PhD Student Survey 2009

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Management summary

Introduction
This study focuses on the experiences of PhD students in the various PhD programmes offered by the University of Groningen. In order to increase the number of PhD degrees awarded and to prevent students dropping out after the first year, it is vital to gain a deeper insight into the factors that play a role in following a PhD programme. For this and a number of other reasons we decided to set up a survey to map these factors. This study aims to provide insight into the factors related to progress in PhD programmes. In addition, differences among the various groups of PhD students have also been investigated, namely those between PhD students with employee versus student status, male versus female PhD students, first-year versus senior PhD students and PhD students from different faculties.

Perceived progress in PhD programmes
Almost one-third of the PhD students do not expect to be able to graduate within the official duration of their programme. Differences between men and women can be seen here – male PhD students more often indicate that they will be able to graduate within the stipulated time frame. Over a quarter of the PhD students indicate that they have, at one point or other during the programme, considered dropping out. One-third of these respondents thought about doing so in their first year.

State of affairs with regard to personal characteristics, PhD programme, supervision, work environment
Over half of the PhD students are female, and their average age is 28. Less than half of the respondents are from the Netherlands and had a Master's degree at the start of the PhD programme. Four out of ten respondents are connected to the Faculty of Mathematics and Natural Sciences, whereas the smaller faculties are least represented. Over 60% of the PhD students are employed by the University.

Slightly less than 60% of the PhD students indicate that following modules is an activity integrated in the PhD programme. Almost 50% perform teaching duties. Four out of ten respondents indicate that they started on the basis of a fixed research proposal. Only 63% of the PhD students indicate that their progress is formally evaluated, whereas 22% indicate this occurs on an irregular basis. The go/no go interviews were mainly conducted by the supervisors – only 35% were conducted by a Personnel officer. Almost 40% of the PhD students indicate that there are no clear requirements with regard to the size of the PhD thesis, and over 30% respond this way with regard to quality requirements.

Out of all respondents, 57% indicate that they have a training and supervision plan. The average number of supervisors is 2, but this number varies strongly between 1 and 8 supervisors. Almost 40% of the respondents indicate that they are not familiar with the Graduate School, and one-third indicate that they do not know who the contact persons are within the Graduate School in the event of problems concerning supervision or modules.

The most important sources of information are fellow PhD students for practical matters and the day-to-day supervisor for contract and project-related matters.

PhD student satisfaction with regard to personal characteristics, PhD programme, supervision, work environment
The respondents are happy with their status of either staff member or student. Given the choice again, 91% would again opt for a PhD programme, but this time as an employed PhD student. In addition, 12% of the scholarship PhD students would opt for the same status if they were given the choice again.

Generally speaking, PhD students are satisfied with the information provided with regard to regulations, working conditions, the Graduate School, and the organization and quality of supervision. However, they are less satisfied with the amount of teaching duties and with the training and supervision plan.

Bottlenecks
PhD students experience bottlenecks in the fields of the time schedule for the research, unforeseen circumstances, problems with regard to supervision (in terms of frequency and quality), their link to the subject, adaptation problems and working conditions.

Correlation between factors and completion expectations
The following factors relate positively to the degree in which PhD students expect to be able to complete their programme within the official time frame:

- satisfaction with the training and supervision plan
- satisfaction with the organization of supervision
- satisfaction with the quality of supervision
- satisfaction with the degree of expert knowledge available within the department
- satisfaction with the working conditions.

Differences among faculties, between men and women, between PhD students with employee or student status and among years
There are differences between the various groups of PhD students with regard to the degree of satisfaction with the training and supervision plan, the modules followed and the expert knowledge available. Employed PhD students and PhD students who started more than a year ago are least satisfied with the training and supervision plan. In addition, PhD students who started their programme less than a year ago appear to be more satisfied with the organization and quality of supervision and the expert knowledge available than PhD students who have been working on their projects for more than a year. Significant differences can be seen among the various faculties with regard to the training and supervision plan and the modules followed.

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Preface

This report provides the results of the PhD student survey 2009, which discusses the experiences of University of Groningen PhD students with regard to their PhD programmes. In addition, the report also provides an overview of the state of affairs concerning PhD programmes at the University in 2009.

The survey was conducted in consultation with the Department of Academic Affairs of the Office of the University of Groningen and GRASP, the Groningen Association for PhD students. The University Centre for Learning and Teaching was responsible for preparing the questionnaires, the online handling and statistical processing as well as the reporting.

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1. Introduction

1.1. Background

This study focuses on the progress of PhD students in the various PhD programmes offered by the University of Groningen. In 2008 the Board of the University (CvB) announced an increase in target figures with regard to numbers of PhD degrees awarded, duration of PhD programmes, PhD dropout rates in the first year and intake of foreign PhD students. The number of PhD degrees must increase from approximately 300 to 500 per year before the year 2015. In addition, 75% of all PhD students must graduate within 5 years and 85% within 6 years. The target figures for PhD dropout are no more than 15% in the first year and 0% in the second year. Finally, the CvB aims at an intake of foreign students at a stable 60%.

In order to increase the number of PhD degrees awarded and to prevent students dropping out after the first year, it is vital to gain a deeper insight into the factors that play a role in following a PhD programme. For this and a number of other reasons we decided to set up a survey to map these factors. This survey focuses on the degree to which PhD students expect to be able to finish their degree within the stipulated time frame. Information about which factors relate positively to these expectations is particularly important to the Graduate Schools, as it will help them determine how to improve their success rates.

The survey has the following four aims:

1. To gain insight into the perceived progress of PhD students at the University of Groningen
2. To gain more insight into the factors that relate to progress in PhD programmes
3. To gain more insight into the correlation between the factors related to expected progress in PhD programmes
4. To map differences among groups of PhD students in terms of PhD progress and the factors related to this.

1.2. Theoretical framework

Ample research has already been conducted into PhD programmes and which factors affect PhD progress (Burnett, 1999; Blanton, 1983; Gardner, 2009; Green, 1997, Hout, 1988; Johnson, & Conyers, 2001; Landelijk AIO/OIO Overleg (LAIOO), 2002; 2003; Paglis, Green, & Bauer, 2006; Seagram, Gould, & Pyke, 1998; Vilkinas, 2002). This research indicates that at least four categories influence PhD progress, i.e. personal characteristics, factors with regard to the time schedule of the research and the thesis, PhD supervision and the work environment.

Personal characteristics

Personal characteristics include background characteristics such as sex and type of appointment at the university, in other words whether a PhD student is employed or is regarded as a student.

The PhD programme

This refers to factors such as drawing up a planning and the extent to which this planning corresponds to reality. In addition, factors such as teaching and following modules can also have both positive and negative effects on PhD progress. Finally, material matters may also affect PhD success rates both positively and negatively – think, for example, of the arrangement of practical matters before the actual PhD degree ceremony can take place.

PhD supervision
The issue of PhD supervision includes matters such as the supervisor's subject knowledge, the frequency of supervision, supervision from the Graduate Schools, the availability and function of a training and supervision plan and the relationship with the day-to-day supervisor or the thesis supervisor.

Work environment
This factor includes aspects such as expertise within the department, social support in the work environment and facilities at the work place.

These four categories will be discussed under their related themes in the various chapters of this report.

1.3. Research questions

The following research questions were formulated on the basis of the theoretical framework:

1. What is the current state of affairs with regard to the personal factors, supervision, working conditions and PhD programmes?
2. How satisfied are PhD students with regard to these factors?
3. Which factors relate positively to the expected PhD progress?

Questions 2 and 3 will incorporate differences among four categories of PhD students, on the basis of *sex*, i.e. between male and female PhD students, on the basis of the *type of appointment at* the university, i.e. employed PhD students and those with student status, among PhD students from different *faculties* and among different *years*, i.e. whether the PhD student had been working on the PhD project for more or less than one year at the time the survey was taken. The latter difference is particularly important in terms of the idea of limiting dropout to the first year. Questions 1 and 2 will be discussed in chapters 3-10 and question 3 in chapter 11. The summary, conclusions and recommendations can be found in chapter 12.

1.4. Research design, data collection and response

1.4.1. Design

The study comprises three parts: a literature study and document analysis, a questionnaire for PhD students and a presentation of the study for parties involved in PhD programmes, for example PhD students, their supervisors, Graduate School directors and PhD coordinators. This way, insight can be gained from various perspectives into the measures that may affect PhD progress. Measures to improve success rates and prevent dropout will be proposed on the basis of the PhD student survey.

A questionnaire for PhD students was drawn up on the basis of a literature study and analysis of previous reports in order to gain more insight into PhD student satisfaction and the relationship between the factors and the outcome measures. This questionnaire was presented to the directors of the Graduate Schools.

The results of the study and suggested measures to improve success rates and prevent dropout will be presented in a discussion meeting.

1.4.2. Instrument development

In 2006, GRASP conducted a PhD student survey. As far as possible, the current survey was based on the 2006 questionnaire. Unfortunately, the origins of the items

in this questionnaire could not be traced due to changes in the board membership. The current questionnaire has been revised in a number of ways.

Firstly, the structure of the questionnaire has been slightly adjusted and themes have been grouped differently. The Graduate School has been included as a separate theme, as well as the training and supervision plan. No separate theme has been included for foreign PhD students; the items on information provision about practical matters before and during the PhD programme have been included for all PhD students. The following themes have been included in the questionnaire:

- Background characteristics
- Type of appointment at the university
- PhD project
- Training and supervision plan
- Graduate School
- Supervision
- Following modules
- Teaching duties
- Work environment
- Information provision
- Career prospects
- GRASP

Secondly, items have been included from the *PhD Thesis Supervision Questionnaire*[1] used at the University of Manchester. This questionnaire comprises eight items on supervision. Unlike the GRASP questionnaire, this questionnaire does not distinguish between thesis supervisors or 'promotors' and day-to-day supervisors. The main consideration here was that we aimed to limit the length of the questionnaire as far as possible.

Thirdly, changes have been made to the PhD programmes offered at the University of Groningen. In 1996 a PhD track for non-Dutch scholarship PhD students ('bursalen') was introduced, followed in 2006 by a similar programme for Dutch PhD students. We have decided to pay extra attention to this group of scholarship PhD students by including a number of items in which their situation differs from that for employed PhD students. These items have been presented to both groups to enable comparisons to be made.

Finally, the items have been presented in such a way that an overview can be obtained of both the circumstances in which PhD students conduct their research and the degree of satisfaction with these circumstances. The survey was conducted in English.

To enable the construction of scales, multiple items have been included for a number of themes, including 'Training and supervision plan', 'Supervision' (divided into organization and quality), 'Following modules', 'Expertise within the department', 'Working conditions' and a general satisfaction scale called 'Total'. These scales make it possible to combine items that measure one concept in a statistically sound way. We have calculated a measure for the reliability of the various scales to gain an idea of the degree to which the items actually deal with a particular concept. This measure, Cronbach's alpha, varies from .65 to .84. Reliability rates between alpha = .60 and alpha = .90 can be regarded as reasonable to high. Table 2 indicates the scale

[1] *www.maths.manchester.ac.uk/postgraduate/pgstudies/docs/phd_questionnaire.pdf*

characteristics of the scales. The items included in each scale are listed in the relevant chapters and the appendices.

Table 2: Scale characteristics of survey themes: reliability (alpha) and number of items (items)

Theme	Alpha	Items
Training and supervision plan	.79	5
Supervision: organization	.83	5
Supervision: quality	.84	6
Following modules	.81	7
Expertise within the department	.65	7
Working conditions	.78	10
Overall satisfaction (working conditions)	.68	3

1.4.3. Response

A database of 1264 PhD students, including 570 scholarship students, was acquired from Peoplesoft and the central PhD student database. There were 178 PhD students with an on-call contract ('nulaanstelling') at the University of Groningen. The invitation to participate in the survey was sent by e-mail to these 1264 PhD students in June 2009, of which 13 were returned as undeliverable due to technical issues. Subsequently, reminder e-mails were sent out twice. In addition, the Graduate School directors were asked to encourage their PhD students to fill in the questionnaire. Eventually, 577 PhD students completed the questionnaire, which translates into a response percentage of 46%.

The response was not distributed evenly over the various faculties – table 3 indicates the response distribution. Nine PhD students did not indicate which faculty they belonged to. The response rates are highest for the smallest faculties, whereas particularly in the Faculty of Medical Sciences the response rate is lower than expected. Among the larger faculties, the Faculty of Economics and Business shows the highest response rate (57%).

Table 3. Response per faculty

Faculty	Sent	Completed	
		numbers	percentages
Arts (FLet)	115	63	55
Law (FRG)	41	19	46
Economics and Business (FEB)	88	50	57
Theology & Religious Studies (FGG)	10	5	50
Medical Sciences (FMW)	333	107	32
Spatial Sciences (FRW)	27	14	52
Philosophy (FWB)	7	5	71
Mathematics and Natural Sciences (FWN)	541	248	46
Behavioural & Social Sciences (GMW)	93	62	67
Total	1255	573	46

With an eye to the low response numbers in the faculties of Theology & Religious Studies (5), Philosophy (5) and Spatial Sciences (14), no data will be included in the tables for these faculties. They will however, be included in the total numbers.

