quality assessment of Norwegian universities, university colleges and colleges of tertiary vocational education, and assessment of foreign higher education, by internal quality system and strategy for educa-

tional activities qualification at the institutional level. One example is the regulations of the PhD education at the University of South-Eastern Norway (USN), which regulate all PhD programs at USN. At a lower level than the juridical regulations, the specific PhD programs have their own *guidelines* where the more discipline-specific norms and requirements are given. The guidelines are more divergent than the regulations across institutions. In contrast to the regulations, the program guidelines do not have a juridical status. In 2003, the Norwegian government established The Norwegian Agency for Quality Assurance in Education – NOKUT, as part of the Quality Reform (2002–2003). This agency has systematic quality investigations to ensure that the institutions have a sufficient quality strategy, how this quality strategy is followed up and ensure that each program (including the PhD-programs) is based on the juridical regulations in the Norwegian law. According to Kehm’s comparative analysis (Kehm, 2006, p. 67) of doctoral education in Europe and North America:

It has become clear, through these roughly sketched developments, that doctoral education and training is no longer exclusively regarded as the disinterested pursuit of knowledge, but that the generation of new knowledge has become both an important strategic resource and a factor in a country’s economy. Thus policy makers have begun to scrutinize doctoral education and training, and as a result universities have been requested to develop institutional strategies to improve it, rather than leaving it in the hands of individual professors or departments.

In other words, the juridical status of the PhD regulations across institutions in Norway has a dimension of accountability. Each university or university college is accountable to its owner, i.e. most often the government in Norway, with regards to following the regulations.

The authors of this article work at the same university in Norway, at three different faculties and five different departments, representing the humanities, social sciences, technology, health care and natural sciences. They are all PhD supervisors, and involved in developing PhD programs. Our discussions in a cross-disciplinary PhD supervisor’s course at the university made us realize the need for knowledge on the variation of juridical regulations across disciplines. As Kehm’s comparative study indicates, PhD education is an important issue for a country’s “... competitive and dynamic knowledge-based economy in the world” (2006, p. 67). Knowledge of juridical regulations across disciplines needs to be transparent in order to identify variations, similarities and differences and increase the quality of PhD education across disciplines.

Purpose and research questions

The purpose of the present article is to investigate doctorateness at Norwegian PhD-awarding institutions as it is explicated in the national juridical regulations. In other words: how do the national, official, juridical regulations define doctorateness? We do this by posing the following research questions:

What constitutes doctorateness in Norway according to the following established criteria: admission, compulsory training, the PhD dissertation, supervision and evaluation, and completion?

What are the differences in doctorateness among the Norwegian PhD programs, and what may some implications of these differences be?

Methods

A multi-professional research group investigated the regulations of doctoral studies at all PhD-awarding higher education institutions in Norway (The Lovdata Foundation, 2014). The authors' multidisciplinary background is an important factor in the data analysis, contributing to a broad perspective on implications of similarities and differences among PhD regulations.

The authors investigated 18 institutions and 19 PhD regulations in total. One of the institutions, Inland Norway University of Applied Sciences, still has two PhD regulations (HiHm and HiL) despite having merged on January 1, 2017 (see Appendix 1 for a complete list of abbreviations, and description of the institutions). The University of South-Eastern Norway (USN) was used as the benchmark institution.¹ A five-step method was applied in order to extract the similarities and differences in doctorateness across all institutions, through use of descriptive qualitative document analysis (Creswell, 2012). The steps were as following:

Step 1: A table was made in a shared document (Google docs) containing five prominent categories defining doctorateness in the Norwegian regulations: admission, compulsory training, the PhD dissertation, supervision and evaluation, and completion. The categories are based on the structure of the Norwegian juridical regulations (The Lovdata Foundation, 2014).

Step 2: The authors noted important information from the institutions in all five categories. This method allowed all the authors to define the important information independently, as they emphasized different information.

Step 3: All the information was reduced to keywords in a second shared table. For example, "For admission to the PhD education, the applicant should normally have a five-year master's degree, cf. the descriptions in the Qualification Framework's second cyclus" (The Lovdata Foundation, 2014, our translation) was reduced to the keywords "basis for admission". The most frequent finding for "basis for admission" was "MSc" (Master of Science). As the authors emphasized different information in Step 1, they had to complement the first table with the missing information. The process was semi-iterative as the tables were complemented through Steps 1 to 3.

Step 4: The findings and results from the second shared table were summarized. First, the similarities between the 19 PhD regulations were presented, and then the differences between them were described, discussed and summarized in Tables 1–5.

Step 5: The findings and results were verified one final time by one of the authors, who read and checked all the 19 regulations. The verifications were discussed by all the authors when writing up the article.

In total, this five-step method ensured that all institutions were compared equally and sufficiently. In the next section, the categories are presented in the chronological order according to the institutions' regulations listed in the Lovdata Foundation (2014). We refer to Appendix 1 for a list of abbreviations, in alphabetical order, for the ease of reading.

