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## Scholarships for PhD students: an interim evaluation of a Dutch policy experiment

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### **Key words**

doctoral education; policy experiment; research climate; scholarships

## ***Abstract***

### **Scholarships for PhD students: an interim evaluation of a Dutch policy experiment**

We analyse a policy experiment that allows universities to offer scholarships to their PhD students, alongside the more customary model of offering them an employment contract. The key question is whether the experiment so far has had any adverse effects on the research climate for the PhD students (their status, income position, supervision and integration in the research group). In doing so we compare the different types of PhD students and conclude that the PhD scholarship students receive the same treatment as other PhD candidates in terms of supervision and research facilities. Moreover, they feel at home in the research group.

## Scholarships for PhD students: an interim evaluation of a Dutch policy experiment

### Introduction

Universities take responsibility for educating the next generation of researchers by offering doctoral education to PhD students. But how universities and the higher education systems they function in actually shape doctoral education may differ widely across countries (Hasgall *et al.*, 2019). The role and shape of doctoral education has been debated quite intensely in European higher education ever since doctoral education was formally introduced as the third cycle to the Bologna Process. Debates also take place in the Netherlands, where there are discussions (see KNAW, 2016; Koier & De Jonge, 2018) on the contribution of PhDs to society, the official length of the PhD programme, the success rate of PhD programmes, the terms of employment of doctoral candidates (should PhD students be employees of the university or should they receive a scholarship and be regarded as a student?) and the need to prepare early career researchers for their future employment (what should the training package offered by Graduate Schools to PhD students and research master's students look like?).

At the end of 2015, the Dutch government allowed universities to experiment on a limited scale with the organisation of doctoral education and the status of PhD students. As part of the experiment, universities could offer a limited number of positions to PhD students where candidates that are accepted receive a scholarship instead of an employee position. These PhD scholarship students receive a monthly scholarship from their university, allowing them to work on their PhD for a period of four years. By being students, the scholarship students also enjoy more freedom. First, to write their own research proposal and choose their promotor. Second, they are expected to receive training – not just on how to become a researcher and function in academia, but also in terms of improving the skills that may prepare them for a career outside of academia. Because of the fact that scholarship students are not employees, they can set their own working hours and cannot be called upon to act as lecturers in the university. However, if they wish to prepare for a career in (higher) education, they can agree to do teaching on the condition that it fits in their training and supervision plan.

PhD scholarship students receive a scholarship (slightly more than €1,800 net per month) from the university which is equal to the starting salary of an employee PhD candidate. PhD scholarship students do not receive a salary. The university has opted to make 'notional' payments to PhD scholarship students, which involves paying tax and social security contributions for them. As a result they are well integrated into the Dutch social system. PhD scholarship students are not covered by the Collective Labour Agreement for Dutch Universities, meaning that they don't receive an end-of-year bonus or holiday pay, don't go up a grade on the salary scale each year (although the scholarships are indexed annually), nor have pension contributions paid for them. This cost saving enables the university to attract more PhD students for the same money (slightly less than twice as much). A full scholarship costs the university, including taxes, premiums and other employer's costs, around €30,000 on an annual basis. For a PhD project, this is about 40% cheaper for the university compared to an employee PhD candidate. The scholarships for PhD scholarship students are paid through a separate sub-fund of the university's Graduation Fund (its *Profileringfondsen*).

Two universities (University of Groningen - UG; Erasmus University Rotterdam - EUR) signed up for the experiment in 2016. The first PhD scholarship students started at these universities in the 2016-2017 academic year. At this moment (June 2019) there are about 850 scholarship students in the UG. Since the overwhelming majority is in the University of Groningen and only 15 are in the Erasmus University, this paper is only reporting on the experiences and results found for the first university.

In the report that includes the results of the experiment so far (Jongbloed *et al.*, 2019) we address in particular the issue of the integration of scholarship students in the academic community, their perceptions of the working conditions and their status in the university. We also look at the way in which the universities exert their responsibility for preparing PhD students for a future career – a career that may lie in academia (often the preferred outcome for the majority of those embarking on a PhD) or outside academia.

## Background

As stated in the explanatory memorandum attached to the decree on the PhD Scholarship Programme Experiment (i.e. the Order in Council – see: AMvB, 2016), giving the option of enrolling PhD scholarship students is expected to deliver on three objectives:

1. Increasing the number of PhD positions;
2. Offering PhD students more freedom to write their own PhD proposal;
3. Offering educational opportunities and career orientation to PhD students.

The most important research question in the evaluation of the policy experiment was whether the introduction of the PhD scholarship student position is affecting the research climate in the university in an adverse way – in particular when it comes to the research climate as experienced by the PhD scholarship students themselves.