1.4.4. Analyses

As mentioned above, it was possible to form scales for a number of themes. These themes have therefore been analysed at scale level and averages were calculated for items that together make up one scale. Scale scores can vary from 1 to 4, higher scores indicating a higher degree of satisfaction. Respondents who fall in the top 33% of the total scale score can be regarded as 'satisfied students'. This refers to respondents with a scale score between 2.68 and 4. A criterion of 80% is used when reporting on the percentages of satisfied students; all percentages below this criterion leave room for improvement. We have opted for this satisfaction percentage because we are dealing with a specific group of respondents in whom a high degree of satisfaction may be expected. In addition, the themes under review are so important that an 80% satisfaction percentage is required. For all other themes satisfaction has been analysed at item level.

We subsequently examined the differences between the four categories of PhD students. Chapters 2, 3, 6 and 8 will discuss the differences at scale level. Any significant differences discovered were subsequently examined at item level. A t-test or ANOVA was used to determine the significance of differences.

1.4.5. Notes

The report consists of twelve chapters. The first chapter discussed the backgrounds to the survey, the methods used and the response. Chapters 2 to 10 will discuss the themes that are distinguished in this survey: background characteristics of the PhD students, the PhD programme, the supervision and the work environment. The results will be discussed in the order in which they appeared in the questionnaire, which means that the above-mentioned factors of *personal characteristics*, *PhD programme*, *supervision* and *working conditions* will be discussed in separate chapters.

Table 4 provides an overview of the themes on which this survey yields information and in which chapters they are discussed. The information is divided into:

- **current state of affairs** with regard to personal characteristics, the PhD programme, the supervision and the work environment
- **satisfaction** with regard to the PhD programme, the supervision and the work environment

- **bottlenecks** with regard to personal characteristics, the PhD programme, the supervision and the work environment.

Table 4. Categories, themes and their location in the report

Category	Theme	Discussed in chapter
Personal characteristics	Background	2
	Future prospects	10
PhD programme	Appointment	2
	Teaching duties	8
	Following modules	7
	Material matters	9
Supervision	Expertise of supervisors	5
	Quality and quantity of supervision	5
	Graduate Schools	6
	Training and supervision plan	4
Work environment	Expertise within the department	9
	Support within the department	9
	Facilities	9
PhD progress	Expectations with regard to completing the programme within the stipulated time frame	3
	Considerations for dropping out of the PhD programme	3

Chapter 11 will discuss the factors related to PhD progress in more detail in terms of expectations with regard to completing the PhD thesis within the stipulated time frame. Chapter 12, finally, will provide an extensive summary of the results as well as a number of conclusions and recommendations.

2. Background characteristics of the PhD students and type of appointment at the University

2.1. Introduction

This chapter describes the background characteristics of the PhD students in terms of sex, age, nationality, type of qualifications at the start of the PhD programme and faculty. In addition, the type of appointment at the University of Groningen and their degree of satisfaction with this appointment will be discussed.

2.2. Background characteristics of the PhD students

Forty-six percent of all respondents are male and the average age is 28 years. Forty percent have Dutch nationality, followed by 5% with German nationality. The percentage of respondents in the category 'other' was particularly high, with a great variety of countries, including for example Algeria, Belgium and Cameroon as well as New Zealand and Vietnam. Slightly less than half of the respondents (47%) had a Master's degree when they started their PhD programme, 20% had a *doctoraal* degree, 21% a Research Master's and 11% of the respondents had a different type of diploma, for example a German *Diplom*, which can be compared to the Dutch *doctoraal*, a HBO certificate or a *Licenciature*, which is comparable to a Master's degree. In addition, a few students started their PhD on the basis of a Bachelor's degree. Forty-nine percent gained their degree at the University of Groningen, 10% at another Dutch university, 24% at another university in Europe, 12% at a university outside Europe and 4% at a different type of institution.

Table 5 indicates the response percentages per faculty. Forty-two percent of all respondents were from the Faculty of Mathematics and Natural Sciences, 18% from the Faculty of Medical Sciences, 12% from the Faculty of Behavioural and Social Sciences, 10% from the Faculty of Arts, 9% from the Faculty of Economics and Business, 3% from the Faculty of Law, 2% from the Faculty of Spatial Sciences, 1% from the Faculty of Philosophy and 1% from the Faculty of Theology and Religious Studies.

*Table 5. Background characteristics of PhD students: faculties**

Faculty	Percentage
Arts	10
Theology and Religious Studies	1
Philosophy	1
Spatial Sciences	2
Law	3
Behavioural and Social Sciences	12
Medical Sciences	18
Economics and Business	9
Mathematics and Natural Sciences	42

* *N.B. Due to the low numbers of respondents, no analyses will be presented for the faculties of Theology and Religious Studies, Spatial Sciences and Philosophy.*

Almost 30% of all respondents started their PhD programme in 2007, 30% in 2008, 18% in 2006 and 16% in 2005. At the time the survey was taken in 2009, 46% of the PhD students were in the first year of their programme.

2.3. Type of appointment at the University

The respondents indicated which type of appointment they have at the University – either employee status (i.e. they are in full-time or part-time employment as a PhD student) or student status (i.e. the position of scholarship student ('bursaal' or 'promotiestudent')). In addition, the respondents were asked whether they had a supplementary contract with the University of Groningen for teaching or research activities.

Table 6 shows the types of appointment at the University of Groningen. Fifty-four percent of the respondents had a full-time contract, 25% had an Ubbo Emmius scholarship, 10% worked on the basis of a 'promotiestudent' track and 6% were part-time PhD students. In addition, 4% of the PhD students had a different type of appointment at the University, for example in the form of another scholarship, and 2% had a Bernoulli scholarship.

The part-time PhD students had an average appointment of 30 hours per week. Two percent of the PhD students with employee status had an additional contract/appointment alongside the above-mentioned appointment, for an average of 8 hours per week.

Table 6. Background characteristics of PhD students: type of appointment

Type of appointment	Percentage
Full-time PhD student/PhD Fellow (employee status)	54
Ubbo Emmius scholarship ('bursaal', student status)	25
Dutch PhD scholarship student ('promotiestudent', student status)	10
Part-time PhD student/PhD Fellow (employee status)	6
Other, namely…	4
Bernoulli scholarship (student status)	2

Table 7 indicates the degree of satisfaction with regard to the information provision concerning the PhD students' appointment at the University. Seventy percent of all respondents indicated that they agreed with the statement that sufficient information was provided about regulations and conditions surrounding their appointment at the University of Groningen, and 81% were generally happy with the working conditions.

Table 7. Satisfaction with information provision with regard to appointment at the University

Statement	% Agree / fully agree
I feel well informed about the regulations and/or conditions of my employment/scholarship contract with respect to my relationship with the University of Groningen	70
Overall, I am satisfied with my working conditions in terms of contract, income, etc.)	81

Further analyses indicate a difference among respondents from the different faculties in the degree of satisfaction with the information provision concerning regulations (see Figure 1). For example, respondents from the Faculty of Law agreed to a lesser extent with the statement that sufficient information had been provided about regulations, whereas a clear majority of PhD students at the Faculty of Economics and Business were satisfied with both items.

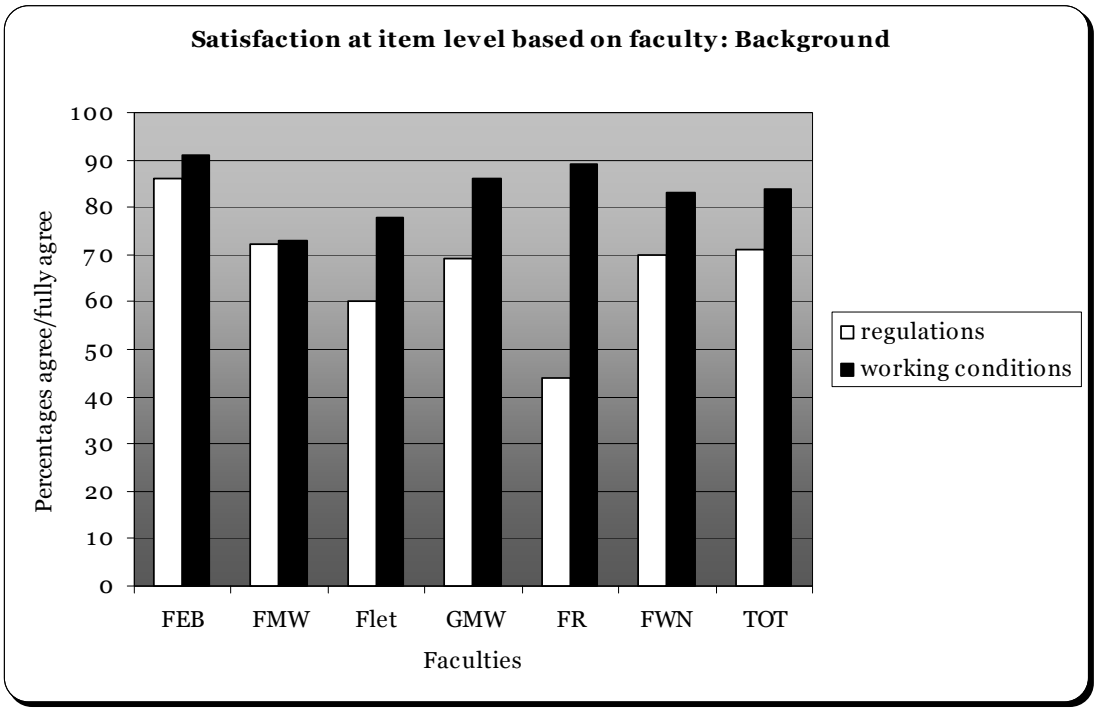

Figure 1. Differences among faculties with regard to items in the theme 'Background'.

In addition, a difference also appears among respondents with different types of appointment at the University (see Figure 2). PhD students with employee status were more satisfied with the information provision about regulations than those with student status. This also applies to the item on working conditions: respondents with employee status were more satisfied with their working conditions than those with student status.

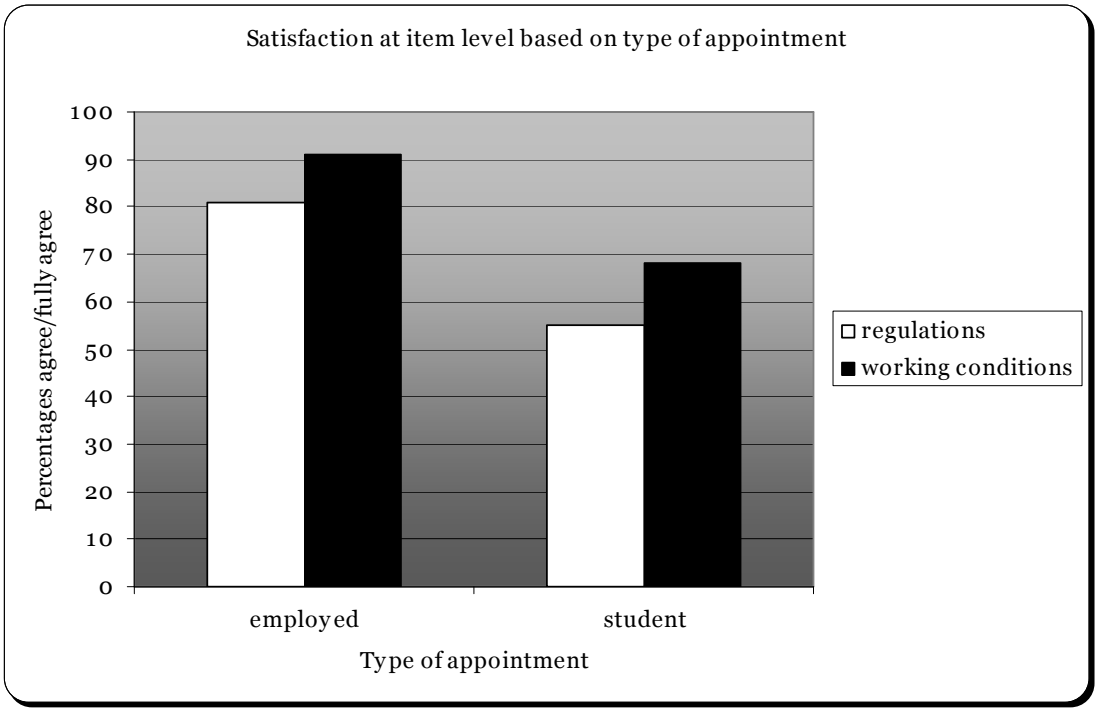

Figure 2. Differences among types of appointment with regard to items in the theme 'Background'.

Finally, differences in satisfaction with regard to working conditions also occur between first-year and senior PhD students – the first group was more satisfied than the latter.

3. The PhD programme

3.1. Introduction

This chapter will discuss the PhD programme in more detail, starting with a number of characteristics of the PhD programme and subsequently discussing the expected PhD progress and considerations for dropping out. We will also examine differences in PhD programme characteristics and expected progress between men and women and among faculties, types of appointment at the University and years. Finally, the most important considerations for dropping out of the PhD programme will be touched upon.