Findings

The findings of this study are presented according to the five categories of doctorateness in the Norwegian PhD regulations: admission, compulsory training, the PhD dissertation, supervision and evaluation, and completion.

1. There are several changes occurring in the PhD programs at Norwegian institutions due to national merges of higher education institutions. The data collection and analyses for this article were conducted fall 2016 and updated fall 2017. The last updates are from November 22, 2017.

Admission

For admission to the PhD programs at all Norwegian higher education institutions, a master's degree (MSc) or equivalent is required. A Norwegian experience-based master's degree (90 ECTS) alone does not provide a basis for admission at the Norwegian University of Science and Technology (NTNU). Half of the institutions do not have any grade requirements for admission to the PhD programs. Most of the institutions with grade requirements have B (where A is best and F is fail) as an admission requirement to the PhD programs, such as University of Stavanger (UiS), but some institutions, such as the University of Oslo (UiO), require 'good grades' without further specification. University of Tromsø (UiT) and Molde University College (HiMolde) have regulations where the respective PhD program can decide the academic level required for admission. Institutions such as Norwegian School of Sport Sciences (NSSS) and HiMolde have subject-specific requirements for admission. NSSS students must hold a master's degree in Sport Sciences or similar background, whereas HiMolde specifies that they can require subject-specific exams before the PhD student is admitted to the PhD program.

The duration of the PhD program is for all of the institutions three years full time. Nord University, Norwegian Business School (BI) and UiS require three years PhD work and one year teaching duties at the institution in addition. The maximum period for being a PhD student at the different institutions is generally between six and eight years. The application for admission to PhD programs at most Norwegian institutions requires a description of a research project, professional reasons for the project, work schedule, publication plan, a plan for funding and a proposal for at least one, usually two supervisors. Table 1 summarizes the findings of the first category.

Table 1. A summary of category one, admission

Basis for admission	Alternative	Grades	Duration (years)	Maximum PhD period (years)	Funding plan	Supervisors requirements for admission
Master of science. 19/19	Equivalent to MSc 13/19	B or better 7/19	3 years 16/19	5 yrs 1/19	Needs a funding plan 17/19	Main & ass. sup. 5/19
				6 yrs 9/16		Main sup. 2/19
	Qualifying test 1/19	No req. 8/19		7 yrs 1/19		Any 1 sup. 11/19
	Possible exceptions 3/19	Other req. 4/19	3 +1 yr teaching duty 3/19	8 yrs 5/19	Does not need a funding plan 2/19	None 1/19
	Experience based. MSc 1/19			Fac. Decide 3/19		

Compulsory training

This part includes compulsory coursework, guidelines for studying abroad and scientific misconduct / cheating (see Table 2). The minimum requirement for compulsory coursework is usually 30 ECTS, containing philosophy of science, ethics and research methods. NSSS and BI are exceptions regarding the amount of coursework, where minimum 40 and 60 ECTS of PhD courses are required, respectively; whereas the Oslo School of Architecture and Design (AHO) specifies 'not less than two semesters', without requiring any amount of

ECTS. University of Agder (UiA) also has a maximum of 45 ECTS. A certain amount of PhD courses from other institutions can be accepted. The majority of the institutions mention general training and dissemination of research, but one institution (NSSS) specifies a 5 ECTS dissemination course.

Table 2. A summary of the second category, compulsory training

Required ECTS	Maximum credits from previous studies	Age prev. course (years)	Mandatory coursework	General training	Allow individual studies	Grades PhD course	Study abroad	Cheating and scientific misconduct
30 ECTS 17/19	10 ECTS 11/19	2 yrs 13/19	Philos of sci. 12/19	Sci. Work 7/19	Yes 6/19	8 or better 2/19	Not mentioned 9/19	Specific paragraphs in the regulations 19/19
		5 yrs 2/19	Ethics of sci. 13/19	Res. Meth. 7/19		No requirement 15/19	Joint programs & Coutelle 6/19	
60 ECTS 2/19	Not specified 6/19	Not specified 4/19	Research meth. 8/19	Dissemination 13/19	No 11/19	Not specified 1/19	Req. 3 months 3/19	
			Sci. Theory 1/19	Sci. Theory and ethics 6/19				
	Other 2/19		Not specified 5/19	Not specified 5/19	Not specified 2/19	Faculty decide 1/19	Not specified 1/19	
			Faculty decide 1/19					

Most institutions accept up to 10 ECTS that are maximum two years old from another university, whereas University of Bergen (UiB) can accept PhD courses that are up to five years old. Most institutions accept only courses at the PhD level, but there are exceptions. USN, for example, states that ‘at least 20 ECTS [are to be] at PhD level’, thus accepting up to 10 ECTS at other levels, presumably the MSc level. Some institutions require philosophy of science and research ethics as part of the compulsory PhD coursework, for example HiHm. NSSS and NTNU require the grade B or better for the PhD courses in order to pass. UiS requires graded exams only. UiS, UiA and HiHm are explicit on the PhD student studying abroad: The student has to study at least three months abroad. Scientific misconduct is mentioned in all the PhD regulations, but Nord University has a more extensive part on scientific misconduct. Nord University has two separate sections elaborating on the consequences for the PhD student and the administrative procedures by the university in case of scientific misconduct.