In an Order of Council was specified (in Article 14) that the minister of Education can wholly or partially stop the PhD scholarship experiment if the interim evaluation reveals that there are serious adverse consequences for the research climate at the university. The latter refers to the position of PhD students and the risk that the introduction of PhD education can evoke the image of first and second-rate PhD students. If it emerges from the evaluation that the PhD students experience their PhD trajectory differently (say more negatively) compared to the employee PhD candidates and have a different perception of their integration in the research group, the question is whether this difference is primarily related to the PhD scholarship experiment and its characteristics. A possible deterioration in the quality of the dissertations produced by PhD scholarship students would also be regarded as an undesirable effect, as is the use by the university of PhD scholarships as a cost-saving measure. These were additional questions posed by the minister for the interim evaluation of the PhD scholarships experiment.

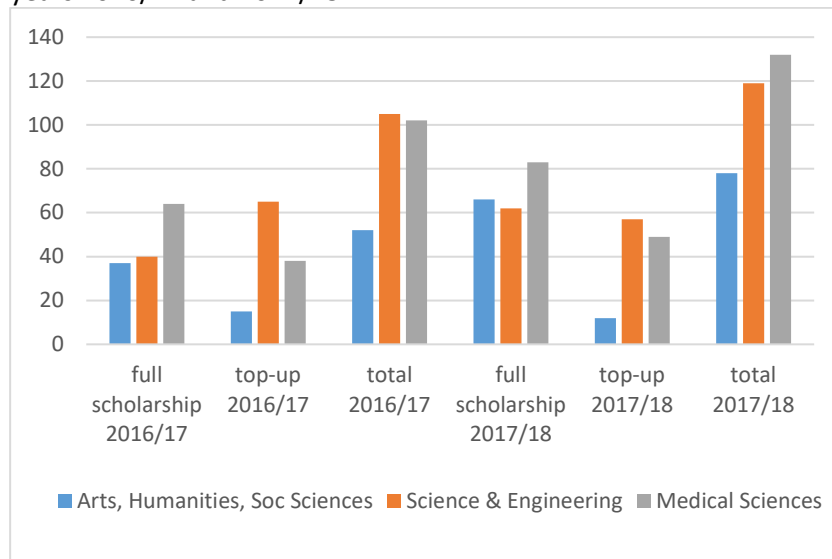
In the first two years of the experiment, a total of 588 PhD students started at the University of Groningen (UG). All UG faculties decided to participate – initially with some hesitation. But the opportunity to offer more PhD positions and being able to attract promising PhD students was the deciding factor – also for the various stakeholders represented in the university council and the faculty councils that approved the UG's participation in the experiment.

At the UG, a dedicated organization was set up for the PhD Scholarship Programme, with the university's PhD Scholarship Desk playing a key role. At the start of the PhD programme an agreement is signed between each PhD scholarship student and the university, setting out the rights and duties for each partner. Although this is complicated for notional employment relationships (where there is no relationship of authority), arrangements have been made in the event of illness and pregnancy.

It is good to mention that there is no single type of PhD candidate. There are many types – and the employee position (a temporary four year employment contract to work on a dissertation) is one of them; the external PhD student is another. In the Netherlands, around 50% of PhD students have an employee status. Most of them are assigned to – and funded through –externally funded research projects (in Dutch: 2<sup>nd</sup> and 3<sup>rd</sup> funding stream, i.e. paid for by research councils, external organisations, European Commission, et cetera) in which they have little freedom to design their own research.

PhD candidates from abroad that have a scholarship from their country are yet another type. In the Netherlands, around 10-15% of PhD students are international students coming to the Netherlands with such a scholarship. This scholarship in most cases is considerably lower than € 1800 per month. Most of these international PhD students work on a self-selected topic that fits in with the research expertise of the university department where they will obtain their PhD.

**Figure 1:** Intake of PhD scholarship students in the University of Groningen per graduate school, academic years 2016/17 and 2017/18



The UG decided to give the international scholarship PhD students a supplement (a ‘top up’) to their country’s scholarship and include them in the PhD Scholarship Programme Experiment. As a consequence, they receive the same income as other PhD scholarship students. On top of that, and similar to other PhD scholarship students in the experiment, the international PhD students get a notional employment status, that ensures they are fully embedded in the Dutch social security system. Figure 1 shows the intake of PhD scholarship students at the UG for the first two years since the start of the experiment (academic year 2016/2017). Numbers are shown for graduate schools in three clusters: Arts, Humanities and Social Sciences (AHS), Science & Engineering (S&E), and Medical Sciences (Med).

In the first two years of the experiment, a total of 588 PhD students started at the RUG. 60% receive a full scholarship and the remainder receive a supplementary scholarship (a top-up). The figure also shows the distribution across graduate schools. The number of PhD scholarship students receiving a full scholarship increased by 50% from 2016/17 to 2017/18. The main reason for this was that, given the limited preparation time for the participating in the experiment, some faculties in the AHS domain only chose to start in September 2017. Our interviews with the deans and directors of Graduate Schools also revealed that departments wished to start the experiment cautiously, because of initial doubts about the experiment and the opposition voiced by the national association of PhD candidates in the Netherlands. Despite the initial hesitation, all UG faculties decided to participate in the experiment. Throughout the experiment the university council is closely following how the experiment proceeds and (suggestions for) improvements are made over time as the experiment proceeds.