3.2. Characteristics of the PhD programme

Respondents were asked about their activities in the PhD programme, their research proposal, their progress evaluation and the requirements set for the PhD thesis. Table 8 lists the activities included in the PhD programme. Conducting research was of course indicated by virtually everyone. Slightly less than 60% of the respondents indicated that they followed modules and almost half of the respondents had teaching duties. Thirty-five percent indicated that they were also expected to contribute to other research projects. Other activities mentioned include materials maintenance, organizing a conference, committee work and publishing articles.

Table 8. Activities in the PhD programme

Activities in the PhD programme	percentage
Research concerning own project	98
Training (modules)	58
Teaching	49
Assisting in other research projects	35
Other	10

The analyses show that 42% of the respondents started on the basis of a fixed research proposal, 18% were recruited on the basis of an NWO proposal, 23% of the respondents were free to write their own research proposal and 13% were appointed on the basis of an own research proposal. Additional analyses indicate that full-time PhD students and Ubbo Emmius scholarship students in particular wrote their own proposals and were appointed on the basis of this. This contradicts our expectation that it would be particularly 'bursalen' and 'promotiestudenten' (rather than full-time PhD students) who wrote their own proposals.

Sixty-three percent of the respondents indicated that their progress was regularly formally evaluated, 22% indicated that evaluation occurred on an irregular basis and 16% stated that no evaluation had yet taken place. Additional analyses show that the latter categories do not only concern students who had just started their PhD programme – for example, it turns out that of the 22% of respondents who indicated that evaluation occurred on an irregular basis, 4% had started less than a year ago and the remaining 18% had been working for more than a year. Of the 16% of respondents who had not been formally evaluated yet, 10% had started less than a year ago and the other 6% were senior PhD students.

The respondents were also asked who attended their go/no go interview. The respondents to whom this question was relevant (N=397, 69%) indicated that in 87% of all cases the supervisor was present, in 43% of all cases the day-to-day supervisor, in 16% of all cases a representative from the Graduate School and in 35% of all cases someone from the Personnel department. Officially, the PhD coordinator must attend these interviews for scholarship students, and interviews with employed PhD students must be attended by a Personnel officer. However, additional analyses show

that Personnel officers attended the go/no go interviews of no more than 124 employed PhD students (= 50%).

As for the quantitative and qualitative requirements with regard to the PhD thesis, 56% of the respondents indicated they were satisfied with the quantitative requirements, whereas almost 40% indicated that there were no clear-cut quantitative requirements. The responses to the qualitative requirements were similar – 57% of the respondents indicated they were satisfied with these, and again over one-third of the respondents stated no clear requirements had been set out.

Finally, the respondents were asked whether, given the choice, they would again opt for a PhD programme. Ninety-one percent of the respondents indicated they would choose a PhD programme with employee status, 5% indicated they would make the same choice again but with student status and 4% indicated they would not choose to follow a PhD programme again. Additional analyses, in which a distinction was made between PhD students with employee status and those with student status, show that 3% of the PhD employees would opt for a PhD with student status given the choice again. Of all PhD students with student status, 12% would opt for the same status again.

3.3. Expected progress in the PhD programme

The average PhD contract term is four years. Thirty-eight percent of the respondents indicated that they expected to be able to complete their PhD within the stipulated term, 26% did not expect this and 35% felt it was too early to make any predictions. The respondents who did not expect to be able to finish their PhD within the official term indicated that they would need another eight months on average to complete their thesis.

Twenty-eight percent of the respondents indicated that they had thought about dropping out of the PhD programme. One-third of these respondents indicated that they had these thoughts during their fist year, 20% in the second year, 8% in the third year and 2% in the fourth year. Thirty-six percent of the respondents who had considered dropping out indicated that this occurred at several points during the PhD programme.

3.4. Differences in progress according to sex, faculty, type of appointment and year

Differences in expected progress can be discerned among the various groups of respondents. There is a difference between men and women for the variable 'expectations with regard to completing the programme within the stipulated time frame' in that male respondents more often than women indicated that they would graduate within the official time frame. In addition, first-year PhD students are more positive about completing their programme in time than senior students.

3.5. Main reasons for not being able to complete the PhD research in time and considerations for dropping out of the programme

The reasons given by respondents can be divided into three categories:

- The time schedule of the research: The majority (65%) of answers falls into this category. This includes, for example, matters with regard to the size of the research project and setbacks in the research. Issues mentioned include 'enormous data collection', 'overly high expectations', 'too many commitments with regard to teaching', 'the results are not good enough to publish', 'setbacks in collecting data'. The answers do not provide a clear picture of who or what the respondents blamed for their problems. Two respondents indicated that their delay was due to 'bad planning', but even this answer does not explain

whether the students blamed themselves for this or, for example, their supervisors.

- Unforeseen/personal circumstances: This includes matters such as 'health problems', 'I had a baby', 'delay due to family circumstances'.
- Problems concerning supervision: For example 'poor relationship with unreliable supervisor', 'difficulties with regard to supervision', 'lack of supervision'.

In addition, a number of respondents indicated that it was normal to have a delay and that almost everyone took more than four years. Finally, a number of respondents stated that their thesis would be finished before their contract ended but the PhD ceremony would take place later because practical matters had to be arranged.

PhD students could also indicate whether and, if so, when they had thought about quitting their research, and for which reason. Various reasons were stated for this:

- Inadequate/insufficient supervision: 'Superficial supervision – my supervisor has little or no expertise in my research field', 'badly planned project by supervisors, poor technical assistance, insufficient supervision by thesis supervisor, poor relationship with day-to-day supervisor' and 'due to the quality of the supervision (no academic discussion with my supervisors, I am being left to my own devices)'.
- Doubts about the usefulness of the research, social/academic relevance: 'I thought about dropping out and taking up a job with direct relevance to society or the organization', 'somewhere during the second year I reached the point of uselessness', 'I doubted whether an academic career is worthwhile', 'I didn't feel quite happy with things: I wasn't sure which way to go in the research, I had the feeling that my research was not relevant in a broader sense'.
- No link to the subject: 'It didn't quite tie in with my background and my main interest' and 'feeling utterly bored and thoroughly hating my thesis'.
- Poor working conditions/salary: 'Poor working conditions for scholarship PhD students – no support from the University for PhD students – low salary', 'poor salary, long hours' and 'no variation in my work and a low salary'.
- Loneliness: 'Lonely job', 'difficult to work in such an anti-social job. Can be very depressing', 'lonely process, I have the feeling I am no longer connected to real life/work, and have therefore asked for teaching and other duties' and 'not enough sharing with colleagues in the same field'.
- Doubts about own competence/fit with the research: 'I wasn't sure whether I was fit to be a PhD student', 'a perceived mismatch between the research duties and my personal qualities' and 'I had the feeling that I lacked the skills needed to complete the research'.
- Adaptation problems/culture switch/homesickness: 'I simply missed my home situation', 'I felt too far removed from my family', 'cultural differences' and 'personal reasons, long-distance relationship'.
- Activities/insufficient progress: 'The slowness of writing down results and getting things done made me doubt even more', 'too much work without any result, not interesting', 'first two years: too much data collection, not sufficiently intellectual', 'I was frustrated because I saw no progress in my project'.

Doubts about whether or not to continue with the PhD programme are thus highly diverse and can be related, *inter alia*, to inadequate supervision, the feeling of doing useless work and the feeling of not making enough progress.

4. Training and supervision plan

4.1. Introduction

The training and supervision plan is a vital component in the PhD programme. It should officially contain information about the research, planning, modules to be followed, supervision, teaching duties and evaluation moments. The University of Groningen website contains formats for the training and supervision plan for a number of faculties, and some research schools also provide formats. Generally speaking, all these formats contain information about the above-mentioned points. But what do the PhD students think about these training and supervision plans? Do they have one, and what does it include?

This chapter will discuss the training and supervision plan in more detail, starting with a number of its characteristics and subsequently discussing PhD student satisfaction with the training and supervision plan. Finally, the differences in satisfaction according to sex, type of appointment and faculty will be discussed.

4.2. Characteristics of the training and supervision plan

Analyses show that 57% of the respondents had a training and supervision plan, 21% did not and 22% had no idea whether or not they had one. The respondents with a training and supervision plan were subsequently asked which elements were included in the plan – for example research content and design, time management, content-related modules, general skills modules, supervision, training and evaluation moments. Table 9 indicates how often the various elements are included in the training and supervision plan.

Table 9. Elements in the training and supervision plan

Element	Percentage
Research content and design	49
Time management	26
Content-related modules	27
General skills modules	30
Supervision	36
Teaching	19
Evaluation moments	27

Information about the research content and design was included in the training and supervision plans of almost half of the respondents, and information about supervision for 36%. Almost 30% of the training and supervision plans contained information about time management, content-related modules and evaluation moments. Interestingly, only 20% of the training and supervision plans contained information about teaching duties.

Additional analyses show that 6% of the respondents indicated that their training and supervision plans contained information about all the above-mentioned elements. 23% of the respondents indicated that their training and supervision plans contained information about the three elements time management, supervision and evaluation moment.

4.3. Satisfaction with the training and supervision plan

The respondents were presented with a number of items concerning the training and supervision plan (Figure 3). As explained in Chapter 1, a scale was drawn up on the basis of these items and the percentages of satisfied respondents were subsequently

examined. In general, 61% of the respondents who had a training and supervision plan were satisfied with this plan.

Items in the scale 'Training and supervision plan'

- My training and supervision plan serves as a good guideline for my time as a PhD student.
- Drawing up a training and supervision plan helps me plan my PhD project.
- I have sufficient opportunities to revise my training and supervision plan when necessary.
- My training and supervision plan is evaluated regularly in a formal evaluation.
- Overall I am satisfied with my training and supervision plan.

Figure 3. Items in the scale 'Training and supervision plan'

4.4. Differences according to sex, type of appointment, faculty and year

We subsequently examined the differences in average scale scores according to sex, type of appointment at the University, faculty and year (see Table 10). The analyses show differences according to faculty, type of appointment and year. For example, respondents from the Faculty of Economics and Business appeared to be satisfied with the training and supervision plan, whereas the respondents from the Faculty of Law were less satisfied. The question of whether or not PhD students had a training and supervision plan also yielded different results for the various faculties – for example, 44% of the respondents from the Faculty of Mathematics and Natural Sciences indicated that they had a training and supervision plan, as opposed to 78% in the Faculty of Arts.

In addition, PhD students with student status appeared to be more satisfied with their training and supervision plan than employed PhD students. Additional analyses show that there are no differences between these two types of PhD students for the question of whether or not they had a training and supervision plan.

First-year PhD students were significantly more satisfied with their training and supervision plan than PhD students who had been in the programme for more than a year.

Finally, Table 10 shows that the respondents generally scored below the 80% satisfaction criterion, with the exception of the Faculty of Economics and Business. The training and supervision plan is clearly a point for attention for most faculties.

Table 10. Training and supervision plan: percentages of satisfied respondents per group

Category	Group	Satisfaction percentage
Sex	Male	69
	Female	55
Faculty*	FEB	82
	FMW	58
	FLet	56
	GMW	65
	FRG	29
	FWN	63
Type of appointment*	Employee status	59
	Student status	65
Year*	First year	70
	Senior	52
Total		61

*N.B.: * Significant differences were found on the basis of this category.*

So what can be said about the differences according to faculty, type of appointment and year at item level? Analyses at item level show that the differences according to type of appointment primarily concern the second item in the theme, 'Drawing up a training and supervision plan helps me plan my PhD project'. Respondents with student status scored higher on this item than those with employee status. The differences at faculty level mainly concern the items 'I have sufficient opportunities to revise my training and supervision plan when necessary' and 'My training and supervision plan is evaluated regularly in a formal evaluation'.

Figure 4 shows the differences among faculties at item level. Significant differences can be seen in particular between the faculties of Behavioural and Social Sciences and Law on the one hand and the other faculties on the other. Differences among years can be found for all items, except the item 'I have sufficient opportunities to revise my training and supervision plan when necessary', where no significant differences can be discerned between first-year and senior PhD students.