The PhD dissertation

Table 3. A summary of category three, the PhD dissertation

Accepted format	Accept earlier work	Authorship requirements	Dissemination requirements	Accept joint work	Language (general)
Monograph 17/19	3 yrs before admission 1/19	First author on at least one 1/19	Should be publishable 15/19	Yes 12/19	English 11/19
					Norwegian 7/19
Collection of articles 18/19	5 yrs before admission 15/19	First author on at least half 10/19	No requirements 4/19	Yes, with description of contributions 6/19	Scandinavian 6/19
		No requirements 3/19			Fac./prog. decide 7/19
Not specified 1/19	Not specified 3/19	Other requirements 5/19		Not specified 1/19	Norwegian 7/19
					Not specified 2/19

This section summarizes the findings regarding the PhD dissertation, which is often considered as the main product of the doctoral process. It is common to all the higher institutions in Norway to approve both monographs and collections of works with a synopsis showing the relations between the works. One exception is HiHm, which does not mention anything on this part. UiB and Oslo Metropolitan University (OsloMet) do not mention a monograph as an alternative, but rather mention a collection of works as an option that can be accepted as the PhD dissertation. “Should be publishable” is a common quality criterion described across most institutions. When it comes to PhD by publication, the majority of the institutions require that the PhD student should be the first author of at least half of the articles. BI has a requirement of first author on one article, while six institutions do not quantify the number of articles for which the PhD student should be the first author. Regarding the inclusion of scientific work prior to admission to a PhD program, it is common that the majority of the institutions accept work from within the last five years prior to admission. The language of the PhD dissertation is specified in the juridical regulations for PhD programs for all institutions except HiHm and NSSS. Seven institutions state that it is up to the representative faculty or PhD committee to approve the choice of language. Ten institutions also state English as alternative choice of language, six institutions state Scandinavian (Norwegian, Swedish, Danish) and six include Norwegian.

Supervision and evaluation

This part includes supervision, requirements for and numbers of supervisors, report on progression and content, mid-term evaluation and trial public defense (see Table 4).

Table 4. A summary of the fourth category, supervision and evaluation

Number of supervisors	Required experience from PhD supervision	Other supervisor requirements	Req. research group	PhD stud. evaluation	Mid-term evaluation	Final evaluation before defence
One or more 3/19	At least one supervisor 14/19	Must be active researcher 9/19	Yes 16/19	Once per year 18/19	Yes, in third or fourth semester 8/19	Yes 2/19
Two 6/19						
Two or more 8/19	Main supervisor 1/19	Not specified 10/19	No 3/19	Twice per year 1/19	Yes, other req. 5/19	Yes with specified trial defence 1/19
More than two 1/19						
Not specified 1/19	Not specified 4/19				Not required 6/19	Not specified 16/19

The regulations for PhD programs show that all the institutions have requirements for regular individual supervision to follow up the PhD students' progression on the PhD courses and their work on the PhD dissertation. Most of the institutions point out that the supervisors should be active researchers, have experience in supervising and that the PhD students have to be members of research groups. UiS has the most detailed description of requirements for PhD supervisors' supervision skills, demanding that at least one of the supervisors must *have had supervised* one PhD student or have studied *Developing Doctoral Supervision* course during the PhD student's first two years of study. Three institutions have no requirements regarding the supervisor's supervision skills or competence. All of the institutions require PhD or equal qualifications for being a supervisor, but they do not specify what is meant by "equal qualifications". Norwegian University of Life Sciences (NMBU) exemplifies that the supervisors need to hold a PhD and that associate professors without a PhD, or docents, are not accepted. Most of the institutions appoint two supervisors and the main supervisor should be employed at the institution where the PhD student is registered. NMBU requires at least two supervisors, while three institutions require at least one supervisor. It varies whether the regulations point out that the supervisors need to have experience in supervising PhD students or not. Most of the institutions require annual reports on the student's progression. It differs whether these reports are based on guidelines made by the faculty or not. Twelve of the nineteen regulations require that the institutions organize mid-term evaluation seminars. All mid-term evaluations intend to uncover problems or irregularities in order to apply preventive measures. Only two institutions require approved mid-term or final evaluation prior to thesis submission, BI and AHO respectively.

Completion

For completion of the PhD program, all institutions evaluate and require an approval of the PhD dissertation, coursework, public trial lecture and public defense. Most institutions set a timeframe of five months from when the dissertation is submitted until the defense should take place. However, at three institutions (HiHm, UiO, NSSS), there is no specified timeframe. At two institutions (NTNU, UiT) the timeframe is four months, while one institution (NMBU) requires only three months.