When looking at the intake of PhD candidates (irrespective of their type, i.e. employee status, resp. student status), one can observe that the overall number of incoming PhD students has increased by 100-150 from 2015 onwards. The number of new PhD students with employee status has fallen to some extent but this is due to the fact that, because of its decision to take part in the PhD scholarship experiment, the university awards (almost) all university-funded PhD positions to PhD scholarship students only. PhD students that are externally funded (research council, European funds) or funded indirectly on research contracts continue to have an employee status. However, in light of the declining funding opportunities in the university’s research environment, the number of employee-PhDs is falling.

### Some theory

In a short literature study, we looked at how to operationalize the concept of research climate, and what factors might influence it. The concept of research climate may be operationalized by connecting it to the work of Douglas (1982), who characterises the research climate using two dimensions – the Group and the Grid dimension. The research *group* to which a PhD student belongs will affect the functioning of a group member (e.g. restricting behaviour, pushing it in particular directions, accepting particular norms), whereas

the *grid* dimension pays attention to issues like the external regulation (laws w.r.t. labour conditions and remuneration, research funding, information provision, etc) that affects motivation, well-being and performance of group members.

Crucial factors in the (timely) completion of a PhD track are good guidance and supervision; integration in the research environment and a sense of belonging; and satisfaction of PhD students (Bair & Haworth, 2004). Supervision relates to academic as well as personal support. As part of satisfaction a sense of autonomy is important.

Integration in the research group and the degree to which they experience a sense of belonging refers to the degree to which PhD students feel at home in their research group. Sense of belonging touches on formal relationships as well as informal relationships. In short, the various aspects of the research climate as experienced by the PhD students are about the following issues:

- Freedom in shaping the research proposal
- Autonomy experienced during the PhD trajectory
- Sense of belonging to the research group
- Availability and substantive support from supervisors
- Satisfaction with guidance, research budget and income
- Status of PhD students within the university or the research group
- Space for participation in training activities
- Involvement in providing education

In the following section these aspects of the research climate will be covered by means of a number of statements that are presented to PhD candidates in a survey or interviews. Also the views of PhD supervisors and other stakeholders dealing with PhD trajectories will be sought.

## **Methodology**

Different methods were employed to collect information for answering the research questions from the perspective of the dimensions introduced in the previous section. Six complementary methods were used:

- (1) desk research (exploring academic literature, documents and data);
- (2) interviews with stakeholders in the two participating universities (directors of Graduate Schools, deans, PhD supervisors, PhD students, local PhD associations, support staff in service units; university rectorate; university council members);
- (3) interviews with representatives from selected national organizations (i.e. the national PhD students network; Royal Academy of Sciences, the association of universities, student associations);
- (4) surveys of PhD students in the two universities participating in the experiment;
- (5) a survey among PhD supervisors in the University of Groningen;
- (6) a round table discussion (focus group) with twelve PhD scholarship students from the University of Groningen.

Desk research was used to collect information on developments over time in the number of PhD students in the two universities, including information on the composition across disciplines, nationalities, and types of scholarships.

On the basis of our literature review we prepared a questionnaire to survey PhD students and their supervisors. However, for the University of Groningen (UG) it quickly became apparent that the intended questionnaire was bearing a strong substantive similarity to the questionnaires used in the internal annual evaluation that the UG was already carrying out annually among its own PhD students (PhD students and employee PhD candidates) and the PhD supervisors. The surveys for the UG's internal evaluation are carried out as part of the university's long-term 'Successful PhD' research project, set up by staff at the UG's Faculty of Behavioural and Social Sciences. This project seeks to analyse how PhD scholarship students feel about their PhD programme and the extent to which their experience differs from that of other PhD

students.<sup>1</sup>

Because of the overlap between our intended survey and the UG survey and because of the fact that the most recent UG survey was held at the end of 2018, we decided to make use of the original survey data collected by the UG researchers in their PhD survey. When necessary, the data was split out in a more detailed way to reveal differences across subgroups (i.e. PhD candidates receiving different types of scholarships, different nationalities, different disciplines). The UG's PhD survey was administered to employed PhD students as well as PhD scholarship students and touches on issues such as perceptions of work (autonomy in project design), integration in research group (e.g. relationship with colleagues), supervision, satisfaction with several aspects of the PhD scholarship (including income levels, and course offerings for PhD students) and educational duties of PhDs.

Comprehensive survey results are available for the first two cohorts of PhD scholarship students and can be compared to survey responses given by other (i.e. employee) PhD students who began their PhD trajectory in the same period. In 2017 and 2018, the UG invited 830 respectively 987 starting (or early second-year) PhD candidates to complete the questionnaire. 152 employee PhD candidates and 106 PhD scholarship students completed the survey in 2017; in 2018, the numbers were 191 employee PhD students and 161 PhD scholarship students. The response rate was therefore 31% in 2017 and 36% in 2018. In both 2017 and 2018, the response rate of PhD scholarship students was almost twice as high as that of employee PhD candidates (54% compared to 27%). Of the 267 PhD scholarship students who responded, 60% received a full scholarship and 40% a top-up. This mix is very similar to the ratio in the total population. Response rates across the different graduate schools to which PhD students belong differ widely. When it comes to representativeness, employee PhD candidates are underrepresented in the survey response, as well as PhD students (both employee candidates and scholarship students) from the medical cluster.

