Higher Education Academy

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Happiness in
UK Postgraduate Research

An analysis of results from the Postgraduate
Research Experience Survey

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In partnership with: Brighton Business School

Contents

Executive Summary

> This report uses results from the 2013 and 2015 cycles of the Postgraduate Research Experience Survey, comprising 101,294 survey responses from 123 Higher Education Institutions from across the UK

Key findings

> Most Postgraduate Research (PGR) students are satisfied with their student experience. However, there are many factors which are associated with higher and lower levels of satisfaction.
> The relationship between student and supervisor, supported by regular contact, is central to PGR student happiness. PGR students care greatly about the opportunity to work with, and learn from, people with cutting-edge skills and relevant subject knowledge.
> Students who have extended their PhD study period beyond the norm, which is associated with a lack of confidence in finishing their studies, are very unhappy with their experience.
> Non-traditional modes of study, such as part-time and distance learning, do nothing to diminish the student experience, and in the latter case may enhance it.
> Black ethnic students are relatively unhappy with their experience. There is also a strong interaction between gender and ethnicity, with female BME students far less likely to be happy.
> There are many areas of substantive difference between male and female PGR students, and even when there is commonality, the magnitude of effects on satisfaction are often different.
> The ability to read and understand the English language is a critical factor in being satisfied with the student experience.
> Russell Group institutions have a much smaller set of factors associated with variations in PGR student satisfaction than their non-Russell Group peer institutions. In this sense, Russell Group institutions have a clearer idea of who to focus their strategic efforts upon, and the areas which would achieve the most impact.
> Higher Education Providers (HEPs) appear to be better at dealing with students who want to become fellow academics rather than those who want to pursue career paths outside of academia.
> All HEI inputs to the PGR experience are complementary in the sense that inputs in one domain are linked to inputs in other, related, domains. This suggests that *there is a positive and virtuous circle across the broad range of HEI inputs to the PGR experience* and that in isolation and in combination they have a positive impact on the PGR student experience.

Key recommendations

> HEIs need to place more emphasis on the fact that students are human beings who want good individual relationships with their supervisors and other students.
> More research is needed to identify the specific issues around PGR inputs that are not meeting the expectations and needs of students of Black ethnicity.
> HEIs need to address the issue of fluency in English ideally prior to entry, otherwise early in a students' study period.
> HEIs might need to take a more gendered perspective in terms of seeking to enhance the PGR student experience.

1. Introduction

Over the period 2013-2015 more than 100,000 students were engaged in postgraduate research in 123 Higher Education Institutions across the UK. Building on the detailed 2013 HEA PRES report of Paul Bennett and Gosia Turner[1] and the 2015 report of Gosia Turner[2], this research poses one simple question: **What makes a postgraduate research student happy during their period of study?** This is an important question not only for HEIs, to help them provide a better student experience, but for employers, who will ultimately engage with graduating students as they enter the labour market, and for the UK economy as a whole.

This research will seek to answer this overarching question, but it will also seek to identify particular types of students who are more or less happy (satisfied) with their PG experience, how the institutional setting they engage with during their studies impacts on their happiness (satisfaction), and then explore HEI characteristics and gender in detail. It is hoped that the findings of this report will provide food for thought for HEIs and provide an evidence base that will help them develop their PG provision going forward. All errors and omissions are of course my own as are the opinions expressed within.

Note that this report solely relates to the findings of a detailed multivariate modelling of the factors associated with the happiness (satisfaction) of postgraduate research students. It does not burden the reader with univariate statistics and tables as these have been covered in great detail in previous Higher Education Academy PGR reports.

The data available to us is a pooled dataset relating to the HEA's Postgraduate Research Experience Surveys [PRES] for 2013 and 2015. The 2013 survey data contains 47,953 responses and the 2015 survey data 53,341 responses giving a combined total of 101,294 survey responses available for analysis.

This report has 3 substantive empirical sections. Firstly, we consider overall PGR student satisfaction at an aggregated level to give us an insight into the main factors that are most typically associated with higher satisfaction levels. Then, in the second empirical section, we drill down into a more detailed investigation of how HEI inputs, processes, and support for PGR students throughout the course of their study can influence student satisfaction. Here we pose the broad question of what an HEI can do to enhance their PGR students' experience. In our third, and final, empirical section we explore the same issues but at a more detailed and disaggregated level. Here we are seeking to identify how PGR students at different 'types' of HEI and pursuing different modes of study have different experiences whilst also exploring how this shapes their satisfaction in the first instance. We also explore how key personal demographics such as gender, disability and ethnicity impact on satisfaction and the key factors associated with individual student satisfaction.

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[1] Bennett, P., & Turner, G. (2013). Pres 2013: results from the postgraduate research experience survey. *York: Higher Education Academy.*

[2] Turner, G. (2015). Pres 2015: The research student journey. *York: Higher Education Academy.*

1.1   Measuring Overall Satisfaction

The dependent variable of specific interest in this element of our wider study into PG research students' satisfaction is Q17a of the PRES survey and is worded as such;

"*Overall, I am satisfied with the experience of my research degree programme*"

The potential responses are ordered as such;

1 = Definitely disagree

2 = Mostly disagree

3 = Neither agree nor disagree

4 = Mostly agree

5 = Definitely agree

N/A = Not applicable

In total 100,953 students, representing 99.7% of the total sample, responded to this question. As is immediately obvious the distribution of responses is highly skewed to the right with high response levels in the 'mostly' and 'definitely' agree categories. After some preliminary analysis using the full, and original, response coding structure, we elected to collapse this variable into a single binary coded (1,0) satisfaction variable. This was constructed so that response categories 4 (mostly agree) and 5 (definitely agree) were coded as a 1, and response categories 1 to 3 were coded as a zero. This gives us 82,363 responses coded as 1 and 18,361 coded as 0, which represents 81.8% and 18.2% of the sample respondents respectively. As we have a large number of potential explanatory variables this new coding is also helpful in terms of allowing us to generate more intuitive and meaningful output from our satisfaction models.