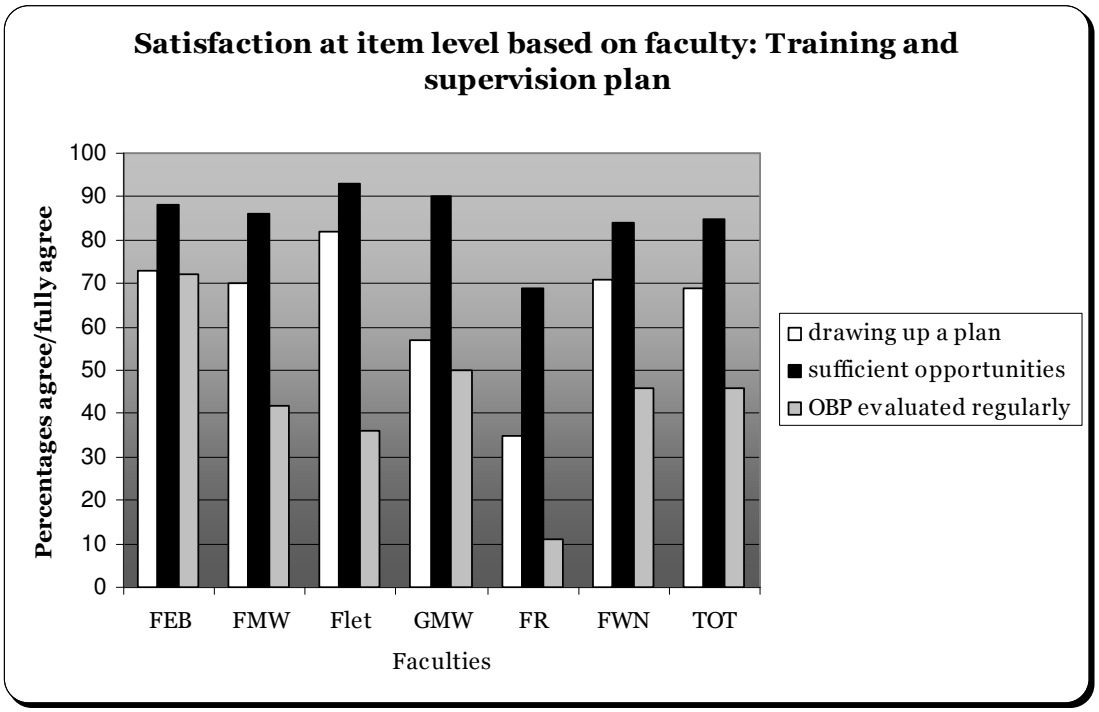

Figure 4. Differences among faculties for items in the theme 'Training and supervision plan'

5. Supervision

5.1. Introduction
Supervision of PhD students is one of the most frequently studied factors affecting successful completion of the PhD programme (see e.g. Burnett, 1999). Good supervision is tailor-made supervision that not only ties in with the PhD student's know-how and expertise but also with his or her personality. What can we say about the supervision of PhD students at the University of Groningen? This chapter will discuss a number of characteristics of supervision, the satisfaction with the supervision and the differences according to sex, type of appointment at the University, faculty and year.

5.2. Characteristics of supervision
The respondents were asked to indicate how their supervision was arranged in terms of total number of supervisors and day-to-day supervisors. The average number of supervisors was 2. The total number of supervisors varied from 1 to 8, divided into thesis supervisors ('promotors') and day-to-day supervisors. On average, the respondents had one thesis supervisor and one day-to-day supervisor. The number of thesis supervisors varied from 1 to 5 and the number of day-to-day supervisors varied from 1 to 3.

We then asked whether all supervisors were employed by the University of Groningen. Over two-thirds of the respondents had supervisors from the same department within the University of Groningen, 16% of the respondents had supervisors from different departments at the University of Groningen and the remaining 16% also had supervisors who worked elsewhere. One percent of the PhD students indicated that none of their supervisors were employed by the University of Groningen.

5.3. Satisfaction with supervision
Two scales were drawn up for the supervision theme, the first providing information about the organization of the supervision and the second about the quality of the supervision. Figure 5 shows the items included in each scale. Again, the focus was on the percentage of satisfied respondents. The respondents were generally satisfied with the organization of supervision (84%) and the quality of the supervision (85%).

Items in the scale 'Organization of supervision'
- I am satisfied with the way my supervision is organized.
- I am satisfied with the number of appointments I have with my supervisor(s).
- I am satisfied with the number of appointments I have with my daily supervisor.
- When I need information at short notice, at least one of my supervisors is available.
- I have enough space for my own contribution to my research project.

Items in the scale 'Quality of supervision'
- At our meetings my supervisors are usually well prepared.
- My supervisors provide me with adequate feedback.
- My supervisors show commitment to my project.
- My supervisors support me in taking modules which I find interesting.
- I am being stimulated by my supervisors to present my work at conferences.
- Generally speaking, my supervisors agree with each other on where my research should be going.
- Overall I am satisfied with the supervision

Figure 5. Items in the theme 'Supervision'

5.4. Differences according to sex, type of appointment, faculty and year

What can be said about the differences according to sex, type of appointment, faculty and year? Table 11 shows the percentages of satisfied respondents. Differences in mean scale scores were examined, and generally speaking no significant differences among the various groups were discerned, except for differences according to year. First-year PhD students were more positive about their supervision than senior PhD students.

In general, the various groups of PhD students were satisfied with their supervision. This applies in particular to the Faculty of Economics and Business, where 96% of the respondents were satisfied with their supervision. PhD students from the Faculty of Law were least satisfied with their supervision – this group scored below the 80% criterion.

Table 11. Supervision: Satisfaction percentages per group

Category	Group	% Organization of supervision	% Quality of supervision
Sex	Male	88	88
	Female	81	83
Faculty	FEB	98	94
	FMW	84	82
	FLet	79	83
	GMW	87	90
	FRG	63	68
	FWN	83	86
Type of appointment	Employee status	85	87
	Student status	83	83
Year*	First year	89	94
	Senior	79	79
Total		84	85

*N.B.: * Significant differences were found on the basis of this category.*

For which items do first-year PhD students differ from their senior colleagues? The positive opinions that first-year PhD students had with regard to the **organization** of supervision particularly related to the following items:

- I am satisfied with the way my supervision is organized.
- I am satisfied with the number of appointments I have with my supervisor(s).
- I am satisfied with the number of appointments I have with my day-to-day supervisor.

These positive opinions can be found in nearly all items with regard to the **quality** of the supervision. First-year PhD students were significantly more positive about the following items:

- At our meetings my supervisors are usually well prepared.
- My supervisors provide me with adequate feedback.
- My supervisors show commitment to my project.
- My supervisors support me in taking modules which I find interesting.

- Generally speaking, my supervisors agree with each other on where my research should be going.
- Overall I am satisfied with the supervision.

5.5. What are the most highly valued aspects of supervision?

This was an open-ended question where respondents could indicate which points in the supervision they found particularly good. Four categories can be distinguished:

- Feedback/expertise: Points mentioned here included 'interesting insights', 'feedback and inspiration' and 'someone who thinks along and places things into perspective'.
- Freedom: This refers to the freedom and room available to PhD students to determine their own course of research: 'I have room to come up with my own ideas' and 'I appreciate the fact that my supervisors trust my competence and that I am given the opportunity to contribute ideas'.
- Approachability: This refers to how easily the respondents could approach their supervisors: 'availability and contact on a daily basis', 'I can always drop by with questions, almost immediately' and 'informal contact'.
- Commitment/enthusiasm: This refers to the interest and commitment demonstrated by supervisors. Answers included 'her interest in my project', 'encouragement when we run into problems in the research' and 'enthusiasm'.

In addition, a number of respondents stated that meetings were regularly held, which seems to be related to the category of 'approachability'. A few PhD students indicated that they had several supervisors, which has the advantage that different perspectives are offered.

5.6. Bottlenecks in supervision

This was also an open-ended question. The respondents' answers can be categorized roughly as follows:

- Frequency of feedback: This was the largest category (35%), with answers such as 'the supervisor is very busy and therefore not always available', 'frequency of meetings (once every three weeks)', 'he has a lot of other responsibilities too, and is not able to spend enough time on each project' and 'my supervisors mean well but they are very busy (too busy in my opinion) and my projects seems to be too low on their list of priorities'.
- Quality of feedback: Respondents mentioned issues here such as 'I have the feeling that I am being trained by my supervisors', 'I could do with some more specific feedback with regard to whether I am on the right track', and 'planning issues'.
- Fit with supervisor: For example 'communication/interaction problems' and 'criticism is not always uttered in a positive way'.
- Insufficient consultation between supervisors/too many supervisors: Answers included 'the two supervisors do not always have the same views on things', 'disagreement between supervisors', 'too many supervisors', 'receiving feedback from different supervisors at different times – this sometimes delays the process' and 'too many captains on one ship'.
- Disinterestedness in supervisor/insufficient commitment: 'They sometimes seem not to be interested in my personal development in the project', 'I don't have the feeling that they are part of my project' and 'lack of commitment'.
- Supervisor lacks expertise/competence (as yet): 'Lack of expertise in my day-to-day supervisor', 'lack of knowledge that is directly relevant to my research

field/thesis' and 'supervisor is not yet familiar with my research subject so we have to learn together'.

Some categories are interrelated, for example, when respondents indicate that the supervisor shows insufficient commitment this will probably also result in a lack of time invested in the project by the supervisor.

The most important bottlenecks seem to lie in a lack of feedback and, when feedback is in fact provided, a lack of dovetailing with what the PhD students actually need. When asked what they valued most in their supervision, the PhD students often indicated the freedom their supervisors offered them. This may indicate that some PhD students appreciate a high degree of guidance whereas others regard this as an impediment. In addition, freedom and guidance must be balanced, or, as one respondent formulated it: 'there is a good balance between the input and guidance my supervisors give me and the freedom to take my own decisions.' Also, a lack of supervision does not necessarily mean the same as having a lot of freedom. For example, PhD students can have regular meetings with their supervisors and at the same time be given the opportunity to formulate and implement their own ideas.

6. Graduate School

6.1. Introduction

According to the VSNU (2004, p.18), a Graduate School must have the following characteristics:

- Responsibility for the training and supervision of PhD students affiliated with them and for the teaching within the framework of the Research Master
- Responsibility for the quality assurance of PhD and Master's degree programmes
- Monitoring of the recruitment and selection of PhD and Master's students
- Monitoring of the progress of affiliated PhD and Master's students and taking appropriate measures in the event of failings on the part of thesis supervisors, day-to-day supervisors, PhD students or Master's students
- It must be large enough to provide proper interaction and efficiency, but not so big that it fails to provide a stimulating and personal environment
- It must have a Board that oversees the functioning of the School.

Each faculty at the University of Groningen has its own Graduate School. Although providing training is an important task for the Graduate Schools, subject-related modules in particular are often outsourced to national research schools. A number of Graduate Schools offer general modules. Some national research schools also present themselves as Graduate Schools, which may cause confusion for PhD students with regard to the question of which Graduate School they are affiliated with.

This chapter will discuss some of the above-mentioned characteristics of Graduate Schools, and particularly the extent to which PhD students are familiar with the Graduate Schools and their duties and responsibilities, the degree of satisfaction with the information provided by the Graduate Schools and the differences among groups of respondents.

6.2. Characteristics of Graduate Schools

Two-thirds of the respondents indicated that they were familiar with their Graduate School and the role it played. Nineteen percent indicated that they were not familiar with the Graduate School and 14% did not know. Table 12 shows the division of respondents over the various Graduate Schools. In order to enable comparison, the division of respondents (see Table 4) has also been included in this table. Almost a third of all respondents are affiliated with the Graduate School of the Faculty of Mathematics and Natural Sciences, and 23% of the respondents indicated that they were connected to a Graduate School different from those mentioned in the table. Interestingly, many respondents mentioned a research school, for example ICO or BCN, instead of one of the Graduate Schools.

The division of respondents over the various Graduate Schools is different from what might be expected on the basis of their division over the faculties. For example, more respondents should have indicated that they belonged to the Graduate School of the Faculty of Arts. This difference is particularly big in the Faculty of Mathematics and Natural Sciences, where 28% of the respondents indicated that they were affiliated with the Graduate School whereas a percentage of about 42% was to be expected.

These analyses indicate that respondents do not always use the same definition for the term Graduate Schools. For example, 23% of the respondents indicated that they belonged to a different Graduate School. In addition, as mentioned above, there is a difference in the percentages of respondents who claim to belong to a certain Graduate School and the percentages that were to be expected on the grounds of their faculties. This indicates that the difference between a research school and a Graduate

School is not clear to the respondents. At the same time, it is not clear whether respondents were actually thinking of the Graduate School or the research school when answering the questions about the Graduate School. This may concern PhD students who were already working on their PhD when the Graduate Schools were introduced.

Table 12. Division of respondents over the Graduate Schools

Faculty	% Graduate School	% Faculties
FLet	7	10
GMW	12	12
FEB	9	9
FRG	4	3
FWN	28	42
FMW	13	18
Other, namely	23	
Total	100	100

Over a third of the respondents followed an introductory module at the Graduate School, whereas 62% did not. Additional analyses indicate differences between the Graduate Schools – 62% of the respondents from the Faculty of Medical Sciences followed the introductory module, against only 24% at the Faculty of Mathematics and Natural Sciences.

6.3. Satisfaction with Graduate Schools

Two-thirds of the respondents indicated that they knew who to contact in the event of problems, for example with regard to supervision or modules. Thirty-two percent did not know who to contact within the Graduate School. Seventy-two percent of the respondents were satisfied with the functioning of the Graduate School, whereas the other 28% were not.

6.4 Differences according to sex, type of appointment, faculty and year

The analyses show differences according to faculty and year. Table 13 lists the percentages per faculty. The question 'Are you familiar with the Graduate School and its role?' shows particularly significant differences between the Faculty of Mathematics and Natural Sciences and the Faculty of Medical Sciences. Only 45% of all respondents from the Faculty of Mathematics and Natural Sciences indicated that they were familiar with the Graduate School and its role.