The requirements for the evaluation committee are similar at most institutions and generally refer to the eligibility rules in the Norwegian Public Administration Act (1967, §6).

The committee should consist of at least three members, and there should be a gender balance in the group. All members must hold a PhD or an equivalent degree, but UiT also requires that one member must be a professor and that the majority of the committee members must be employed by an institution that provides a doctoral degree. At all institutions, the committee can only include one member from the home institution of the PhD student, and should include an international member. UiO and AHO also require that at least one member must have no connection to other institutions in Norway.

The evaluation committee has a deadline at most institutions set at three months after receiving the application for evaluating the PhD dissertation. At HiHm the deadline is not specified, and at NMBU the deadline is set at least 25 days before the planned defense date. If the committee decides that a minor revision of the PhD dissertation is needed, eight institutions have set a three-month deadline and two institutions a six-month deadline for submitting the revised dissertation. If a major revision of the dissertation is needed, all institutions apply a six-month quarantine before a revised version of the dissertation can be resubmitted.

For the public trial lecture, all institutions require that the theme of the lecture must be sent to the PhD student ten working days before the lecture is held. If the trial lecture is not passed, the student must hold a new lecture within three months at two institutions, and within six months at 14 institutions. No specific timeframe is given at three institutions. The public defense must be held within two months after the approval of the dissertation at most institutions, but normally within one month at UiT. At UiA the time and place must be given at least ten days before the defense is held, and at HiHm there is no specified timeframe. If the public defense is not passed, the student is allowed to hold a second defense no sooner than six months later at 12 institutions. At UiT, the second public defense must be held within the next six months. At NMH, this timeframe is three months, at HiHm within “reasonable time”, and at NMBU there is no timeframe (the date is set by the institution). Table 5 summarizes the findings from this last category.

Table 5. A summary of category five, completion

Time from sub. to def. (month)	Committee evaluation deadline (month)	Minor rev. resubmit	Maj. rev. resubmit	Not approved trial lecture	Dissertation deadline	Dissertation not approved
3 months 1/19	More than 25 days before dissertation 1/19	Within 3 weeks 1/19	Within 6 months 3/19	Second chance within 3 months 2/19	2 months after approval of thesis 14/19	New chance within 3 months 1/19
4 months 2/19		Within less than 3 months 6/19		Second chance within 6 months 13/19	4 months after approval of thesis 1/19	New chance within 6 months 1/19
Less than 5 months 2/19	3 months before dissertation 17/19	In 3 months 6/19	After 6 months 9/19	Second chance after 6 months 1/19	5 months after approval of thesis 1/19	New chance after 6 months 15/19
5 months 11/19		In 6 months 2/19			Other 1/19	
Not specified 3/19	Not specified 1/19	Not specified 4/19	Not specified 7/19	Not specified 3/19	Not specified 4/19	Faculty/program decides 2/19

Discussion and implications

This study posed two research questions. One was what constitutes doctorateness in Norway, based on the national juridical regulations for the eighteen PhD-awarding institutions. We found many similarities in terms of criteria of admission, compulsory training, the PhD dissertation, supervision and evaluation, and completion. We did also identify some differences among the PhD programs. Some differences are necessary and should be appraised, such as requirements regarding educational background, and formats of the dissertation.

The second research question in the present study revolved around the differences between institutions and what some of the fundamental differences may implicate. We believe some of the differences may have an impact on the PhD students' trajectory of study and student rights, for instance grade requirements for admission, compulsory training (e.g. coursework, internationalization), language of dissertation and publications, main- and co-authorships, competencies required of the supervisors, and deadlines for evaluation and revisions of the dissertation.

The main difference in admission requirements across the Norwegian higher education institutions is whether grades are required or not. This finding implies that some higher education institutions are more flexible and show professional judgement in recruiting PhD students. Traditionally, students are accepted into PhD programs as a result of good academic performance (Jones, 2013). Today, experience, scientific publications and independent creative work are important competencies for completing a PhD. These competencies may be better indicators of the students' qualifications, implying that less stringent grade requirements certainly could be in its place. On the other hand, the lack of requirements allows institutions to be more subjective, or in the worst case biased, when evaluating PhD students' applications. If the administration and leadership at the institutions do not have an adequate understanding of doctorateness, the flexibility may in fact impede the PhD study. Note that there is a European trend of lower competency at admission, since more and more students start their PhDs right after their MSc (Baptista, 2011). Following this direct path from MSc to PhD, students often lack scientific experience, and grades may be the only academic merits that can be evaluated for qualifying for admission. Therefore, students who are younger or just completing their master's degree, can be highly motivated and competent for commencing their PhD studies, but may end up last in line. The lack of stringent requirements in terms of grade and educational background may open for flexible appraisals of students' competencies that allow for admitting the most competent student into the PhD program. However, this flexibility can be misused. When the admission requirements are not clear, the institutions should consider the need to introduce local rules and requirements to make sure that the evaluation and admission process are carried out in a moral and fair manner.