## Results

### *status and position in the research group*

About the question how PhD students experience their status – in the research group and in relation to other PhD students – the Figure 2 shows that PhD scholarship students, like employee PhD candidates, are well embedded in the research group and feel connected to their colleagues, both academically and socially. Significant differences between PhD scholarship students and PhD candidates that have an employee status have not been found. Figure 2 makes a distinction between PhD scholarship students receiving a full scholarship from the UG (indicated with 'scholarship' in Figure 2) and those that receive a top-up grant (on top of their country's scholarship).

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<sup>1</sup> See: <https://www.rug.nl/education/phd-programmes/phd-scholarship-programme/about/evaluation>. The most recent internal evaluation report is: RUG (2019).

Figure 2: Sense of belonging among PhD candidates (PhDs scholarship students versus employed PhDs)

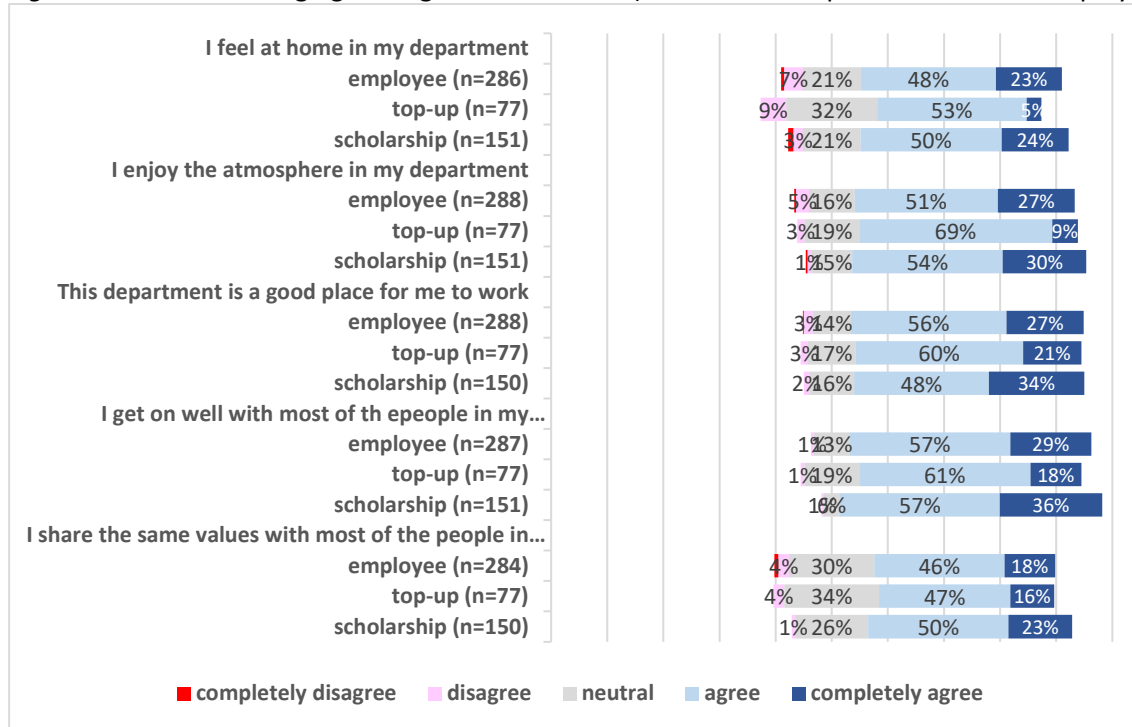


Figure 3: Perception of differences between PhD scholarship students and employed PhD students – part 1