The question about the introductory module at the Graduate School reveals differences particularly between the Faculty of Medical Sciences on the one hand and, on the other, faculties such as Economics and Business, Arts, Behavioural and Social Sciences and Mathematics and Natural Sciences. Sixty-two percent of the respondents from the Faculty of Medical Sciences followed a Graduate School introductory module, whereas at other faculties about half did.

The question of who to contact in the event of problems revealed differences in particular between the Faculty of Economics and Business and the other faculties – 98% of the respondents from FEB indicated that they knew who to turn to.

Differences in general degrees of satisfaction about the functioning of the Graduate School can be traced back in particular to the faculties of Economics and Business, Medical Sciences and Law as opposed to the faculties of Behavioural and Social Sciences and Mathematics and Natural Sciences. Eighty-four percent of the respondents from the Faculty of Economics and Business were satisfied with the way the Graduate School functioned, whereas, for example, in Behavioural and Social Sciences this percentage was as low as 48%.

Table 13. Satisfaction percentages for items in the theme Graduate School

	Are you familiar with the Graduate School and its role? (% yes)	I enrolled in a practical introductory module in the Graduate School (% yes).	I know who in the Graduate School I can turn to when facing problems in general, e.g. with my supervision or training. (agree/strongly agree)	Overall, I am satisfied with how my Graduate School functions. (% agree/strongly agree)
FEB	88	31	98	84
FMW	93	60	72	79
FLet	67	36	64	65
GMW	70	25	57	48
FRG	90	47	47	79
FWN	45	31	51	51

The differences according to year relate to two items: 'I enrolled in a practical introductory module in the Graduate School' and 'Overall I am satisfied with how my Graduate School functions'. Fewer first-year PhD students followed an introductory module, and these students were more satisfied with the way the Graduate School functioned.

7. Following modules

7.1. Introduction
As explained above, following modules is an essential part of the PhD programme. The teaching within the PhD programme should focus on acquiring the competences that researchers need in order to be able to work independently as researchers (the UFO competences). However, how satisfied are the PhD students about their modules and which points for improvement are there? This chapter will discuss the PhD students' answers to the questions in the theme 'Following modules' in more detail. We will first discuss a number of characteristics of the modules, followed by the students' satisfaction and the differences among the groups for this theme.

7.2. Characteristics of modules followed
The respondents were asked to indicate how many modules they followed and what their workload was in numbers of days. In addition, they were also asked about the types of module they followed. The PhD students followed 3 modules on average, with an average total workload of 17 days.

7.3. Satisfaction with modules followed
A scale was drawn up for the theme Modules followed, and the items included in this scale are listed in Figure 6. The analyses show that in general 67% of the respondents were satisfied with this theme. This percentage is below the 80% satisfaction criterion. What can be said about the different groups of PhD students with regard to this satisfaction?

Items in the theme 'Following modules'
- I am satisfied with the number of modules and/or training opportunities offered by my Graduate School.
- I am satisfied with the quality of the modules and/or training opportunities offered by my Graduate School.
- I am satisfied with the diversity of the modules and/or training opportunities offered by my Graduate School.
- I am satisfied with the opportunities I have to follow modules.
- I am free to select the modules I want to follow.
- I cannot take some modules because I am not proficient in Dutch.
- I am satisfied with the modules I attended.

Figure 6. Items in the theme 'Following modules'

7.4. Differences according to sex, type of appointment, faculty and year
We examined the differences in satisfaction among the various groups of PhD students (Table 14). In particular the respondents from the Faculty of Behavioural and Social Sciences were satisfied with the modules they followed. This observation is particularly interesting because the range of modules offered within the Graduate School of the Faculty of Behavioural and Social Sciences is smaller than at the other Graduate Schools. The respondents from the faculties of Arts, Medical Sciences and Mathematics and Natural Sciences were less satisfied. Finally, significant differences can also be seen between respondents with employee status and those with student status – the ones with employee status were significantly more satisfied. No differences are to be seen between the sexes or years.

Generally speaking, the satisfaction percentages were below the 80% criterion – only the PhD students from the Faculty of Behavioural and Social Sciences scored above the criterion.

Table 14. Following modules: Satisfaction percentages in the various groups

Category	Group	% Satisfied
Sex	Male	68
	Female	66
Faculty*	FEB	72
	FMW	63
	FLet	55
	GMW	83
	FRG	74
	FWN	65
Type of appointment	Employee status	71
	Student status	60
Year	First year	71
	Senior	63
Total		67

*N.B.: * Significant differences were found on the basis of this category.*

So what can be said about the differences according to type of appointment at item level? The analyses show differences in PhD students' opinions with regard to two items – on the one hand, satisfaction with the possibility of following modules, and on the other, the inability to follow modules because they were taught in Dutch. PhD students with employee status were more positive about the possibility of following modules than those with student status. It would be interesting to investigate whether employed PhD students and those with student status are offered the same possibilities to follow modules. More information will have to be sought in the Graduate Schools or faculties. In addition, PhD students with student status more often indicated that they were unable to follow certain modules because they were taught in Dutch.

8. Teaching duties

8.1. Introduction

This chapter will discuss the respondents' own teaching activities in more detail. We will focus in turn on the characteristics of the teaching duties, satisfaction with the teaching duties and the differences at item level according to sex, type of appointment, faculty and year.

8.2. Characteristics of teaching duties

The respondents were asked to indicate whether they had any teaching duties and, if so, on which basis, whether they were offered sufficient support in their teaching and whether they had the idea that their teaching duties contributed to their PhD programme.

Table 15 shows the percentages of respondents with teaching duties. Sixty-three percent of the respondents indicated that they taught modules or supervised students. The most common form of teaching was student supervision (46% of the respondents who indicated that they had teaching duties), followed by teaching tutorials and practicals. Teaching tutor groups and lectures was least common among PhD students. Other teaching activities mentioned include mainly specifications of the above-mentioned answers, for example supervising Master's and/or Bachelor's students, occasionally teaching lectures and tutorials and teaching courses to colleagues.

Table 15. Percentages of respondents with teaching duties

Teaching duties	Percentage
No, I do not teach any modules or supervise students	37
Lectures	11
Tutorials	22
Tutor groups	11
Practicals	22
Supervise students	46
Other namely	5

Slightly more than half of the respondents taught voluntarily (56%), while 44% had compulsory teaching duties. Eighty-four percent of the respondents indicated that they were offered sufficient support in their teaching and supervision duties. Those respondents who indicated that they were not offered sufficient support mentioned aspects such as having to do it in their own time, lack of feedback, no support from the thesis supervisor or day-to-day supervisor and not having had teacher training.

Of the respondents with teaching duties, 30% indicated that teaching contributed to the PhD programme, 45% that it contributed little, 19% that it did not really contribute and 3% stated that teaching did not contribute at all to their PhD programme. Although, needless to say, contributing to the PhD programme is not the primary aim of teaching, teaching duties can certainly make a contribution to PhD student development and thereby indirectly contribute positively to the PhD programme, since development is also an aim of the PhD programme.

8.3. Satisfaction with teaching duties

We subsequently asked the respondents about their satisfaction with the amount of teaching they were expected to do. Thirteen percent of the respondents indicated they would prefer to teach less, 56% were satisfied with the amount of time they spent on their teaching or supervision duties, and 31% said they would like to spend more time teaching modules or supervising students.

8.4 Differences according to sex, type of appointment, faculty and year

The analyses point out differences according to the type of appointment and to the different faculties (see Tables 16 and 17). For example, 23% of the employed PhD students had no teaching duties, as opposed to 49% of the scholarship PhD students. In addition, 40% of the employed PhD students were teaching on a voluntary basis, whereas this percentage was twice as high (96%) among PhD students with student status. Eighty-six percent of the employed PhD students indicated that they received sufficient supervision in their teaching activities. This percentage was slightly lower among scholarship students, namely 79%. The PhD students were also asked to what extent they felt that teaching actually contributed to their PhD programme. Twenty-seven percent of the employed PhD students indicated that this was the case, against 38% of the scholarship students. Finally, the PhD students were asked whether they were satisfied with the number of hours they were teaching. Here we can see a number of differences between the types of students – for example, 62% of the employed PhD students indicated that they were satisfied with the amount of time they spent teaching, as opposed to 43% of the scholarship PhD students. Half of the latter students would prefer to teach more hours.

Table 16. Differences in satisfaction between PhD students with employee status and those with student status with regard to items in the theme Teaching duties

	PhD students with employee status	PhD students with student status
I would like to teach/supervise less	17	7
I am satisfied with the amount of time I teach/supervise	62	43
I would like to teach/supervise more	21	50

The following differences can be seen among the various faculties (Table 17). There were great numbers of PhD students particularly in the Faculty of Arts who had no teaching duties, whereas at the Faculty of Law this percentage was particularly low. At this faculty in particular, many PhD students performed teaching activities. Many PhD students at this faculty had a four-day PhD appointment and a one-day appointment as a lecturer. In addition to the Faculty of Law, additional teaching appointments were also used at the faculties of Economics and Business, Medical Sciences and Behavioural and Social Sciences.

At the faculties of Arts and Medical Sciences in particular a lot of teaching was done on a voluntary basis, whereas at the Faculty of Economics and Business only 20% of all teaching activities performed by PhD students were voluntary. The general opinion was that sufficient support was offered to those who performed teaching duties, except in the Faculty of Behavioural and Social Sciences where the percentage was below 80%. PhD students were not convinced that teaching would contribute to their PhD programme. The highest percentage is found at the Faculty of Arts (55%). Finally, not all PhD students were equally satisfied with the number of hours they taught – this percentage was low at the Faculty of Arts and higher at the Faculty of Medical Sciences.

Table 17. Differences among faculties with regard to the items in the theme Teaching duties

Faculty	No teaching duties	Voluntary	Sufficient supervision	Teaching contributes to the PhD programme	Satisfied with number of hours
FEB	33	20	86	21	60
FMW	31	73	86	29	57
FLet	43	94	84	55	34
GMW	28	31	76	18	53
FRG	22	21	86	14	53
FWN	32	58	86	33	60

9. Working conditions

9.1. Introduction

This chapter will discuss the PhD students' working conditions, focusing in turn on the respondents' satisfaction with the working conditions and the differences according to sex, faculty, type of appointment and year.

9.2. Satisfaction with working conditions

The items in the theme Working conditions were divided into three scales: 'expertise within the department', 'working conditions' and a general scale on working conditions, content and social relationships. Figures 7, 8 and 9 indicate the items belonging to the themes. The respondents were generally satisfied with these themes: 85% were satisfied with the working conditions and 87% with the work in general. The percentage of respondents who were satisfied with the expertise within the department was below the criterion, at 75%.

Items in the theme 'Expertise within the department'

- A sufficient number of experts are available in my working environment to help me deal with typical issues in my project.
- I have regular (formal or informal) contact with fellow PhD students about my PhD project.
- I am a member of a research group that meets at least once every two weeks.
- I have good access to the journals that are relevant to my research topic.
- I have good access to the books I need.
- I received good support during the collection of my data.

Figure 7. Items in the theme 'Expertise within the department'

Items in the thme 'Working conditions'

I am satisfied with …

- my contact with other PhD students
- my contact with other staff members of the research group
- the repetitive strain injury policy at the university
- the Health, Safety and Environment facilities (*ARBO- en milieudienst*) at the University
- the budget for my research
- my training, travel and conference budget
- my current income
- my office
- the IT facilities
- the library facilities
- my lab facilities

Figure 8. Items in the theme 'Working conditions'

Items in the theme 'General work satisfaction'

- Overall, I am satisfied with my working environment (office, furniture, location etc.).
- Overall, I am satisfied with the content of my work.
- Overall, I am satisfied with my social relationships at work.

Figure 9. Items in the theme 'General work satisfaction'

Table 18 indicates the percentages of satisfied PhD students for the three different scales. With regard to expert knowledge, we see that the respondents were on average satisfied. Female respondents and the respondents from the Faculty of Economics and Business scored slightly below the 80% satisfaction criterion, and those from the faculties of Arts and Law scored well below this criterion. Eighty-five percent of the respondents were satisfied with the working conditions; only the respondents from the faculties of Arts and Law scored below the 80% satisfaction criterion. Finally, the

figures show that the respondents were in general satisfied with the working conditions – the majority of the faculties score above 80% here. Only the respondents from the Faculty of Law score slightly below the satisfaction criterion. Differences among years can only be discerned in the field of expert knowledge – first-year PhD students were more positive about this than senior PhD students.

And what about differences at the item level? Additional analyses show that the more positive opinions of first-year PhD students are particularly related to the following items:

- A sufficient number of experts are available in my working environment to help me deal with typical issues in my project.
- I have good access to the books I need.
- I received good support during the collection of my data.