Furthermore, the present study shows that there is a great variety of requirements among educational institutions when it comes to compulsory training, such as coursework (i.e., amount, level, relevance) and internationalization. An investigation about coursework in the Swedish PhD education (Moreno, 2014) indicates that these aspects should be problematized. When it comes to the amount of coursework, the norm for most academic institutions is 30 ECTS during the PhD study. However, some institutions require as much as 45 or 60 ECTS coursework. With 10–20% less time for research, we do question whether the students manage to reach the aim of becoming an "independent researcher" when conducting a PhD (The Lovdata Foundation, 2014). Also, the depth and quality of the PhD dissertation (Kehm, 2005) may not be comparable to the academic level of PhD dissertations from other academic institutions that require a lesser amount of coursework. If the quality

is comparable, then the issue of a too high academic workload for the PhD students must be considered and addressed. Too comprehensive requirements may in fact jeopardize the students' possibility of completing their PhD within the normed timeframe of 3 years. When it comes to level of coursework, it is noteworthy that some institutions accept that 10 ECTS of the compulsory PhD courses can be at a master's level. This practice should be questioned (Taylor & Beasley, 2005), in line with The European Qualifications Framework (Ministry of Education and Research, 2011). We do recognize that some courses and subjects may be highly relevant for both master and PhD students. However, since PhD students undertake the highest academic degree, their compulsory courses should reflect that academic level. Perhaps it would be wiser to pre-approve and offer certain master courses that meet the requirements or academic needs of PhD students, rather than allow for a specific number of ECTS that can be accepted at a master's level.

When it comes to internationalization, few Norwegian institutions require that the PhD student studies abroad, which is a paradox when it comes to the inter-European mobility intentions (Baptista, 2011; Morley, Leonard & David, 2002). Internationalization and mobility of students are highly relevant for developing valuable academic collaborations, as well as advancing the students' knowledge and broadening their perspectives. Having strict requirements for internationalization though, may be problematic. Studying abroad requires extensive worktime related to applying for scholarships and funding, as well as preparing and planning for the supervision, coursework, travel and stay abroad. In addition, the family situation of the PhD student may make it difficult for a long-term mobilization period. In order to make student mobility more attractive and feasible, the institutions need perhaps to provide more administrative support as well as pre-prepared agreements and mobilization-stays at international educational institutions. While student mobility is not emphasized, internationalization is facilitated in the juridical requirements regarding the evaluation committee of the dissertation defense. It is a strength that there has to be at least one international member of the committee. This requirement legitimizes the important aim of internationalization in the PhD education, in line with the PhD's high international standard (The Lovdata Foundation, 2014).

For the PhD dissertation, both monographs and PhD by publication are accepted formats across all Norwegian institutions, giving necessary flexibility needed in various fields of study. A common quality description for the PhD dissertation is that it "should be publishable". Therefore, whether to publish nationally, or internationally, as well as the language of the dissertation, are important factors to consider. In fact, two Norwegian institutions do not mention requirements for language at all, while the other institutions have different policies; English, Scandinavian or Norwegian as the preferred or required language. We do recognize that some academic fields have the need for discipline-specific dissemination to a Nordic target group. The traditional monograph is in fact often written in Norwegian, while the article-based collection of works is usually written in English (Krumsvik et al., 2016). However, writing a PhD in a Scandinavian language restricts both the target group of readers and the presence of international academics in the dissertation evaluation committee. The PhD regulations state that the PhD should be of high international standard, thus promoting English as the scientific language.

Co-authorship is also an interesting issue in the PhD regulations. The majority of regulations in Norway state that the student must be the first author of at least half of the scientific articles. Traditionally, PhD students in medicine, health and natural sciences usually have their supervisors as co-authors, while PhD students in social sciences and humanities are often the main and single authors of their scientific articles (Kyvik, 2014). For the latter disci-

plines, the common requirements of main and co-authorship may therefore contrast the aim of “the independent researcher” (The Lovdata Foundation, 2014). However, the common PhD regulation requirement “the PhD student should be the first author of at least one/more than half of the articles” likely provides the necessary training in academic writing, and the students obtain the necessary credits for the authorship in order to become an independent researcher. Note that six educational institutions have no requirements for co-authorship at all. Despite clear rules of the Vancouver declaration, deciding authorship may be difficult for the PhD student (Nylenna, 2014), especially without local institutional regulations. The students may also feel pressured to include co-authors who have not contributed substantially to the publication (Nylenna, 2014). Preferably, all PhD regulations should have clear criteria for main and co-authorship, ensuring the independence of the researcher (i.e. the PhD student) and the quality of doctorateness, as well as preventing undeserved authorships.