Table 1: Responses to Q17a – Satisfaction with overall experience	
Response	**% of respondents**
Definitely disagree	2.95
Mostly disagree	5.75
Neither agree or disagree	9.49
Mostly agree	42.08
Definitely agree	39.51
N/A	0.23

2. Modelling Characteristics and Happiness

Using our new binary satisfaction variable, we choose to estimate a series of satisfaction models using a probit specification which takes this binary outcome into account. For the purposes of exposition and reporting, we present the estimated marginal effects for our explanatory variables of interest. For simple binary variables, this would give us the increase (or decrease) in the probability of an individual with that particular characteristic being satisfied, compared to an individual without that characteristic (for example, an individual with a disability compared to an individual without a disability), holding other factors and characteristics constant at their means. For categorical variables, in each case a reference group is specified. In these cases the increase (or decrease) in the probability of being satisfied is referenced against a base category. For example, using home students as a reference category it would compare the relative probability outcome of EU and non-EU students' satisfaction against the home student.

2.1 Explanatory Variables

We present a full list in the full report appendices, but for brevity we have 4 broad categories of explanatory variable, including;

> *Personal characteristics* – age, gender, disability, country of origin, ethnicity, career objectives, and, career motivations
> *Labour market experiences* – labour market status prior to undertaking one's degree course, labour market status during the individual's period of study
> *Study characteristics* – degree type, academic discipline, full-time/part-time study, stage of course, face-to-face/distance learning study, and funding source
> *University type* – the HEA provides binary coding for 11 'types' or HEI groupings, although not all are mutually exclusive. The most simple is a binary coding indicating whether or not an HEI is a member of the Russell Group which purports to represent 'research intensive' institutions.

2.2 Headline Findings – Overall Satisfaction

> *Degree type* – Compared to a PhD programme, students studying for a Masters in Research are 2.6% <u>less</u> likely to be highly satisfied, and MPhil with a transfer to PHD students 1.1% <u>less</u> likely to be highly satisfied with their experience.
> *Student motivations* – Compared to students who were motivated to study because of a specific interest in their subject, and those who were inspired to work with a particular academic, students with all other types of motivations had a significantly lower probability of reporting high satisfaction levels. Lower probabilities of higher satisfaction were apparent for students who were motivated simply by the availability of funds (-1.8%) and those who were encouraged to undertake further study by a former academic tutor or supervisor (-1.5%). This latter finding suggests that tutors and supervisors need to take greater care when advising further study.
> *Future Career Intentions* – Students with an intention to pursue a career in academia, either as in a teaching and research role, or solely as a researcher are significantly more likely to have high levels of satisfaction. Students seeking to build a professional career outside of

academia are the least satisfied with a 4.6% lower probability of being satisfied than those seeking to pursue an academic career path. Low probabilities of satisfaction are also evident for those seeking to become self-employed (-3.5%), those seeking to develop a teaching career below HEI level (-2.6%), and those seeking to develop a research career outside of HE (-2.4%). These findings suggest that there is an issue around developing students for careers outside HE. HEIs appear good at training people to be academics but less good at training people for outside career paths.

> *Student age* – There is a distinct 'U' shaped relationship between satisfaction and age of student. Up to a point, 26-35, the student experience diminishes the further an individual moves away from their mandatory education. This 'mid-life dip' appears to be consistent with greater pressures and perhaps more concrete demands from work and family. The most satisfied students are the under 26s and those between 36 and 50. The least satisfied students at non-Russell Group HEIs are those between the ages of 51 and 55 who, on average, are 2.1% less likely to be highly satisfied with their experience.

> *Gender* – On average, women are 0.8% less likely to be satisfied with their student experience than their male peers.

> *Disability* – On average, people with a (self-defined) disability are 1.9% less likely to be satisfied with their student experience than their non-disabled peers.

> *HEA Cluster and Discipline* – Students in the Arts & Humanities cluster are the most satisfied with their experience. At a more disaggregated, discipline level, the findings show that the least satisfied students are in Communications & Media Studies, Business & Economics, Social Studies, Creative Arts & Design, Computer Science, Law and Geography, Architecture & Built Environment.

> *Full- time / Part-time* – PT students are marginally more likely to be satisfied with their experience.

> *Years studied* – In general satisfaction diminishes significantly as the length of time a student studies for, from their start point, extends. There is a particular marked decrease in satisfaction as students go into, and beyond, their fourth year of study, where the probability of being satisfied diminishes by at least 5% from year 3 and up to 9% compared to year 1. These general findings suggest that protracted study is not conducive for good outcomes for the HEI, or the student.