Table 18. Working conditions and general satisfaction: Satisfaction percentages in the various groups

Category	Group	Expertise	Working conditions	General
Sex	Male	75	84	89
	Female	75	86	84
Faculty	FEB	71	90	86
	FMW	82	86	84
	FLet	62	74	83
	GMW	76	91	90
	FRG	58	74	79
	FWN	80	85	88
Type of appointment	Employee status	76	88	89
	Student status	74	81	84
Year	First year	86*	90	91
	Senior	76*	81	84
Total		75	85	87

*N.B.: * Significant differences were found on the basis of this category.*

9.3. Points for improvement

The respondents indicated various points for improvement:

- Position of scholarship PhD students (as opposed to employed PhD students): This point was indicated most often. Answers include: 'as a scholarship student I have no rights at all (maternity leave, pension…)', 'as a scholarship student I feel discriminated against compared to PhD students with an employment contract. I find it unfair that I was not informed of the differences before signing the contract.'
- Computer/network/IT: 'The available computers are very slow and inadequate (my computer crashed when I used SPSS and Word simultaneously)' and 'the IT facilities are very bad: outdated software, poor support, regularly no connection to the network'.
- Climate: 'I've been in a new building for over a year now and they still haven't figured out how to adjust the air conditioning without either freezing or frying us' and 'I can't adjust the temperature in the office'.

- Furniture: ‘I need a higher desk!’ and ‘adjustable tables and chair for a good position in order to reduce RSI’.
- Project budgets: ‘Budget for my project, to travel abroad’ and ‘a higher budget for conducting experiments’.
- Clarity with regard to rights and obligations: ‘Clarification of tax issues before the contract is signed and more access to support to handle tax problems’ and ‘the status of scholarship students is very unclear (in particular with regard to health insurance, maternity leave, sick leave, etc.)’.
- Sharing the work space with others: ‘I am working in a room that I have to share with 7 other PhD students’ and ‘I am sharing my room with someone who is not a researcher and who has to have a lot of contact with others, which is highly disturbing’.

10. Information provision and future prospects

10.1. Introduction

Chapter 2 presented a number of results with regard to information provision about appointments at the University. This chapter will further discuss the themes of information provision and future career prospects. We will first focus on satisfaction with the information provision, subsequently on satisfaction with the career prospects and then on the differences among the various groups of PhD students.

10.2 Information provision

Table 19 indicates the respondents' sources of information. Information about practical matters, such as accommodation, is mainly obtained via fellow PhD students, whereas the main source of information with regard to the contract is the supervisor or day-to-day supervisor. The latter also applies to project-related information.

Table 19. Sources of information for PhD students in percentages

Sources	Practical matters: housing etc.	Practical matters: contract	Project matters
Supervisors	10	50	71
Fellow PhD candidates	45	23	16
PhD coordinator	9	18	20
The Graduate School	6	14	18
International service desk	23	8	1
Research institute	3	8	10
Others	45	17	9

The respondents were also asked to indicate bottlenecks in the information provision. Several respondents indicated that the rights and obligations of scholarship students were not clearly communicated at the start of the project. Other points mentioned include having to find everything out yourself, no central point of information, not clear who the contact persons are for certain information, information only provided in Dutch, insufficient information about modules, uncertainty about the role of the Graduate School, insufficient information about what is expected from PhD students.

10.3. Future prospects

Table 20 indicates the types of work that the respondents would prefer to do after they gain their PhD. Twenty-seven percent indicated they were interested in a postdoc position abroad and 22% in a postdoc position in the Netherlands. The respondents were least interested in a position as lecturer at a university of applied sciences or in setting up their own business. A number of respondents indicated that they had not thought about it yet. Of the respondents who did have a certain idea about the future, 69% indicated that this would be an attainable goal. Almost 30% of the respondents indicated that they would write a postdoc proposal, whereas half of the respondents did not know yet. Eighteen percent of the respondents indicated that they were not happy with their future prospects.

Table 20. Preferred careers after the PhD programme in percentages.

Type of job	%
Postdoc position in the Netherlands	22
Postdoc position abroad	27
Lecturing position at a university	9
Other position at a university	3
Lecturing position at a university of applied sciences	1
Commercial research position	11
Research position at a governmental institute (e.g. CBS, CPB)	4
Policy advisor for the government	2
Consultancy	2
Management position	2
Setting up my own business	1
Other, namely	16

We subsequently presented the respondents with a number of items about their future prospects (Table 21). Generally speaking, the respondents planned to complete their PhD thesis before taking on a full-time job. Seventy-four percent of the respondents agreed with the statement that a PhD degree is useful when looking for a job. Over two-thirds of the respondents felt that the content of their project would be useful in their future career. They were, however, less satisfied with the support offered by the University in planning the future. Eighteen percent of the PhD students were positive about the possibilities of finding a job after finishing their PhD programme, whereas 40% did not have an opinion about this yet.

Table 21. Satisfaction with future prospects in percentages

Future prospects	% Disagree	% Agree	% Don't know
I am determined to finish my dissertation before accepting a full-time job.	11	73	14
Obtaining my PhD degree will help me find a job.	11	74	12
The content of my PhD project is useful for my future career.	10	72	18
The university supports me in my future career planning.	34	30	34
There are enough job opportunities at this university after completion of my PhD.	42	18	40

10.4 Differences among groups with regard to future prospects

A number of differences can be seen among the groups of PhD students. The majority of PhD students from the Faculty of Economics and Business preferred a postdoc position in the Netherlands (18%) or abroad (18%). The same also applies to the PhD students from the Faculty of Medical Sciences (22%). Arts PhD students seemed to prefer a postdoc position in the Netherlands (40%) and this also applied to the respondents from the Faculty of Behavioural and Social Sciences (30%). PhD students from the Faculty of Law preferred a postdoc position in the Netherlands (21%) or a position as lecturer (21%).

Table 22 summarizes the results for the different faculties, sexes and types of appointment. Generally speaking, there are no great differences among faculties, between men and women or between PhD students with employee or student status. Differences among faculties, however, do appear for the question about University support in planning the future. For example, Law PhD students agreed with the statement that the University offered support, whereas Arts students tended to disagree with this statement. Something similar can be seen in the question about job opportunities – here we see significant differences, for example, between the Faculty of Arts (9%) and the Faculty of Behavioural and Social Sciences (67%).

Significant differences can be found on the basis of status and year for the two items 'The university supports me in my future career planning' and 'There are enough job opportunities at this university after completion of my PhD'. Both PhD students with employee status and first-year PhD students are more positive about these statements than the other groups.

*Table 22. Differences for the items in the theme 'Future prospects'**

Category	Groups	1	2	3	4	5	6
Sex	Male	81	85	87	89	47	33
	Female	83	88	87	87	47	27
Faculty	FEB	90	92	82	88	43	42
	FMW	83	77	91	85	46	34
	FLet	69	87	89	98	34	9
	GMW	87	90	91	86	58	67
	FRG	71	71	83	83	62	27
	FWN	82	88	89	89	44	28
Type of appointment	Employee status	85	85	88	88	50	37
	Student status	77	88	86	87	42	19
Year	First year	89	91	91	92	58	41
	Senior	77	83	83	83	40	25

* N.B.: 1 = satisfaction with future prospects, 2 = planning to finish PhD programme before taking on a full-time job, 3 = obtaining a PhD will help in finding a job, 4 = project content is important to new job, 5 = university offers planning support, 6 = there are sufficient job opportunities.

11. Factors related to PhD progress

11.1. Introduction

This chapter will discuss the factors related to PhD progress in more detail. Chapter 1 presented a theoretical framework containing the factors related to PhD progress, namely personal characteristics, the PhD programme, supervision and working conditions. This chapter will examine which of these factors are related to PhD progress.

11.2. Correlation with completion expectations

Analyses show that the degree to which PhD students expect to be able to complete their thesis within the official time frame depends on various factors. There is a significant correlation with the training and supervision plan, the quality and organization of supervision, the amount of expert knowledge available within the department, the working conditions and the general satisfaction with the working conditions. In other words, PhD students who are less happy with their training and supervision plan, the quality and organization of supervision, the amount of expert knowledge, the working conditions and the general working conditions have less strong expectations that they will finish their PhD within the stipulated term.

11.3. Differences according to sex, type of appointment, faculty and year

Table 23 shows the correlations for the various faculties. There are a number of differences in correlation among the faculties. For example, in the Faculty of Economics and Business only the satisfaction with the training and supervision plan is significantly related to the expectation of completing the PhD within the official time frame. In the faculties of Medical Sciences and Behavioural and Social Sciences, the quality of supervision appears to be significantly related to whether or not PhD students expect to finish on time. Within the Faculty of Law, satisfaction with the training and supervision plan affects the expectation levels. Finally, at the Faculty of Mathematics and Natural Sciences both the quality and organization of supervision, the amount of expert knowledge within the department and the working conditions and general satisfaction are related to the degree to which students expect to finish their PhD thesis on time.

Table 23. Correlations between factors and expected progress per faculty

Theme*	TOT	FEB	FMW	FLet	GMW	FRG	FWN
OBP	0.24**	0.45*	-0.11	0.37	0.28	0.76**	0.15
OBEG	0.30**	0.22	0.22	0.16	0.42**	0.33	0.31**
KBEG	0.29**	0.15	0.29*	0.23	0.37*	0.40	0.29**
OND	0.08	0.29	0.04	0.07	-0.1	0.02	0.1
EXP	0.19**	0.24	0.15	0.14	0.23	0.23	0.23**
WER	0.15**	0.22	0.14	0.06	0.19	-0.32	0.21*
ALG	0.15**	-0.06	0.04	0.09	0.16	0.13	0.22**

* *N.B.* OBP = training and supervision plan, OBEG = organization of supervision, KBEG = quality of supervision, OND = following modules, EXP = expert knowledge, WER = working conditions, ALG = general satisfaction.

What can we say about the differences between PhD students with employee status and those with student status? Table 24 shows the correlations between the factors and the expectation of completing the PhD thesis within the official term. A number of differences can be seen between PhD students with employee status and those with student status. For example, the training and supervision plan, the amount of expert knowledge, the working conditions and the general satisfaction with the working conditions are positively related to the completion expectations of PhD students with employee status but not for those with student status. The quality and organization of

supervision are positively related to the degree to which PhD students with student status expect to be able to finish their thesis on time.

Table 24. Correlations between factors and expected progress: PhD students with employee status versus student status

Theme	TOT	Employed	Student
OBP	0.24**	0.27**	0.19
OBEG	0.30**	0.31**	0.28**
KBEG	0.29**	0.34**	0.23**
OND	0.08	0.04	0.13
EXP	0.19**	0.24**	0.09
WER	0.15**	0.15*	0.12
ALG	0.15**	0.16*	0.13

We have also examined the differences between men and women (Table 25). For both groups the training and supervision plan, the organization and quality of supervision and the available expert knowledge are positively related to the completion expectations. In addition, satisfaction about teaching duties and general satisfaction are related to men's expectations of finishing the programme within the official time frame. Male PhD students who are more satisfied with their teaching duties and about the work in general have higher expectations with regard to completing their PhD on time. For women, on the other hand, the working conditions are positively related to the completion expectations.

Table 25. Correlations between factors and expected progress: men and women

Theme	TOT	Male	Female
OBP	0.24**	0.30**	0.19*
OBEG	0.30**	0.33**	0.26**
KBEG	0.29**	0.38**	0.21**
OND	0.08	0.21**	-0.07
EXP	0.19**	0.22**	0.15*
WER	0.15**	0.14	0.15*
ALG	0.15**	0.16*	0.14

Finally, we examined the differences between first-year PhD students and their senior colleagues. Table 26 shows the differences according to year. For first-year PhD students, satisfaction with the organization and quality of supervision is particularly related to whether or not they expect to be able to finish the programme on time, whereas senior PhD students also base their expectation on the training and supervision plan, the amount of expert knowledge in the environment, the working conditions and general satisfaction with the programme.

Table 26. Correlations between factors and expected progress: year

	TOT	First-year	Senior
OBP	0.24**	0.19	0.22*
OBEG	0.30**	0.34**	0.24**
KBEG	0.29**	0.23*	0.26**
OND	0.08	0.10	0.05
EXP	0.19**	0.18	0.17**
WER	0.15**	0.09	0.16*
ALG	0.15**	0.13	0.16*

11.4. Finally

Generally speaking, the same factors are correlated to the expected progress as to thoughts about dropping out. PhD students who are happy with their training and supervision plan, the supervision, the amount of expert knowledge available within the department, the quality of working conditions and the working conditions in general expect to be able to complete their PhD programme within the stipulated time frame.

12. Summary, conclusions and recommendations

12.1 Introduction

This chapter will discuss the summary of the results on the basis of the research questions formulated in Chapter 1, after which we will draw a number of conclusions and formulate several recommendations.

12.2. State of affairs with regard to personal characteristics, PhD programme, supervision and working conditions

A total of 577 PhD students completed the questionnaire. Over half of the PhD students were female, and their average age was 28. Less than half of the respondents were from the Netherlands and had a Master's degree at the start of the PhD programme. Four out of ten respondents were connected to the Faculty of Mathematics and Natural Sciences, whereas the smaller faculties were least represented. Over 60% of the PhD students were employed by the University.