The findings in the present article shed light on issues related to differences in requirements for supervision and evaluation. They concern the PhD supervisors’ supervision experience and competencies, and progress and quality evaluation of the PhD work. Park (2005, p. 195) uses the metaphor “secret garden” for the PhD supervision, claiming that it is “an activity that takes place behind closed doors”. There are no requirements for PhD supervisors in terms of formal supervision competence. However, the increasing complexities of the current PhD education, student and institutional expectations and needs demand that PhD supervisors undergo comprehensive training and acquire necessary competencies (Hockey, 1997; Krumsvik, 2016b; Neumann & Guthrie, 2001; Taylor & Beasley, 2005). Furthermore, the formal qualification criteria for PhD supervisors across all institutions’ juridical regulations is “PhD or equivalent”. It is natural to assume that the equivalent to a PhD is another doctoral degree (e.g., Dr. Med. and Dr. Ing.), but it is unclear in the regulations whether the Norwegian rank of docent is equivalent to PhD or not. The confusion would have easily been solved by replacing “PhD or equivalent” with “doctoral degree”. In terms of evaluation, the majority of the institutions require a mid-term evaluation. Note that two educational institutions have more stringent criteria, where the PhD student must pass the mid-term and the final evaluation, respectively, to be able to submit his/her dissertation. We do believe these types of evaluations should be part of the regulations across all the institutions, ensuring quality assurance and progression of the study trajectory, as they provide valuable feedback to the PhD student (Krumsvik, 2016b; Taylor & Beasley, 2005).

Finally, when it comes to completion of the PhD, the present study exposes issues of varying deadlines, as well as different requirements for the evaluation committee and assessment of the doctoral work. In addition, we also want to discuss the relevance of the doctoral public defense, which is an exclusive requirement for the completion and assessment of the Norwegian PhD. The findings reveal that some institutions do not have deadlines for committee evaluation, as well as for submission after revision and/or public defense. We propose that the lack of deadlines may affect student rights and predictability of the completion process of the PhD. Hopefully the institutions do strive towards short evaluation time and proper deadlines for revisions. However, the worst-case scenario is that the lack of directives leads to PhD students spending an unnecessarily long time on the evaluation process, and ending up with an extended study trajectory before completion of the PhD. In order to avoid these obstacles and delays, we believe that achievable deadlines for the completion process are necessary and should be adapted to the resources of the educational institutions, as well as outlined in their PhD regulations. Another point to be raised, is the lack of assessment criteria, which is a major concern in both national and international literature on doctorateness (Carter, 2008; Holbrook, 2008; Jones, 2013; Krumsvik et al., 2016; Morley, 2002).

However, the authors believe that such criteria are discipline-specific and should therefore be customized and outlined in the program guidelines. Finally, there are international concerns whether the public trial lecture in Norway is an advantage, a fair system or an unnecessary additional workload for the PhD student (Kyvik, 2014). The Norwegian PhD has changed radically over the years in terms of admission requirements, compulsory training, the PhD dissertation, supervision and evaluation, and completion. While the PhD study process was hardly defined in the 1970s, a number of reforms have led to definitions and a clearer picture of what doctorateness is (Kyvik & Olsen, 2014). Today, the students undertake comprehensive coursework, systematic supervision, and often work as lecturers and supervisors at the educational institution where they are employed and connected to during their PhD study. Therefore, the need for a final test of the PhD student's ability to acquire knowledge on a given topic, and present it in a lecture (Kyvik, 2014) may be considered an outdated requirement. Arguably, the trial lecture has perhaps outplayed its role, being a historical remnant (Kyvik, 2014). There is a clear need for a reconsideration of its scientific value.

Conclusion

In this article, we have evaluated doctorateness in Norway based on the juridical PhD regulations across all the PhD awarding institutions. On the whole, the regulations agree on the main descriptors of doctorateness. However, there are some discrepancies which may need more problematization and closer investigations in the future in order to avoid unintentional consequences. Higher education institutions should ensure that certain quality assurance criteria are common across PhD regulations, such as minimum requirements for compulsory and academic level of coursework, deadlines, teaching duties, supervisor training and competencies, and mid-term evaluation. This would strengthen the reliability of PhD education. One should keep in mind that the institutional and discipline-specific cultures influence doctorateness (Baptista, 2011). Baptista also warns that “extremely structured doctoral programs may not give space to heterogeneity as well as innovative and creative strategies” (Baptista, 2011, p. 3578). This should be noted when discussing the unification or standardization of PhD regulations. Thus, there needs to be a fine balance between unification for the sake of reliability, transparency and predictability on one side, and situated heterogeneous practices on the other side.

In further research, as is called for by Johnston and Murray (2004), it would be interesting to investigate PhD students' perceptions and experiences of how doctorateness is enacted at the various institutions. It would also be valuable to study similarities and differences between PhD program guidelines within and across *scientific disciplines*. We invite others to carry out such studies.