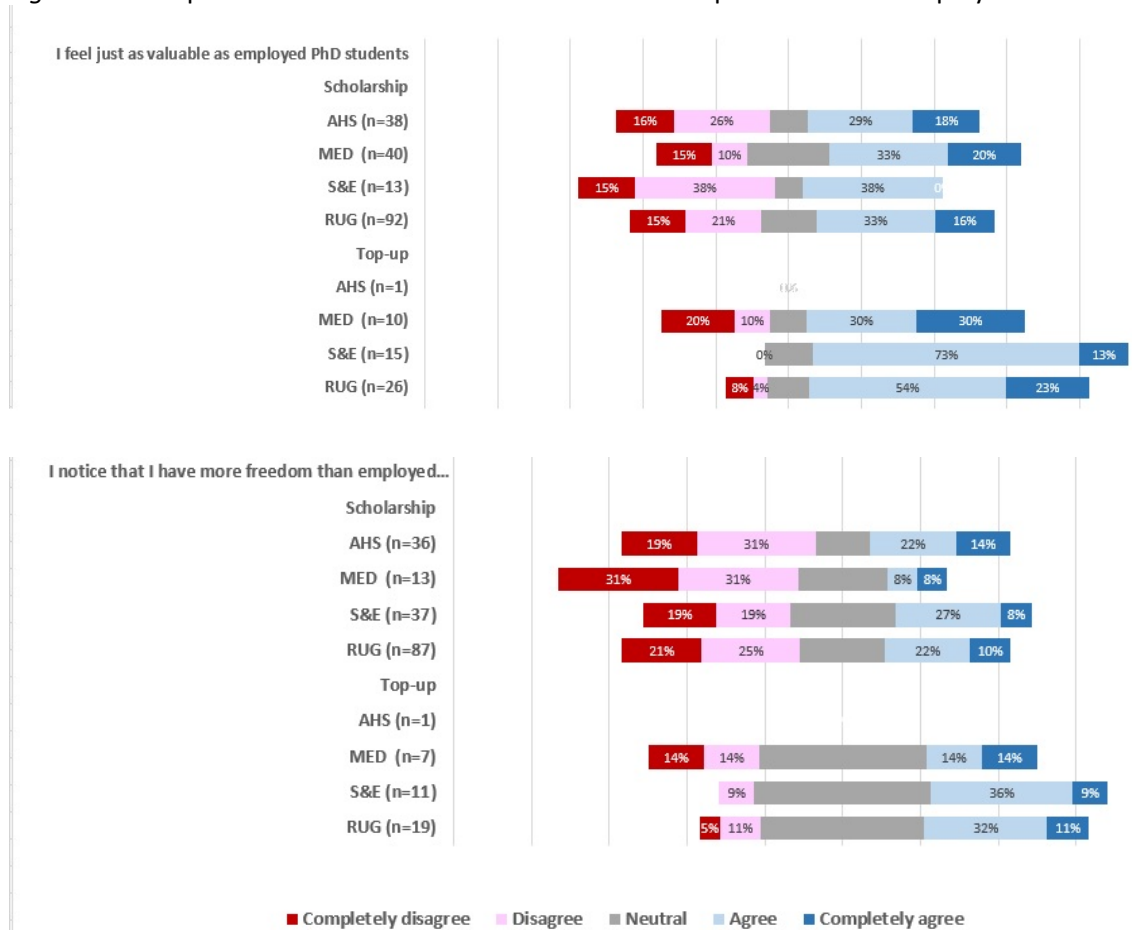


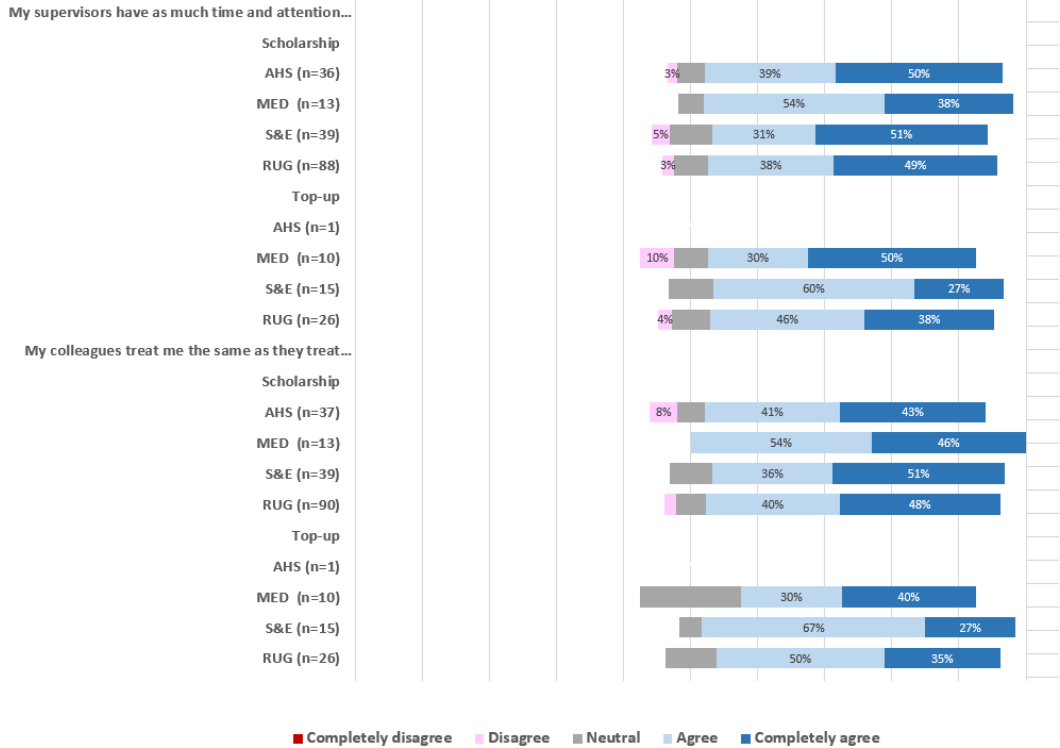
Figure 3 illustrates that PhD students are fairly divided on the statement that they are just as valuable as employee PhDs. There are more opinions veering towards the negative (red coloured) side. More than half of the UG PhD students in the Science & Engineering (S&E) graduate school say they feel



less valuable than employee PhD candidates. On the other hand, about half of the PhD students in both the Arts, Humanities and Social Sciences (AHS) and the medical (MED) graduate schools feel equally valuable. There appear to be indications of differences between the AHS, S&E and medical PhD students, but because the survey response (see the 'n' in the figures) was relatively low for some areas, it remains questionable whether the differences are due to the experiment or are perhaps due to disciplinary features, size of the department, et cetera.