One of the main aims of the research was to gain an overview of the group of respondents and their situation. Slightly less than 60% of the PhD students indicated that following modules was an activity integrated in the PhD programme. Almost 50% also performed teaching duties. Four out of ten respondents indicated that they started on the basis of a fixed research proposal. Only 63% of the PhD students indicated that their progress was formally evaluated, whereas 22% indicated this occurred on an irregular basis. The go/no go interviews were mainly conducted by the supervisors – only 35% were conducted by a Personnel officer.

Slightly less than two-thirds of the respondents indicated they were satisfied with the quantitative and qualitative requirements with regard to the thesis. Almost 40% of the PhD students indicated that there were no clear requirements with regard to the size of the PhD thesis, and over 30% responded this way with regard to quality requirements.

Almost one-third of the PhD students did not expect to be able to graduate within the official duration of their programme. Differences between men and women can be seen here – male PhD students more often indicated that they would be able to graduate within the stipulated time frame. Over a quarter of the PhD students indicated that they had, at one point or other during the programme, considered dropping out. One-third of these respondents considered doing so in their first year.

PhD students mentioned three categories of reasons for expecting not to be able to complete their programme on time, including the time schedule of the research, unforeseen circumstances and problems with regard to supervision. In addition, a small number of PhD students indicated that it is normal to have a delay. PhD students came up with a lot of different reasons for dropping out, including the quality of supervision, the social/academic relevance of their research, working conditions, loneliness, doubts about their own competence, adaptation problems and work progress.

Out of all respondents, 57% indicated that they had a training and supervision plan. For nearly 50% of the PhD students such a plan included information about the research content and design, whereas information about teaching duties was most often absent.

The average number of supervisors was 2, but this number varied strongly between 1 and 8 supervisors. Two-thirds of the supervisors were from within the same department at the University of Groningen. In general, the PhD students were

satisfied with their supervision. Subsequently, the PhD students were asked an open question about what they valued about their supervision and what could be improved. A number of respondents answered this question. Feedback/expertise, freedom, approachability and enthusiasm were among the positive points mentioned, whereas bottlenecks included the amount of available supervision time, having a 'click' with the supervisor, inadequate feedback, coordination between multiple supervisors and the supervisors' commitment and competence.

Almost 40% of the respondents indicated that they were not familiar with their Graduate School, Interestingly, many PhD students named a research school when asked about a Graduate School. In addition, one-third of the respondents indicated that they did not know who the contact persons were within the Graduate School in the event of problems concerning supervision or modules. However, this differs significantly among the various faculties – PhD students from the Faculty of Economics and Business were particularly well aware of who the contact persons were at their Graduate School. Over seventy percent of the respondents were satisfied with how the Graduate School functioned, although differences can again be seen: the Faculty of Economics and Business scores high on this question whereas the Faculty of Behavioural and Social Sciences scores low.

The PhD students followed three modules on average, with a total workload of 17 days. Over one-third of the PhD students indicated that they did not perform teaching duties or supervise students. PhD students mainly supervised students and they indicated that they were offered sufficient support in this task. Forty-five percent of the PhD students indicated that teaching did not contribute anything to the PhD programme. Fifty-six percent of the PhD students were satisfied with the amount of time they spent teaching, whereas 27% indicated that they would like to teach more hours. A small majority of respondents indicated that they had a training and supervision plan.

Almost all PhD students indicated that their PhD programme consisted of conducting research. However, although following modules is also a compulsory part of the PhD programme, only 60% mentioned this activity. Sixty-three percent indicated that their progress was regularly formally evaluated. Over one-third of the PhD students indicated that they had teaching duties, and this percentage is even higher (49%) among PhD students with student status.

The most important sources of information were fellow PhD students for practical matters and the thesis supervisor or day-to-day supervisor for contract and project-related matters. Perceived bottlenecks in information provision include the communication about rights and obligations, lack of a central point of information, uncertainty of where to turn to for certain information, information about what is expected from PhD students and the role of the Graduate School.

12.3. PhD student satisfaction with regard to personal characteristics, PhD programme, supervision and working conditions

A second aim of this study was to gain more information about PhD student satisfaction in relation to personal characteristics (e.g. sex), the PhD programme, supervision and working conditions.

The respondents were happy with their status of either staff member or student. However, there are differences among the various faculties with regard to this aspect – for example, respondents from the Faculty of Law were less satisfied with the information about the types of appointment at the University, whereas the respondents from the Faculty of Economics and Business were very satisfied with this

aspect. Differences can also be seen on the basis of the type of appointment students have at the University: PhD students with employee status turn out to be more satisfied than those with student status. Given the choice again, 91% would again opt for a PhD programme, but this time as an employed PhD student, and 12% of the PhD students with student status would again opt for a PhD programme on the basis of student status.

A clear majority (70%) agreed with the statement that sufficient information was provided about the regulations and conditions surrounding an appointment at the University of Groningen, although employed PhD students were more satisfied with this aspect than scholarship students. Eighty-one percent were satisfied with the working conditions.

Sixty-one percent of the respondents were satisfied with the training and supervision plan, which means that there was also a large group of PhD students who were not happy about it. Sixty-seven percent indicated that they were satisfied with the modules followed – in other words, there is room for improvement on this aspect too.

A clear majority of 84% were satisfied with the organization of supervision and 85% with the quality of supervision. This percentage is even higher at the Faculty of Economics and Business. Although most respondents were satisfied, qualitative data analysis shows that there is also a significant number of respondents who indicated that they were not so happy with the supervision. The most frequently mentioned problems include that the supervisor did not have enough time for the PhD students, gave inadequate feedback, did not demonstrate sufficient commitment and did not have the necessary expertise.

Only 56% of the PhD students were satisfied with the amount of time they spent on teaching, and this percentage was even lower (43%) among PhD students with student status. Half of the latter students would prefer to teach more hours.

Although in general PhD students were very satisfied with their working conditions, a number of points for improvement were indicated. The most frequently mentioned problem was the position of scholarship PhD students as opposed to their employed colleagues. Additional areas for improvement included computers/network/IT, climate control, furniture, project budgets, rights and obligations and sharing work spaces with others.

About half of the PhD students were interested in a postdoc position after gaining their PhD, and almost 70% indicated that they considered their future prospects to be an attainable goal. They were, however, less satisfied with the support offered by the University in planning their future.

Table 27 contains an overview of the percentages of satisfied PhD students per theme and per group. This table also highlights the percentages that fall below the 80% criterion. This table only contains the themes that include sufficient items to draw up a scale.

The table indicates that PhD students are generally satisfied with their supervision, with the expert knowledge available in their direct environment, with the working conditions and with the PhD programme in general. The satisfaction percentages for these items are above the 80% criterion. However, PhD students are less satisfied with the modules followed – 67% of the respondents were satisfied with this item. The lowest satisfaction percentage was scored in the theme Training and supervision plan, which only 61% of the PhD students were satisfied about.

The table clearly shows that attention must be paid to the following points:

- The training and supervision plan. Nearly all percentages for this theme are below the 80% satisfaction criterion. Only the respondents from the Faculty of Economics and Business scored above the criterion.
- The quality and organization of supervision for PhD students from the Faculty of Law.
- The quality of modules to be followed. Here, too, the percentages are below the 80% satisfaction criterion, with the exception of the respondents from the Faculty of Behavioural and Social Sciences.
- The expertise present within the department. This applies to the female respondents and the respondents from the faculties of Economics and Business, Arts and Law.
- The working conditions. This only applies to the respondents from the faculties of Arts and Law.
- Male respondents scored below the satisfaction criterion for the themes Training and supervision plan and Following modules. In addition to these two aspects, female respondents also score just below the criterion for the theme Expertise.
- The Faculty of Law scores below the 80% satisfaction criterion in five of the six themes, while the Faculty of Arts scores below this criterion in four of the six themes.
- The training and supervision plan and the modules followed are a point for attention for both employed PhD students and scholarship students.

Table 27. Percentages of PhD students satisfied with the various themes: training and supervision plan (OBP), organization of supervision (OBEG), quality of supervision (KBEG), following modules (OND), expert knowledge (EXP), working conditions (WER), PhD programme in general (ALG)

Category	Group	OBP	OBEG	KBEG	OND	EXP	WER	ALG
Sex	Male	69	88	88	68	82	84	89
	Female	55	81	83	66	79	86	84
Faculties	FEB	82	98	94	72	75	90	86
	FMW	58	84	82	63	85	86	84
	FLet	56	79	83	55	69	74	83
	GMW	65	87	90	83	86	91	90
	FRG	29	63	68	74	63	74	79
	FWN	63	83	86	65	84	85	88
Appointment	Employee status	59	85	87	71	81	88	89
	Student status	65	83	83	60	80	81	84
Year	First year	70	89	94	71	86	90	91
	Senior	52	79	79	63	76	81	84
Total		61	84	85	67	81	85	87

12.4 Factors related to expected PhD progress

The percentage of PhD students who expect to be able to finish the PhD programme within the official time frame must be increased. This can be done, on the one hand, by aiming at improvements within the aspects that lead to PhD students expecting delays, such as the time schedule of the research and problems with regard to supervision. On the other hand, student confidence in being able to successfully

complete their PhD must also be increased. In addition, the percentage of students who consider dropping out of the PhD programme must be reduced.

Only 38% expect to be able to finish their PhD programme within the stipulated time frame. A minority of 28% has considered dropping out at some point or other during their PhD. It must be noted here, however, that this survey only includes people who eventually decided to continue with the programme and that the actual dropouts are not represented in this study. In order to achieve the target figures, the group that eventually does drop out must also be examined. The following factors are positively related to the degree to which PhD students expect to be able to finish the programme on time:

- Satisfaction with the training and supervision plan
- Satisfaction with the organization of supervision
- Satisfaction with the quality of supervision
- Satisfaction with the degree of expert knowledge available within the department
- Satisfaction with the working conditions.

PhD students who are happy with their training and supervision plan, the organization and quality of supervision, the amount of expert knowledge available within the department, the quality of working conditions and the working conditions in general expect to be able to complete their PhD programme within the stipulated time frame. There are, however, differences among faculties and between the different types of appointment at the University as well as between the sexes. These differences must be taken into account when formulating policy.

In addition, differences also exist among the different groups of PhD students (Table 28). For example, the degree of satisfaction with the modules followed played a role in the degree to which men expect to be able to complete their thesis on time. In other words, men who are happy with the modules followed expect to be able to finish the programme within the stipulated time frame. This does not apply to female respondents, who instead relate their progress to their degree of satisfaction with the modules followed. Finally, a high degree of general satisfaction is positively related to the completion expectations of male respondents.

Differences can also be seen among the various faculties. For example, at the Faculty of Economics and Business a high degree of satisfaction with the quality of the training and supervision plan is correlated to the expected progress, whereas, for example, at the Faculty of Medical Sciences only the supervision (both in terms of quality and organization) is positively related to the expected progress.

There are also differences between PhD students with different types of appointment at the University. The training and supervision plan, for example, affects the expected progress of employed PhD students but not that of scholarship PhD students.

The final type of difference is based on the year the PhD students are in – for first-year PhD students, satisfaction with the organization and quality of supervision is particularly related to whether or not they expect to be able to finish the programme on time.

Table 28. Strength of correlations with outcome measures for the various groups

Category	Group	OBP	OBEG	KBEG	OND	EXP	WER	ALG
Sex	Male	++	++	++	+	+	0	+
	Female	+	++	++	0	+	+	0
Faculty	FEB	++	0	0	0	0	0	0
	FMW	0	0	+	0	0	0	0
	FLet	0	0	0	0	0	0	0
	GMW	0	++	+	0	0	0	0
	FRG	+++	0	0	0	0	0	0
	FWN	0	++	++	0	+	+	+
Type of appointment	Employee	+	++	++	0	+	+	+
	Student	0	+++	++	0	0	0	0
Year	First year	0	++	+	0	0	0	0
	Senior	+	++	++	0	++	+	+
	Total	+	++	++	0	+	+	+

12.5 Conclusions and recommendations

On the basis of this study we will now draw a number of conclusions and formulate several recommendations.[2] We will focus in turn on information provision, teaching and following modules, formal progress evaluations, requirements for the PhD thesis, the training and supervision plan, the supervision, the Graduate School and factors related to the expectation of whether the programme can be completed within the stipulated time frame.

1. Information provision about objectives, norms and expectations

Although in general PhD students are satisfied with the information provision, scholarship PhD students are less satisfied with the information about regulations. Information provision for PhD students must be arranged in the best possible way – this conclusion was already drawn in the GRASP reports in 2003 and 2006.

The study also shows that there is still some uncertainty about the qualitative and quantitative requirements with regard to the PhD thesis. Research into the factors that affect progress in higher education has revealed that clear objectives, norms and expectations are particularly important (Yorke, 1999). This very likely applies to PhD students as well. Optimum information provision is therefore vital as it provides PhD students with a clearer picture of their research topic and the PhD programme. Realistic expectations can then be drawn up with regard to the content and progress of the PhD programme. In addition, clear information provision may also have a positive effect on the planning of the PhD programme.