> *Mode of HEI study* – Distance learning is associated with a 1.8% higher probability of being satisfied compared to the more traditional Face-to-Face mode of learning. After a significant increase in the provision of distance learning over the last two decades, it would appear that the general quality of the student experience is high.

> *Student domicile residency* – Foreign students are less satisfied with their student experience than Home students. EU students are marginally less satisfied and non-EU students far less likely to be satisfied with their experience (-1.2%). With the expansion of PG education to foreign students, this may be an issue of concern to HEIs going forward given their financial importance to many HEIs. At a more disaggregated level, the results show that students from Vietnam, Sri Lanka, Malta, Ghana, Russia, and Singapore are much more satisfied with their PGR experience, and those from Indonesia, Malaysia, Mexico, and Pakistan significantly more likely to be satisfied than the reference group (which is UK students). In contrast, students from Jordan, and Oman are much less likely to be satisfied with their PGR experience.

> *Ethnicity* – White and mixed ethnicity students are the most likely to be satisfied with their experience, and black ethnic students the least satisfied. We suggest that more research is

required to understand why black ethnic students are relatively unhappy and to identify the specific issues around PGR inputs that are not meeting their expectations and needs.

> *Working as well as studying* – Students who are also holding a job whilst studying are equally likely to be satisfied with their experience compared to their non-working peers. Working as well as studying appears not to be a barrier to enjoying your education.

> *Prior labour market status* – Students who remained with their (previous) employer throughout their studies are the most likely to be satisfied. There are no differences in satisfaction between any of the other routes into PG study including UG and Masters completion and taking a gap year. With the increasing inflow in to PGR study from non-traditional routes our findings are reassuring as they imply that the route into PG study is of minor importance to student satisfaction.

> *Funding stream* – Self-funded students are the least satisfied. This is important given that the incidence of self-funding is high and is used by 27.9% of students. We suggest that more research is required to assess whether this is a perceived value-for-money issue.

> *English language fluency* – Compared to students with a high level of proficiency in the English language, students with a lower level of language proficiency have a 2.0% lower probability of satisfaction. The ability to read and understand the English language is a critical factor in being satisfied with the student experience. This suggests that HEIs need to address this issue prior to entry at best, or early in a students' study period. This issue has been addressed to some degree in FE where all students who have not achieved GCSE grades at C equivalent or above in English have to undertake further study.

> *University 'type'* – Students studying at Russell Group institutions have a 1.7% higher probability of being satisfied with their experience. This is particularly interesting as Russell Group institutions generally do less well in teaching measures at undergraduate level. The interesting questions are: Is this an HEI wealth effect and/or a quality of staff effect, and/or indeed a quality of student effect?

2.3   Conclusions

In general most PG research students are satisfied with their student experience, but there are many factors which are associated with higher and lower levels of satisfaction.

Personal characteristics such as age, gender, disability, ethnicity, country of origin all influence an individual's satisfaction with their experience, as does English language proficiency. Further, positive motivations for studying lead to higher satisfaction. On this, potential students need to think more carefully about choosing a subject they have a real interest in and then matching this with academics they want to study with.

In terms of labour market experiences and interactions, it appears that HEIs are better at dealing with students who want to become fellow academics rather than those who want to pursue career paths outside of academia. However, the route into PG research study, to a large extent, does not matter. In this sense non-standard pathways into PG education should be supported. A particularly interesting finding was that students who undertake paid work during their studies tend to be happier with their experiences. This finding might suggest that the income effect dominates the time constraints on study effect, or it may reflect the simple fact that students

who are more capable of ordering their work-life balance in a structured way find it easier to manage the demands of study *per se*.

On study characteristics, we find that in general, Master's courses, particularly those furthest away from PhD study, have the most negative student experiences. This is also true for students who have extended their study period beyond the norm. Hanging around too long diminishes the student experience, and is also associated with a general lack of confidence in finishing their studies. At the broad subject level, Social Science students are the least happy. Non-traditional modes of study, such as part-time and distance learning, do nothing to diminish the student experience, and on the latter, enhance this experience.

3. What can a HEI do to make PGR students happy?

Here we focus onto the nature of the relationship between academic staff, institutional inputs and PGR student satisfaction. This is particularly important as most HEIs have large PGR administrative teams and bureaucracies with responsibility for managing and monitoring the PGR process from initial course marketing, through the admissions process, and continuing on until PGR completion. Here we incorporate 7 HEA indices created to combine sets of 4 questions relating to;

> Resources
> Progress and assessment
> Research skills and development
> Responsibilities
> Research culture
> Professional skills development
> Supervision

These indices are coded from 1 to 5 where 1 indicates the lowest level of agreement and 5 indicates the highest level of agreement.

The question of whether individual HEI inputs are complementary to each other (scoring more highly on one input is positively associated with scoring more highly on other inputs), or substitutes (scoring more highly on one input factor is negatively associated with the score on another input) is a particularly interesting one. The answer to this question helps us to understand whether in some HEIs finite PGR resources are concentrated on specific inputs, to the extent that a £1 invested in one input reduces the resources available to support other inputs. It will also help us identify whether HEIs, once they have made a strategic commitment to investing in PGR inputs, spread their investments across a range of key inputs.