References

- Ahola, S., & Hoffman, D. M. (Eds.) (2012). *Higher education in Finland: Emerging structures and contemporary issues*. Jyväskylä: University of Jyväskylä, Finnish Institute for Educational Research. Retrieved from <https://jyx.jyu.fi/bitstream/handle/123456789/42356/978-951-39-5189-4.pdf?sequence=1#page=338>
- Baptista, A. V. (2011). Challenges to doctoral research and supervision quality: A theoretical approach. *Procedia Social and Behavioral Sciences*, 15, 3576–3581. <https://doi.org/doi.org/10.1016/j.sbspro.2011.04.338>

- Carter, S. (2008). Examining the doctoral thesis: A discussion. *Innovations in Education and Teaching International*, 45(4), 365–374. <https://doi.org/10.1080/14703290802377208>
- Creswell, J. W. (2012). *Educational research. Planning, conducting and evaluating quantitative and qualitative research*, 4th ed. Boston: Pearson.
- Geschwind, L. (2018). Doctoral training in Sweden: History, trends and developments. In Shin, J. C., Kehm, B., & Jones, G. A., Doctoral Education for the Knowledge Society: Convergence or Divergence in National Approaches? *Knowledge Studies in Higher Education* 5, 35–49.
- Gudmundsson, H. K. (2008). Nordic countries. In Nerad, M. & Heggelund, M. (Eds.). *Toward a global PhD? Forces and forms in doctoral education worldwide* (pp. 75–100). Seattle: University of Washington Press.
- Hockey, J. (1997). A complex craft: United Kingdom PhD supervision in the social sciences. *Research in Post-Compulsory Education*, 2(1), 45–70. <https://doi.org/10.1080/13596749700200004>
- Holbrook, A., Bourke, S., Lovat, T., & Fairbairn, H. (2008). Consistency and inconsistency in PhD thesis examination. *Australian Journal of Education*, 52(1), 36–48. <https://doi.org/10.1177/000494410805200103>
- Johnston, B., & Murray, R. (2004). New routes to the PhD: Cause for concern? *Higher Education Quarterly*, 58(1), 31–42. <https://doi.org/10.1111/j.1468-2273.2004.00258.x>
- Jones, M. (2013). Issues in doctoral studies – Forty years of journal discussion: Where have we been and where are we going? *Issues in Doctoral Studies*, 8, 83–104. <https://doi.org/10.28945/1859>
- Kehm, B. M. (2005). Promovieren in Europa: Strukturen und Konzepte im Vergleich [Getting a doctoral degree in Europe: a comparison of structures and concepts]. *Hochschule Innovativ*, 14, 2–3.
- Kehm, B. M. (2006). Doctoral education in Europe and North America: A comparative analysis. In U. Teichler (Ed.), *The formative years of scholars* (pp. 105–118). London: Portland Press Ltd.
- Krumsvik, R. J. (2016a). *En doktorgradsutdanning i endring. Et fokus på den artikkelbaserte ph.d.-avhandlingen [A changing doctoral education. A focus on PhD by publication]*. Bergen: Fagbokforlaget.
- Krumsvik, R. J. (2016b). Noen betraktninger om forskningsveiledning ph.d.-nivå [Some reflections on PhD supervision]. In R. J. Krumsvik (Ed.), *En doktorgradsutdanning i endring. Et fokus på den artikkelbaserte ph.d.-avhandlingen [A changing doctoral education. A focus on PhD by publication]* (pp. 125–48). Bergen: Fagbokforlaget.
- Krumsvik, R. J., Øfstegaard, M., & Jones, L. Ø. (2016). Retningslinjer og vurderingskriterier for artikkelbasert ph.d.-avhandling [Guidelines and assessment criteria for PhD by publication]. In R. J. Krumsvik (Ed.), *En doktorgradsutdanning i endring. Et fokus på den artikkelbaserte ph.d.-avhandlingen [A changing doctoral education. A focus on PhD by publication]* (pp. 29–49). Bergen: Fagbokforlaget.
- Kyvik, S. (2014). Assessment procedures of Norwegian PhD theses as viewed by examiners from the USA, the UK and Sweden. *Assessment and Evaluation in Higher Education*, 39(2), 140–153. <https://doi.org/10.1080/02602938.2013.798395>
- Kyvik, S., & Olsen, T. B. (2014). Increasing completion rates in Norwegian doctoral training: Multiple causes for efficiency improvements. *Studies in Higher Education*, 39(9), 1668–1682. <https://doi.org/10.1080/03075079.2013.801427>
- The Lovdata Foundation. (2014). *National regulations for PhDs in Norway*. Retrieved from <https://lovdata.no/dokument/SF/forskrift/2014-10-24-1339>
- Manathunga, C. (2005). The development of research supervision: Turning the light on a private space. *International Journal for Academic Development*, 10(1), 17–30. <https://doi.org/10.1080/13601440500099977>
- Ministry of Education and Research. (2011). *The national qualifications framework for lifelong learning*. Retrieved from <https://www.regjeringen.no/contentassets/e579f913fa1d45c2bf2219afc726670b/nkr.pdf>
- Moreno, R. (2014). Management of the level of coursework in PhD education: A case of Sweden. *Journal of Applied Economics and Business Research*, 4(3), 168–177.
- Morley, L., Leonard, D., & David, M. (2002). Variations in vivas: Quality and equality in British PhD assessments. *Studies in Higher Education*, 27(3), 263–273. <https://doi.org/10.1080/03075070220000653>