When comparing themselves with employee PhD candidates, PhD scholarship students feel very strongly that they receive the same attention from their supervisors as other PhD candidates and their colleagues in the research group treat them no differently than employee PhD candidates (Figure 4).

Figure 4: Perception of differences between PhD scholarship students and employed PhD students – part 2

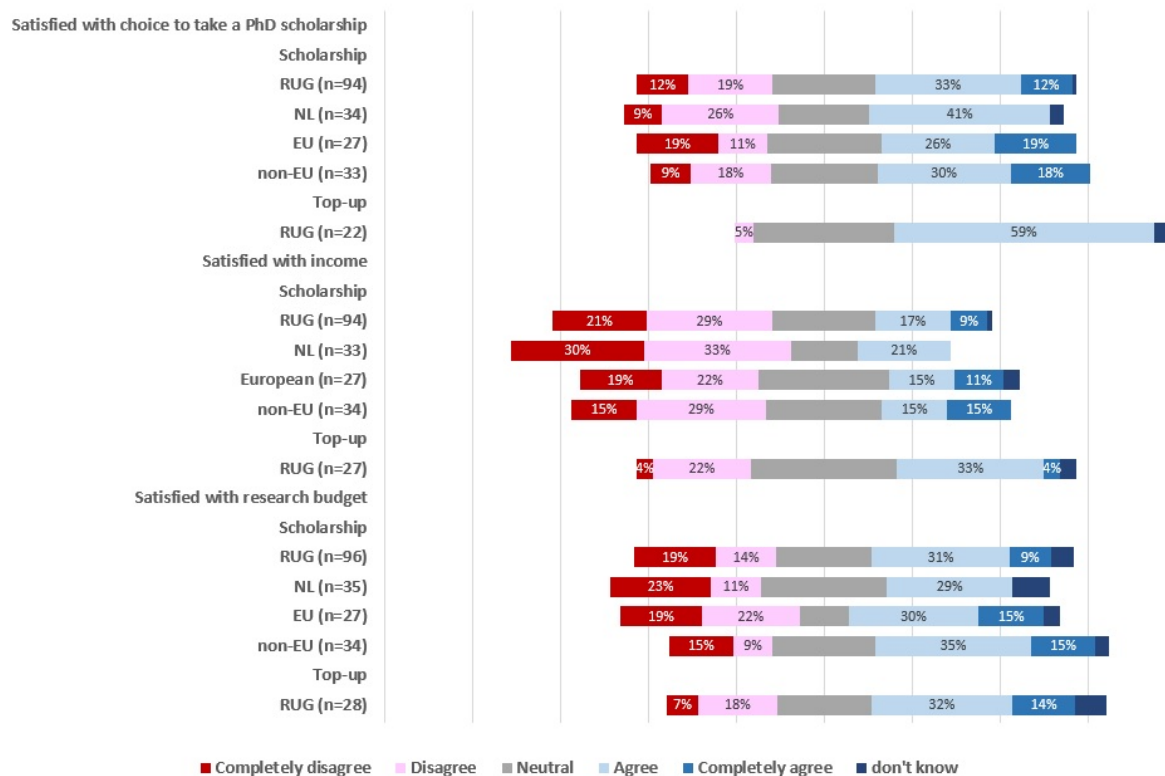


The PhD supervisors survey indicates that PhD supervisors treat their PhD students in the same way as their employee PhD candidates; they see few differences between the two categories, not even with regard to the freedom for PhD students to make their own choices, the structure of the PhD research or participation in courses or activities aimed at the orientation of PhDs towards a post-doctoral career. However, of the PhD supervisors, 40% are not yet well aware of the specific position of PhD scholarship students. So there is still work to be done here by the university in better informing PhD supervisors and other stakeholders. The PhD students themselves are also still not (fully) aware of their specific (notional employee) status.

satisfaction

The upper part of Figure 5 indicates that 45% of the PhD scholarship students in the UG with a full scholarship are satisfied or very satisfied with their choice to take a PhD position; 31% is (very) dissatisfied. Here too, opinions are divided, but the majority is satisfied. A large majority (70%) of the top-up PhD students is (very) satisfied with their choice to accept a PhD scholarship position.