The data show that *all PGR inputs are positively correlated with one another*. In this sense, the evidence suggests that HEIs who do more in one input area, are also more likely to do more in every single input area. Equally, HEIs who do less in one input area are also more likely to do less in all other areas. This suggests that PGR inputs are complementary to one another, rather than substitutes for one another, but the data also shows that the actual correlations between PGR inputs are not equal between each pair of inputs. For example, Supervision – Responsibilities, Culture – Responsibilities, Progress – Responsibilities, Research Skills – Responsibilities, and Professional Development – Research Skills Development are all pairs of inputs with high and positive correlations. What is immediately clear is that PGR students who reside at an HEI which values its commitment to positive engagement with its students and is aware of its responsibilities are also more likely to score highly on many other key input indicators.

These basic correlations are further confirmed by modelling each input factor dummy variable against all other input factor dummy variables in turn. In the Supervisory, Culture, Progress and Assessment models, Responsibilities were the most important input variable, whilst Culture was the dominant input in the Resources model. In the Responsibilities model, Progress and Assessment was the dominant input variable. This also reconfirms that each PGR input has a 'different' relationship with the others, although all are positively related.

These indices are added to our base regression model. Fig 1 shows the model coefficients for each index.

Fig 1: Isolating HEI PGR Supervision Inputs and Student Satisfaction (Estimated Model Effects)
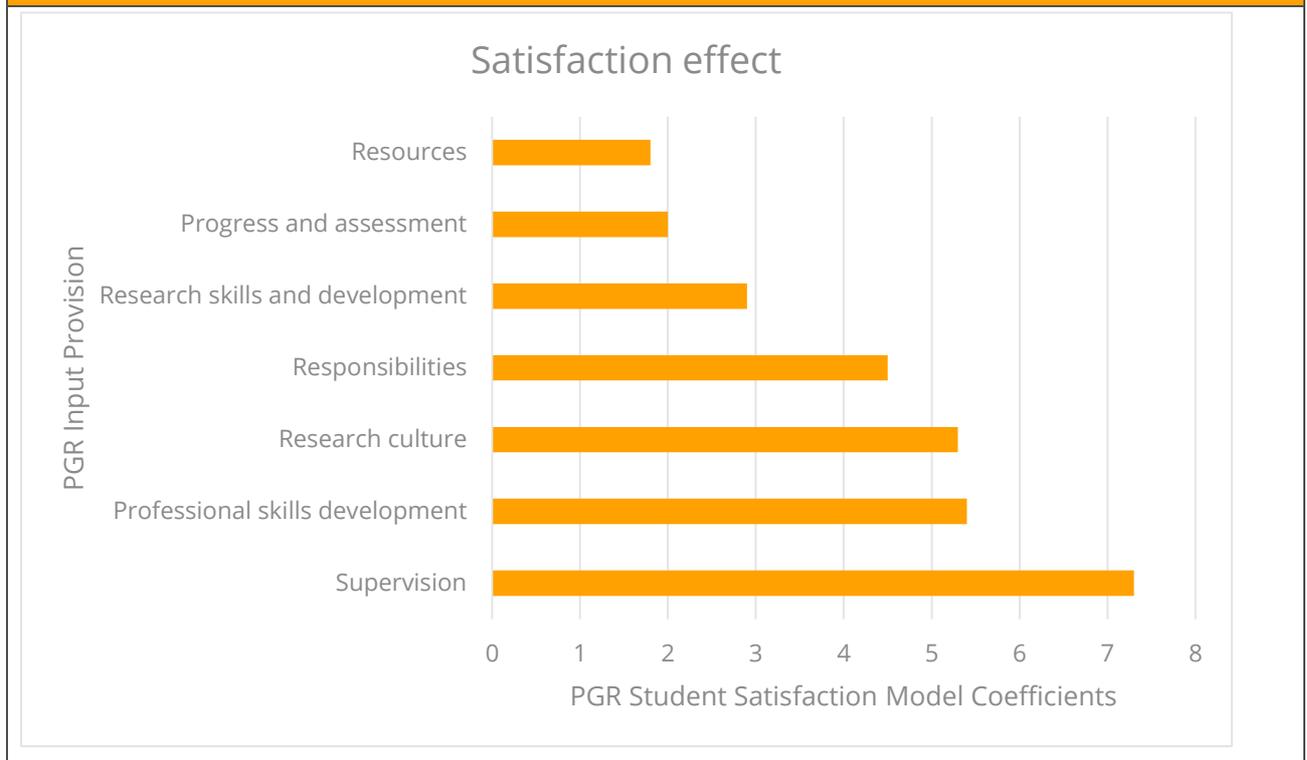
This evidence provides a unique, and robust, insight into how what we do in terms of supporting PGR students helps determine how happy they are with their period of study. It could guide our effort to focus our PGR resources where they have the best effect on students.

3.1 Key Findings on HEI Inputs

> **The supervisor is absolutely key to student happiness** and this is a very personal relational thing. First of all, supervisors should have relevant skills and knowledge in the students' core research area.

> **Regular personal contact** and bilateral exchanges of information and ideas for development underpin this key student-supervisor relationship.

> **Capital investment in research resources achieve relatively modest returns** : Capital investments in working environments, computing and IT, libraries, and other specialist research resources have a modest effect on the student experience, but do complement other key inputs thus adding to overall satisfaction.

> **Research culture at all levels stimulates students and increases happiness**: Students appreciate all opportunities to learn from and discuss new knowledge with academics and within their wider peer groups.