- Neumann, R. T., & Guthrie, J. (2001). *Quality enhancement in doctoral education and research: A case study*. Presented at the 4th Biennial National Conference on Quality in Postgraduate Research: Making Ends Meet. April 5, 2001. Retrieved from <https://ssrn.com/abstract=1372443>
- Nordic Council of Ministers. (2019). *Tall og statistikk [Numbers and statistics]*. Retrieved from <https://www.norden.org/no/statistikk>
- Nylenna, M., Fagerbakk, F., & Kierulf, P. (2014). Authorship: Attitudes and practice among Norwegian researchers. *BMC Medical Ethics*, 15(53), 1–8. <https://doi.org/10.1186/1472-6939-15-53>
- Park, C. (2005). New variant PhD: The changing nature of the doctorate in the UK. *Journal of Higher Education Policy and Management*, 27(2), 189–207. <https://doi.org/10.1080/13600800500120068>
- Poole, B. (2015). The rather elusive concept of doctorateness: A reaction to Wellington. *Studies in Higher Education*, 40(9), 1507–1522. <https://doi.org/10.1080/03075079.2013.873026>
- Public Administration Act. (1967). *Lov om behandlingsmåten i Forvaltningsaker [Law of the treatment in publication administration cases] of 10th February 1967*. Retrieved from <https://lovdata.no/dokument/NL/lov/1967-02-10>
- Taylor, S., & Beasley, N. (2005). *A handbook for doctoral supervisors*. New York: Routledge.
- Thune, T., Kyvik, S., Sörlin, S., Olsen, T. B., Vabø, A., & Tømte, C. (2012). *PhD education in a knowledge society: An evaluation of PhD education in Norway*. Oslo: Nordisk Institutt for studier av innovasjon, forskning og utdanning (NIFU) [Nordic Institute for Studies in Innovation, Research and Education].
- Tinkler, P., & Jackson, C. (2004). *The doctoral examination process: A handbook for students, examiners and supervisors*. Berkshire, England: Society for Research into Higher Education and Open University Press.
- Trafford, V., & Leshem, S. (2009). Doctorateness as a threshold concept. *Innovations in Education and Teaching International*, 46(3), 305–316. <https://doi.org/10.1080/14703290903069027>
- Wellington, J. (2013). Searching for ‘doctorateness’. *Studies in Higher Education*, 38(10), 1490–1503. <https://doi.org/10.1080/03075079.2011.634901>

Appendix 1. Abbreviations for the higher education institutions in Norway

	Institutions	Academic field
AHO	The Oslo School of Architecture and Design	Architecture/urbanization, design, landscape architecture
BI	Norwegian Business School	Business, finance, marketing, leadership
HiHm* HiL*	Inland Norway University of Applied Sciences	Media, culture, health/social science, education, law, psychology, biotechnology, ecology, economy, sports, leadership
HiMolde	Molde University College	Business, health/social science, logistics
HVL	Western Norway University of Applied Sciences	Business, health/social science, education, arts, sports, engineering
MF	Norwegian School of Theology	Theology, religion, social studies
NMBU	Norwegian University of Life Sciences	Bioscience, chemistry/biotechnology/food, environment/natural resources, landscape/ society, economics/business, science/ technology, veterinary medicine
NMH	Norwegian Academy of Music	Music education
Nord	Nord University	Bioscience/aquaculture, education, arts, health/social science, business
NSSS	Norwegian School of Sport Sciences	Sports sciences
NTNU	Norwegian University of Science and Technology	Engineering, natural sciences, medical/health/ social sciences, education, architecture, arts.
OsloMet	Oslo Metropolitan University	Social/health sciences, education, international studies, technology, arts, design
UiA	University of Agder	Economy/leadership, technology/engineering, health/social sciences, mathematics, education, music, arts
UiB	University of Bergen	Arts/music/design, humanities, law, mathematics/ natural sciences, medicine, psychology, social science
UiO	University of Oslo	Theology, law, medicine, humanities, dentistry, education, mathematics, natural/social science
UiS	University of Stavanger	Arts, education, social sciences, science/technology
UiT	The Arctic University of Norway	Humanities, health/social sciences, education, science/ technology, bioscience, fishery, economics, arts
USN	University of South-Eastern Norway	Health/social sciences, humanities, sports science, education, natural/maritime science, technology, business

* HiHm (Hedmark University of Applied Sciences) and HiL (Lillehammer University College) merged January 1, 2017, and changed their name to Inland Norway University of Applied Sciences