Figure 5: Satisfaction of PhD scholarship students with their income and decision to take position



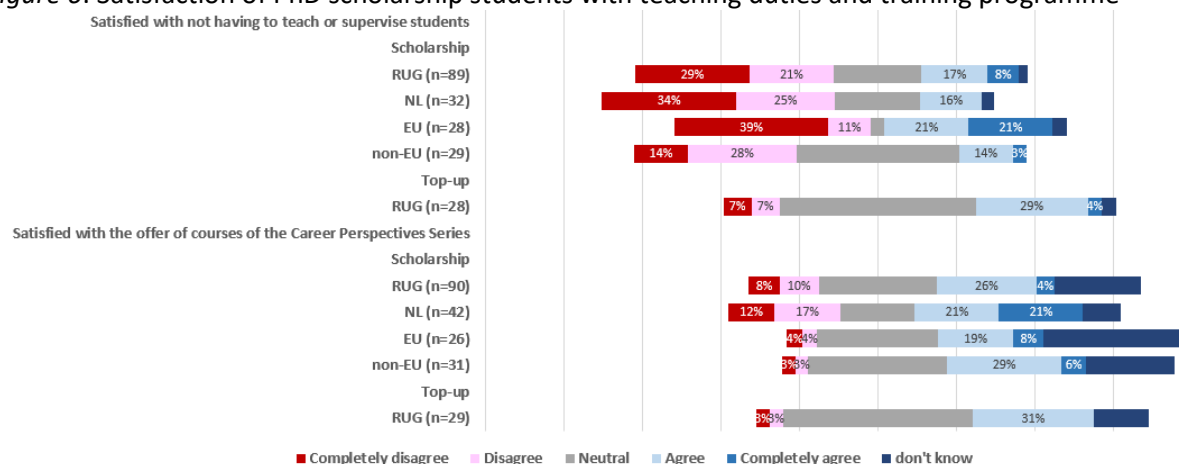
Of the PhD students with the Dutch nationality (indicated by “NL” in Figure 5), 45% are dissatisfied to very dissatisfied; 45% is satisfied to very satisfied. Once again, opinions differ. A quarter of the PhD scholarship students with a full grant are satisfied or very satisfied with their income (middle part of Figure 5). About half are dissatisfied or very dissatisfied. This comes as no surprise, as PhD scholarship students will compare themselves to employee PhDs. As expected, top-up PhD students are more often satisfied with their income, since they receive an extra grant on top of the scholarship from their own country. The figure shows that 63% of Dutch PhD scholarship students are dissatisfied to very dissatisfied with their income; 21% are satisfied or very satisfied.

The round table discussion with PhD scholarship students underlined that, compared to employee PhD students, scholarship students often regard their terms of ‘employment’ as unfair. They point at not receiving a holiday allowance or an end-of-year bonus. Some even feel that their research budget is not equal to that of other PhD candidates (see bottom part of Figure 5), but whether this is a correct perception is debatable. And, as was quite forcefully stated by the association of PhD students in the Netherlands, PhD scholarship students feel they do the exact same work as employee PhD candidates and therefore are entitled to the same income. The question is, however, whether this statement is fully correct – scholarship students do have more freedom in many ways and fewer obligations in others.

#### teaching by PhD students

PhD scholarship students do not have an employment contract, which implies that they are not supposed to receive formal assignments by their supervisors in the sense of being present at work or taking on teaching duties. However, because many PhD students aspire to a career in the academy, they often do like to gain teaching experience, implying dissatisfaction with not having to teach (see Figure 6). Gaining teaching experience can only be realised during a student’s PhD trajectory if, first of all, there are opportunities to teach in the department and, second, the PhD student agrees to participate in a didactics training course offered by the university.

Figure 6: Satisfaction of PhD scholarship students with teaching duties and training programme



While PhD scholarship students are only allowed to teach on a voluntary basis, some experience that pressure is being exerted on them by their professors, albeit informally, when an appeal is made to them to take on teaching duties, and help in supervising students or the grading of student exams. In our evaluation, we have not found any indications of systematic abuses in this area across the university's departments. However, there still seem to be misunderstandings about what supervisors can expect their PhD students to take on and some degree of ignorance about the rights and duties of PhD students. The PhD Scholarship Programme appears to have had some impact on the distribution of teaching duties only in the Faculty of Behavioural and Social Sciences and Faculty of Law. These faculties have resolved this issue by deploying extra staff.

#### *motivation to participate in the experiment*

Based on the information collected we conclude that saving on the costs of obtaining a PhD is not the main reason for the university to participate in the experiment. Compared to the situation before the experiment, the UG is even investing more resources from its central and faculty reserves in PhD programmes. It is doing so because of its wish to accommodate the demand from the faculties and from interested Master's students that wish to do a PhD. The number of PhD students has risen sharply in the university. This was one of the government's objectives for the experiment.

One of the research questions to be answered in the evaluation of the policy experiment was whether the experiment shows signs of a displacement of PhD students by PhD scholarship students. We observed a *replacement* (say substitution) of employee PhD candidates by PhD scholarship students and a decrease in the number of employee PhD candidates. However, this should not be interpreted as *displacement* (say, crowding out). It is the direct consequence of the university's decision to participate in the experiment.