> **Procedural systems and processes add comparatively less to the student experience:** Induction processes, formal monitoring, assessment procedures, and standards add comparatively less than other inputs to the student experience. This may reflect the need to regulate degrees but not in a student-facing way. Again though, all these inputs are

<u>complementary</u> to other more direct student-facing inputs and add to the overall satisfaction of students.

> **Shared responsibilities are very important:** As long as students know the broad role of their supervisor, what is expected of them as students, and who to see if they have feedback, they will be happier.

> **Development of research skills add a lot to the student experience:** Whilst this includes analytical skills and understanding what 'good' research is, it goes beyond this to include creativity and original thinking.

> **Development of soft skills is the second most important influence on student satisfaction:** These kinds of skills (such as the ability to communicate to different audiences, time management, project management and networking) are enshrined formally in certain disciplinary areas such as construction, engineering, and of course business and management. However, they are not as widely appreciated as part of the necessary tool kits that will help students in the world of work, within and outside of HEIs. The importance of softer and broader professional skills is nearly twice that of basic research skills in influencing student satisfaction.

3.2   Conclusion on HEI Inputs

If a HEI could do one thing to make its PGR students happier it should be to ensure that its most talented and knowledgeable research staff work with PGR students in subjects <u>closely aligned</u> to their specific research focus. If an HEI could achieve that one thing, then the relative gains in terms of increased PGR student satisfaction are substantial. In contrast, placing a PGR student with an ill-matched, non-subject-specialist supervisor, would result in a less satisfied student.

It would appear that HEIs have not placed enough emphasis on the fact that students are human beings who want good individual relationships with their supervisors and other students. PGRs care greatly about the opportunity to work with and learn from people with cutting-edge skills and relevant subject knowledge. In this sense the initial 'matching' of student and supervisory team is critical and requires due consideration by both students and HEIs. If matching is poor then this creates a significant potential for a negative experience for both students and supervisors.

Nevertheless it is also the case that all direct and indirect HEI inputs to the PGR experience are complementary in the sense that HEIs who provide more inputs in one domain are also more likely to increase their inputs in other, related, domains. This suggests that *there is a positive and virtuous circle across the broad range of HEI inputs to the PGR experience* and that in isolation and in combination they have a positive impact on the PGR student experience.

Appendix 1   More Detailed and Disaggregated Findings

A1.1 Introduction

In this section we explore PGR satisfaction in greater depth by focusing on potential differences in terms of the general drivers of PGR student satisfaction at a more detailed level. The specific separations we consider and compare are;

> Russell Group institutions versus non-Russell Group institutions
> Gender
> Disability
> Full-time – Part-time study modes

The modelling procedure is the same as above but we simply estimate separate models for each category within a pair, for example, Male and Female.

A1.2 Do PGR students at Russell Group institutions have different satisfaction drivers and experiences?

> *Degree type*: There is no variation in satisfaction by degree type for students at Russell Group institutions (RGI). This suggests a common quality of provision across the PGR spectrum at RGIs. However, this is not the case for students at non-Russell Group institutions (NRGI). Within these NRGIs we find that students on the MPhil with transfer to PhD programmes are 1.5% less likely to be satisfied and students on Masters in Research programmes 3.8% less likely to be satisfied with their experience.
> *Student motivations:* There is no variation in satisfaction in respect of student study motivations at RGIs. Again, this was not the case at NRGIs where students who were encouraged to pursue further study by their former tutors were 2.2% less likely to be satisfied and those who did so mainly because of funding availability 4.5% less likely to be satisfied with their experience.
> *Future Career Intentions:* There are three future career paths that are associated with a lower probability of PGR students being satisfied and these three are common to RGI and NRGIs, although the probabilities vary across these institutional groupings. These are, pursuing a research career in an HEI (RGI = -2.5%, NRGI= -2.2%), seeking to develop a professional career path (RGI= -6.1%, NRGI= -2.4%), and seeking to become self-employed (RGI= -3.5%, NRGI= -3.6%). The breadth of these alternative career paths suggests that HEIs need to consider how their PGR programmes are structured for delivering good outcomes in terms of relevant human capital development.
> *Student age* : There appears to be a particular issue across NRGIs around how to satisfy certain age groupings, particularly the oldest students. Whilst students under-25 are relatively satisfied, this effect diminishes for 26-35 year old students who are more than 3% less likely to be satisfied than their younger peers. The most interesting aspect regarding age is a large and increasing reduction in the probability of a student being satisfied as we move from 46 years of age upwards. This effect peaks at a 6.7% lower satisfaction probability for

the oldest students (>55 years old). In contrast, RGI students of this age group are the most satisfied students of all, with a 3.5% higher probability of being satisfied with their experience.

> *Gender*: Female students at RGIs are equally as likely to be satisfied with their experiences as their male peers. This is not true at NRGIs, where female students are 1.2% less likely to be satisfied.

> *Disability* : Students with a disability across institutional groupings are, on average, less likely to be satisfied with their experiences, although the scale of this effect varies across institutional groupings with a much smaller effect in RGIs (-1.6%) compared to NRGIs (-2.4%).

> *HEA Cluster*: There is no variation in student satisfaction at RGIs by HEA subject clusters. However, in NRGIs, Arts & Humanities students are 3.1% more likely to be satisfied with their PGR experience than students in other subject clusters. Allowing for variation in the quality of PGR inputs, the most satisfied PGR students at RGIs are in Geography, Environmental Studies, Archaeology, Earth Systems and Environmental Science, and Civil and Construction Engineering. At NRGIs, the most satisfied students are in Architecture, Built Environment and Planning, and Geography, Environmental Studies, Archaeology.