The VSNU position paper 'Hora est!' (2004) indicates the importance of formulating the aim, generic entry requirements and learning outcomes of a PhD programme. Clear information about these aspects should be made available to each PhD student. The faculty Graduate Schools or the Office of the Dean of Graduate Schools, which monitors the quality of PhD programmes, could play a role in this.

[2] Both the Landelijk Aio Overleg (LAIOO, 2002, 2003) and the Groningen Association for PhD students (GRASP 2003, 2007) have conducted research into PhD progress in the past. A number of recommendations have been formulated on the basis of these studies, which partially tie in with the recommendations in this report.

Recommendation:
The information provision to employed PhD students and scholarship PhD students must be optimized with regard to the following points:

- ***Clear information about the status of employed PhD students and scholarship PhD students***
- ***Clear information about the regulations concerning the PhD programme, for example with regard to tax issues and maternity leave***
- ***Clear information about the objectives and learning outcomes of the PhD programme and, in line with this, clear information about the quantitative and qualitative requirements with regard to the thesis.***

This information could be included in a University-wide information package and a Graduate School-specific information package,[3] which would be supplied to all new PhD students.

This is particularly important with an eye to halting the decrease in satisfaction levels among PhD students as they progress in the programme. Dropout should be limited to the first year by raising realistic expectations and, at a later stage, monitoring the progress, for example via a mentor system.

2. **Following modules**

A majority of PhD students (60%) indicated that following modules formed part of the PhD programme. One of the aims of the PhD programme is to train students to become independent academic researchers. Therefore the percentage of students who follow modules must be raised to 100%. Following modules is particularly desirable with an eye to acquiring the competences needed to independently conduct academic research.

Respondents with employee status were significantly more satisfied with the modules followed than those with student status.

Recommendation:
All PhD students must follow modules as part of their PhD programme. The Graduate School is responsible for the training and supervision of their affiliated PhD students. General skills modules can be offered in the form of an umbrella curriculum for all Graduate Schools.

In addition, Graduate Schools must pay attention to the range of modules available to foreign PhD students as some of them indicated that they were unable to follow the desired modules because they were taught in Dutch.

Finally, the division of responsibilities between the faculty Graduate Schools and the national research schools should be made more transparent to PhD students.

3. **Teaching duties**

Respondents with student status more often have no teaching duties (49%) than employed PhD students (23%). A significant proportion of the scholarship PhD

[3] The PhD student organizations, including GRASP and a number of PhD councils, are currently compiling such an information package.

students (50%) would prefer to teach more hours. Some PhD students also indicated that they would like to receive more support in this matter. Alternative solutions are being developed for PhD students whose appointment does not allow for teaching duties, such as teaching guest lectures and modules with a large practical component.

Recommendation:
All PhD students with teaching duties should be enabled to develop their skills via the regular teaching professionalization tracks. Agreements about this must be made at the start of the PhD programme. This topic is also on the agenda of the Office of the Dean of Graduate Schools.

4. Formal progress evaluations

Two-thirds of the PhD students have regular evaluation meetings about their progress, whereas 22% do not. In addition, Personnel officers only attend 50% of the go/no go interviews for employed PhD students. Regular formal evaluations and feedback are important tools for reflection on the PhD progress and for the adaptation of plans where necessary. We therefore suggest that the aim should be to have structural formal evaluations for all PhD students. The Graduate Schools could take up a monitoring role here.

Recommendation:
A general format must be drawn up for progress, evaluation and appraisal interviews, containing an overview of topics for discussion. The training and supervision plan should clearly state at which moments (e.g. after six months and subsequently every year) interviews are to take place and what the possible consequences are. The progress, evaluation and appraisal interviews should at least discuss the modules followed, the UFO competences developed and those still to be developed, the supervision and the project progress.

The appraisal interviews of employed PhD students must be attended by a Personnel officer and those of scholarship PhD students by the PhD coordinator.

In addition, a course must be developed for supervisors teaching them how to hold such development and appraisal interviews, similar to the training courses in holding career development interviews for staff members and managers.

The target rate for PhD students who receive regular formal evaluations must be raised to 100%. The Graduate School should play a supervisory role here, signalling whether the interviews are taking place and taking measures if this is not the case.

The training and supervision plan should play an important role in the development, evaluation and appraisal interviews of PhD students.

5. Training and supervision plan

A significant number of respondents indicated that they had no training and supervision plan or did not know whether they had one. In addition, the training and supervision plan often did not adequately describe the various elements in the PhD programme. For example, only 30% included information about time management and 20% included information on teaching duties. Sixty-one percent of the respondents were satisfied with the training and supervision plan. Finally, respondents with student status appeared to be more satisfied than their employed

colleagues. However, female respondents, respondents from the faculties of Medical Sciences and Law and respondents with employee status were relatively less satisfied with the training and supervision plan.

A training and supervision plan is important to have as it clarifies the objectives, norms and expectations with regard to the PhD programme. In addition, it can also offer a starting point for the career development interviews and day-to-day supervision. The training and supervision plan must clearly state which UFO competences PhD students are expected to have and how the training and supervision will support the development of these competences.

Recommendation:
A training and supervision plan must be drawn up for each PhD student. These training and supervision plans must be uniform for all Graduate Schools and include at least the following items: project description, supervision (who and how often), rough time schedule, training to be followed (incl. conferences), evaluation moments and, where relevant, teaching duties. The training and supervision plan must be a dynamic document that can be adjusted during the planned progress and evaluation meetings. This way, the training and supervision plan can serve as the starting point for development, evaluation and appraisal interviews.

6. Supervision

The introduction to this document stated that the Board of the University is aiming to increase the number of PhD degrees awarded. One of the preconditions for this is a high level of quality for supervision. Although a significant majority of respondents (85%) were satisfied with the supervision, bottlenecks were also indicated, the most important ones being the fact that the supervisors had too little time and provided too little feedback and that the feedback that they did give was not adequate, according to the respondents.

Although a large proportion of PhD students are satisfied with the supervision, there is room for improvement in the quality of supervision. The qualitative analyses show that good supervision consists of the following:

- Frequent and regular feedback
- Adequate feedback communicated in a positive way
- Realistic planning
- Balance between providing guidance and leaving room for own ideas
- Commitment and enthusiasm
- Sufficient expertise
- Sound coordination with other supervisors.

More high-quality supervision can be attained by offering supervisors professionalization opportunities specifically focused on supervising PhD students. Previous research has shown that good supervision can shorten the duration of PhD programmes (Seagram, Gould, & Pyke, 1998) and increase PhD students' research productivity and self-efficacy (Paglis, Green, & Bauer, 2006).

Improving supervision can thus lead to better results. However, in some cases the interaction between supervisors and PhD students must also be taken into account. The qualitative analysis shows that a number of PhD students experienced no personal 'click' with their supervisor. Both parties will have to learn to deal with this,

and therefore the PhD student, just like the supervisor, could consider following a course to learn how to work with people you don't get along with.

A number of PhD students indicated that they experienced feelings of loneliness, lack of connection to the topic or doubts about the usefulness of the research. Although this problem could partly be solved by a supervisor who shows commitment and is able to stimulate people, the PhD student's intrinsic motivation also plays a significant role here. A supervisor can stimulate this intrinsic motivation by cooperating, creating a good atmosphere and showing trust in the PhD student's abilities. Partly for this reason it is important to make a good selection of PhD students who have a 'match' with the research, the topic and the supervision before the start of the project.

Recommendation
The quality of supervision must be optimized. Supervisors must have the right competences to supervise PhD students. This can be achieved via a professionalization track specifically aimed at supervising and motivating PhD students. At the same time, however, mutual commitment to the topic is essential – both the supervisor and the PhD student have to feel responsible for a successful PhD programme. Good coordination is a must if there are several supervisors.

The Graduate Schools have an important role to play in the area of supervision too. They must, for example, respond adequately to the obstacles that PhD students encounter in their PhD programme. This may imply that the functioning of supervisors who meet with unsatisfactory feedback must be critically examined.

7. Graduate School

The Graduate School is, among other things, responsible for the training and supervision of PhD students and the quality assurance of the programme, and it monitors the recruitment and selection of PhD students and their progress (VSNU, 2004). In practice, however, it turns out that many PhD students are not familiar with the Graduate Schools and how they function. In addition, the introductory modules provided at some of the Graduate Schools are only followed by relatively few students. We expect the numbers of PhD students who are familiar with the Graduate Schools to increase in the short term because currently we are still dealing with PhD students who started their programme before the Graduate Schools were established. A follow-up study about the quality of the Graduate Schools should provide more insight into this aspect.

The degree of satisfaction with the Graduate Schools varies significantly among the different faculties. At the Faculty of Economics and Business, for example, 84% of the respondents are satisfied, against only 48% at the Faculty of Behavioural and Social Sciences.

Recommendation:
The role and responsibilities of the Graduate Schools must be more often and more clearly communicated. Follow-up research should discuss this communication as well as the quality of the Graduate Schools and the Office of the Dean of Graduate Schools in general.

8. Working conditions

Although most PhD students are satisfied with their working conditions, the inferior position of scholarship PhD students as opposed to employed PhD students is reason for dissatisfaction. In addition, there appears to be room for improvement with regard to basic matters such as climate control, furniture and IT facilities.

Recommendation:
Various preconditions must be in order to create an optimum working climate. Graduate Schools can map the current working conditions and provide suggestions for improvement by means of a survey among PhD students.

9. Future prospects

Almost half of the PhD students are interested in a postdoc position after gaining their PhD. There is, however, some dissatisfaction with the career guidance offered by the University. Sound career guidance and orientation is of the utmost importance. The VSNU (2004) has indicated that career orientation is important because more than half of the PhD students end up in careers outside the field of academic research. In addition, career guidance can stimulate optimum development and utilization of academic talent, and it can aim to enhance the attractiveness of a PhD programme for graduates.

Recommendation:
Good career orientation is important to achieve a better link with the job market. The possibilities of career orientation must be communicated more clearly to the PhD students. In addition, a structural form of career orientation could be integrated in the Graduate Schools so that career orientation can take place at an early stage. Exit interviews should also be held with PhD students in order to receive feedback on this subject.

10. Factors related to expected progress

The survey shows that at least four factors are related to the expected progress, including the training and supervision plan, supervision, the degree of expert knowledge and the working conditions. In addition, differences have appeared among the various groups of PhD students. Table 29 provides an overview of the factors that positively relate to the degree to which PhD students expect to be able to complete their programme within the stipulated time frame. These aspects should be introduced as points for attention in the Graduate Schools' future policymaking.

Table 29. Factors related to expected PhD progress

Group	OBP	BEG	OND	EXP	WER	ALG
Male	++	++	+	+	o	+
Female	+	+	o	+	+	o
FEB	++	o	o	o	o	o
FMW	o	+	o	o	o	o
FLet	o	o	o	o	o	o
GMW	o	++	o	o	o	o
FRG	+++	o	o	o	o	o
FWN	o	++	o	+	+	+
Employee	+	++	o	+	+	+
Student	o	+	o	o	o	o
First year	o	++	o	o	o	o
Senior	+	++	o	++	+	+
Total	+	++	o	+	+	+

Although the factors were examined separately, it is important to realize that some factors are also interrelated – for example, a high-quality training and supervision plan can be beneficial to the quality of supervision. Follow-up research should examine these interrelationships.

Recommendation:
It must become the standard among PhD students that a PhD programme lasts four years. Currently, some PhD students seem to find it quite normal to spend five years or even longer on gaining their PhD. The Board of the University can contribute to this aspect by not only formulating target rates for graduating within five years but also within four years. To this end it is important that attention be paid to the factors related to PhD progress, i.e. an optimum training and supervision plan, high levels of quality and organization of supervision, sufficient expert knowledge and optimum working conditions.

It is not enough to focus on just one of the above-mentioned factors – an integrated approach must be sought in order to make improvements. A first step could consist of a manual about gaining a PhD degree at the University of Groningen, containing information about the aforementioned factors. The differences among the various groups of PhD students must also be taken into account in the policymaking process.

11. Systematic attention to quality assurance in PhD programmes

Finally, systematic attention must be paid to quality assurance in the PhD programmes (VSNU, 2004). Biannual satisfaction surveys, focusing on the various elements in the PhD programme, as well as a biannual, extensive themed survey may yield recommendations on the positive points and points for improvement in the PhD programme. The Graduate School must play an important role here. The VSNU position paper (2004, p18) includes the recommendation that the Graduate Schools must ensure '[...] adequate regulations for the design, implementation and quality assurance of the programme and the supervision, within the guidelines of the Committee of Deans and the Board of the University...'

Recommendation:

A quality assurance system must be established for PhD programmes, in which annual surveys, discussions with the Graduate Schools and quantitative data about PhD success rates provide information about the positive points and points for improvement in the PhD programme. The Office of the Dean of Graduate Schools plays a central role in the quality assurance of the PhD programme.[4]

[4] The Dean of Graduate Schools has indicated in a personal communication about an earlier version of this report that most of these recommendations will be taken into account in the elaboration of his plans. These plans will be implemented during the coming period in consultation with the faculty Graduate Schools.

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