Of the PhD scholarship students of the UG in the first two cohorts (see Figure 1), 27% have the Dutch nationality. More than half of the non-Dutch PhD scholarship students are international PhD students who receive a top-up scholarship from the university. Of all PhD scholarship students with a full scholarship, 45% have the Dutch nationality. It is still too early to ascertain whether it is mainly foreign PhD students who fill the available PhD scholarship positions. Ensuring that PhD positions remain attractive to Dutch candidates is a concern for the ministry.

#### *freedom to make research proposal*

What about the purpose of the experiment to offer PhD students greater freedom of choice regarding the subject of their PhD? At the UG, 30% of the PhD scholarship students have designed the PhD project themselves or mainly themselves. This percentage is much higher than for the UG employee PhD candidates (12%). Another 40% of the PhD students designed the project in close consultation with their (intended) supervisor. This percentage is also much higher than for employee promoters (28%). PhD scholarship students therefore have more say in the content of their research, but we observe differences

across scientific fields. That freedom is greater for PhD students in the social sciences/ humanities (AHS) domain than in the Science & Engineering or medical domain. Especially for PhD scholarship students in the AHS domain, freedom of choice played a role in the considerations to accept a PhD position. This is less so in the other scientific areas, but the interest in a PhD scholarship position is high among the students. More than a third of the UG PhD scholarship students start their PhD trajectory after having completed a research master at the UG, during which they have often already started formulating their research proposal.

#### *training for PhD students*

A new, comprehensive package of courses and workshops (named Career Perspectives Series - CPS) was developed by the UG as part of the PhD Scholarship Programme and extra resources were set aside for its development. The training package is expected to prepare PhD students for careers both inside or outside academia on completion of their PhD. We have to note that approximately 70-80% of those who have obtained a PhD will ultimately not find a job as a university academic staff member (see Koier & De Jonge, 2018 and Edge & Munro, 2015).

A majority of PhD scholarship students is positive about the CPS offer; a minority is more critical (see Figure 6). The round table discussion revealed that some PhD students doubt the relevance of some of the courses through CPS. However, PhD supervisors increasingly acknowledge the usefulness of career orientation among their PhD students and also encourage their students to take courses to that end. Moreover, the PhD scholarship students can also sign up for the education program provided by their Graduate Schools.

#### **Conclusions**

Because no PhD scholarship students have been awarded their PhDs as yet, it is too early to say anything about the number of students that will receive their PhD or the quality of the PhDs that will come out. But, given that the number of PhD positions has increased thanks to the PhD Scholarship Programme, the number of PhDs granted is also expected to increase in due time. There are currently no indications from the side of the PhD supervisors that the quality of the research done by PhD scholarship students is any different than that of other PhD students.

Despite the differences in employment conditions, there is considerable interest in the available PhD scholarship positions. A considerable part of the Groningen research master's students is willing to accept such a position. If they had been familiar with the employment conditions in advance, more than half of the PhD students with a full grant (52%) would again choose a PhD scholarship position. With respect to the research question concerning impacts the research climate, we conclude that the experiment did not reveal significant differences between PhD scholarship students and employed PhD students when it comes to issues like supervision and integration in the research group. The experiment did not lead to serious adverse effects on the research environment and did give a stimulus to the university to improve the training opportunities given to their PhD students.

With respect to the latter, and given that 70-80% of PhD students will not end up in academia, we feel it is the responsibility of the university to provide good quality targeted training to all PhD students. To make sure that their scholarship students can successfully carry out their research and benefit from their doctoral training, creating efficient and decent conditions for PhD students – in the financial, social and legal sense – is a key responsibility for universities in terms of educating the next generation of researchers.

## Literature

AMvB (2016), *Besluit experiment promotieonderwijs*. Staatsblad, 8 januari 2016.

Bair, C.R. & Haworth, J.G. (2004), Doctoral student attrition and persistence: A meta-synthesis of research. In J.C. Smart (Ed.), *Higher Education: Handbook of Theory and Research*, Vol. XIX (pp. 481-534). The Netherlands: Kluwer Academic Publishers.

Douglas, M. (1982), *In the active voice*. London: Routledge.

Edge, J. and D. Munro (2015), *Inside and outside the academy: Valuing and preparing PhDs for careers*. Ottawa: The Conference Board of Canada.

Hasgall et al. (2019), *Doctoral Education in Europe today: approaches and institutional structures*. EUA Council for Doctoral Education

Jongbloed, B., F. Kaiser & A. Kottmann (2019), *Het experiment Promotieonderwijs: Een tussenevaluatie*. Report for the Ministry of Education. Enschede: CHEPS. Available from: <https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2019/06/28/het-experiment-promotieonderwijs-een-tussenevaluatie/het-experiment-promotieonderwijs-een-tussenevaluatie.pdf>

KNAW (2016), *Promoveren werkt*. Amsterdam: KNAW.

Koier E. & J. de Jonge (2018), *De zin van promoveren*. Den Haag: Rathenau Instituut.

RUG (2019), *Tussentijdse Zelfevaluatie Programma Promotieonderwijs RUG. 1 sept 2016 - 31 aug. 2018*. Available from: <https://www.rug.nl/...programmes/...programme/.../evaluation-year...>