> *Full-time / Part-Time and Modes of Study:* There is no variation in student satisfaction at RGIs across FT and PT modes of study. At NRGIs, PT students are 1.7% more likely to be satisfied with their experience than FT students. Across both institutional groups Distance Learning students have a 1.7% higher probability of being satisfied.

> *Student domicile residency*: There is no variation in student satisfaction at RGIs by student domicile. This is not the case at NRGIs, where non-EU students have a 2.7% lower probability of being satisfied with their experience. At the country level, PGR students from Cameroon, Japan, Thailand, and the US studying at RGIs are the most satisfied. And students from Croatia, Jordan, Syria, and Brunei the least satisfied. At NRGIs, students from Bahrain, Finland, Taiwan, France, Pakistan, Brazil, and the US are most satisfied, whilst students from Sierra Leone, Algeria, Malta, and Nigeria the least satisfied.

> *Ethnicity*: All non-white students at RGIs have a lower probability of being satisfied with their experiences and this peaks for Asian students who have a 4.8% lower probability of being satisfied. In NRGIs, this ethnic effect is only apparent for black students who have a 5.2% lower probability of being satisfied. We suggest that this is an area which should be explored in future research.

> *Prior labour market status*: Across institutional groupings, students who have previously worked in a non-research environment have a higher probability of being satisfied with their experience.

> *HEI Inputs:* We observed that the most important drivers of PGR student satisfaction relate to factors directly associated with the individual HEI and the way they interact and provide a supportive environment for their PGR students. Across our 7 HEI input indices we observe that all are important in determining student satisfaction and that in general all, with the notable exception of professional skills development, are relatively more important for NRGI PGR students. This is particularly the case in respect of research skills and development, responsibilities, research culture and supervision. In this sense, NRGIs have to consider these issues in relation to their PGR provision more carefully to ensure higher levels of student satisfaction.

A1.3 Summary

Having explored whether and how the drivers and characteristics of students shape their PGR experience and satisfaction at different institutional groupings of HEIs we find some areas of commonality across institutional groupings, but many areas of difference. Common aspects include lower satisfaction for students seeking to pursue specific career paths including an HEI research career, professional careers and self-employment. Further, disabled students are less likely to be satisfied than their non-disabled peers, whilst distance learners are more likely to be satisfied with their experience.

Nonetheless what is really clear is that Russell Group institutions have a much smaller set of factors which are associated with variations in PGR student satisfaction than their non-Russell Group peer institutions. In this sense Russell Group institutions have a much clearer idea of who to focus their strategic efforts upon, and the areas which would achieve the most impact, if improving PGR student satisfaction with their experience is a goal. It may also reflect, at the individual institutional level, a greater level of commonality in provision of PGR programmes in the sense that the variations at the departmental and programme level are much smaller than might be the case at non-Russell Group institutions.

But focusing on the key drivers of PGR student satisfaction, it is also the case that any improvement across the 7 key areas that HEIs can directly effect, will have a proportionately larger impact on PGR student satisfaction with their experience in non-Russell Group institutions. This evidence can also guide strategic actions should improving PGR student satisfaction with their experience be a goal.

Fig 2: Isolating HEI PGR Supervision Inputs and Student Satisfaction (Estimated Model Effects)
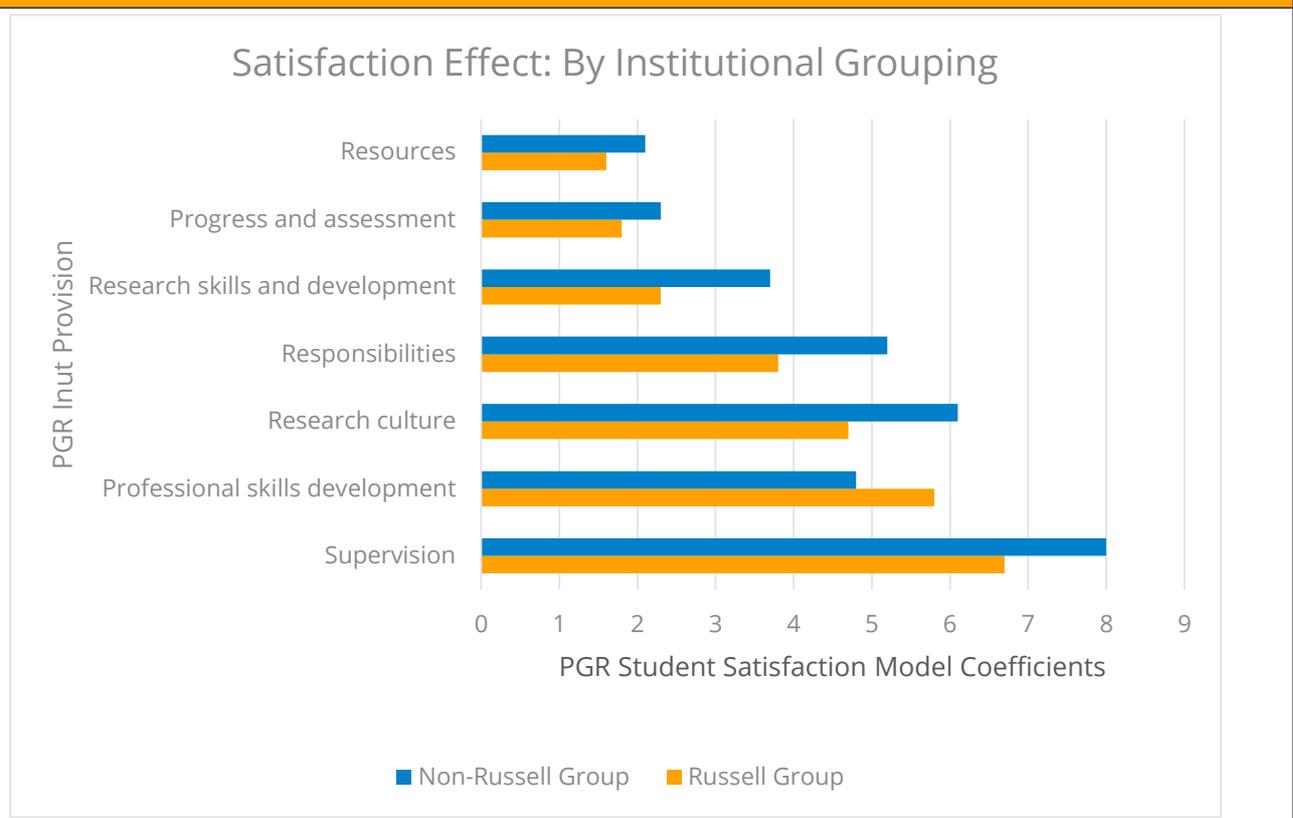
A1.4 Do Male and Female PGR students have different satisfaction drivers and experiences?

> *Degree type*: There is more variation in satisfaction across PGR degree programmes for female students than males. For example, women studying for a Professional Doctorate have a 2.3% higher probability of being satisfied. This rises to +5.8% for women studying on the New Route PhD. Both women and men have lower satisfaction probabilities on Masters in Research programmes, although the scale of this effect is larger for male students (-3.6%) than their female peers (-2.4%). In addition, male students have a 1.5% lower probability of being satisfied with their experience on MPhil programmes with a PhD transfer option.

> *Student motivations:* Regarding motivations for study, men have more variance than women across different motivations in terms of impacts on satisfaction. Here, men who were inspired to pursue further study by the opportunity to work with a specific academic had a 4.3% lower probability of being satisfied, and those who were attracted by the availability of funding for further study were 2.8% less likely to be satisfied. The one area of commonality across genders was in respect of being motivated by the encouragement of a former tutor or teacher. For women this reduced the probability of being satisfied by 2.5% which was a larger effect than the -1.6% for men.

> *Future Career Intentions:* There are three future career paths that are associated with a lower probability of PGR students being satisfied and these three are common to men and women, although the probabilities vary across gender. These are, pursuing a research career in an HEI (Male = -2.2%, Female= -2.0%), seeking to develop a professional career path (Male= -4.6%, Female= -5.2%), and seeking to become self-employed (Male= -3.1%, Female= -4.6%). The breadth of these alternative career paths suggests that HEIs need to consider how their PGR programmes are structured for delivering good outcomes in terms of relevant human capital development. For men, having a career aspiration to become a teacher below HE level was associated with a 4.9% lower probability of being satisfied with the PGR experience.

> *Disability*: Students with a disability across genders are, on average, less likely to be satisfied with their experiences, although the scale of this effect varies across gender with a much smaller effect in males (-1.7%) compared to females (-3.0%).

> *HEA Cluster* : Male Arts & Humanities students are 2.0% more likely to be satisfied with their PGR experience than students in other subject clusters, and this compares to +1.7% for their female peers. In addition, male Social Science students had a 1.7% higher probability of being satisfied. At a more disaggregated, discipline level, we find that there is very little variation across disciplines with the notable exception that males studying General Engineering are 3.1% more satisfied than males in any other discipline. For female PGR students there are large variations in satisfaction at the discipline level. Females in Geography, Environmental Studies, Archaeology, Biological Sciences, Archaeology, Built Environment, Planning, Allied Health Professions, Maths, and Agricultural, Veterinary, and Food Sciences are the most satisfied.

> *Full-time / Part-Time and Modes of Study:* There is no variation in student satisfaction for women across FT and PT modes of study, nor in respect of Distance Learning. In contrast, male PT students are 1.7% more likely to be satisfied with their experience than male FT students, and Distance Learning students have a 2.2% higher probability of being satisfied.

- **_Student domicile residency:_** There is variation in satisfaction by student domicile, and these effects are more evident for women. Here, female EU students are 1.5% less likely to be satisfied and female non-EU students 1.7% less likely to be satisfied than their home domiciled peers. For men, this feature is only apparent for non-EU students who had a 1.2% lower satisfaction probability
- **_Ethnicity_**. For men, only black students had lower satisfaction probabilities. For women, there was much more variation across ethnic groupings. Black female students had a 7.1% lower satisfaction probability, whilst for Asian female students this was -3.7%, and for Arab female students -1.5%. For females, these ethnic effects for black and Asian students are comparatively large compared to other personal characteristics and HEI effects.
- **_HEI Inputs:_** We observed that the most important drivers of PGR student satisfaction relate to factors directly associated with the individual HEI and the way they interact and provide a supportive environment for their PGR students. Across our 7 HEI input indices we observe that all are important in determining student satisfaction. Of relatively greater importance for female PGR students are supervision, professional skills development and research culture. In this sense, HEIs have to consider these gender issues in relation to their PGR provision more carefully to ensure higher levels of student satisfaction.

Fig 3: Isolating HEI PGR Supervision Inputs and Student Satisfaction (Estimated Model Effects)

Satisfaction Effect: By Gender
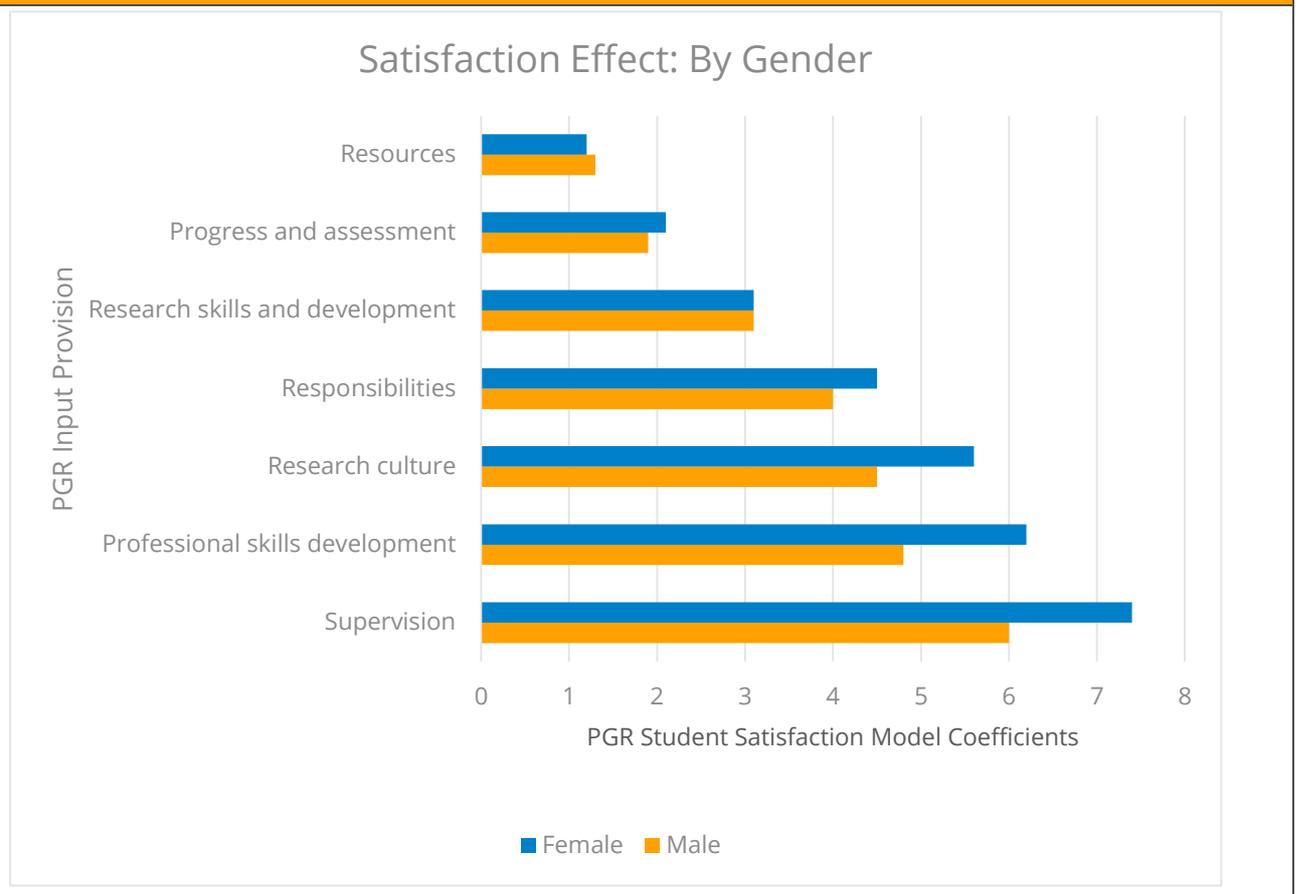
A1.5 Summary

Having explored whether and how the drivers and characteristics of male and female students shape their PGR experience and satisfaction we find some areas of commonality across genders, but many areas of difference. Common aspects include lower satisfaction for students seeking to pursue specific career paths including an HEI research career, professional careers and self-employment. Further, disabled students are less likely to be satisfied than their non-disabled peers, whilst Russell Group students of both genders are more likely to be satisfied with their experience.

However, it is evident that there are many areas of substantive difference between male and female PGR students, and even when there is commonality the magnitude of the effects on satisfaction are often quite different. On the former, the study programme level exerts greater influence for female students than male. Whilst male students' motivations for study were more influential, as were career aspirations, and modes of study. For female students where they are from and their ethnic group was far more of an influence on satisfaction with the student experience than for their male peers. In this sense HEIs might have a case for taking a more gendered perspective in terms of seeking to enhance the PGR student experience. However, focusing on the 7 key drivers of PGR student satisfaction, it is also the case that any improvement across the 7 key areas that HEIs can directly effect, will have a proportionately larger impact on PGR student satisfaction with their experience amongst female students.

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