

An investigation into the progression of OU STEM students from taught courses to postgraduate research

eSTeEM Final Report

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Executive Summary

In some Higher Education (HE) institutions, well-established pathways enable students to progress from taught programmes to postgraduate research (PGR) within the same university. However, at the Open University (OU), it is generally perceived that relatively few STEM PGR students have previously completed a taught qualification with the institution. This project aimed to investigate the progression of OU STEM students from undergraduate and taught postgraduate study to PGR, and to explore their reasons for either pursuing or not pursuing this pathway. The study sought to identify potential barriers to progression and to propose recommendations to address them.

A mixed-methods approach combined institutional data analysis with surveys and interviews. Quantitative data were used to evaluate progression rates from taught courses to PGR at the OU. This included analysis of the prior qualifications of STEM PGR students and the subsequent study pathways of taught programme graduates. Two surveys were sent, one to graduates of taught qualifications, and another to students in the final stages of studying OU taught qualifications. These explored awareness of OU PGR opportunities, consideration of applying for PGR, and perceived barriers to pursuing PGR. Semi-structured interviews with graduates from OU taught courses and STEM PGR students provided deeper insights into factors influencing the decision to pursue, or not pursue, PGR study and barriers to progression.

Progression from taught study to PGR varied across Schools in the STEM Faculty, with the proportion of PGR students holding prior OU taught qualifications

ranging from 12% to 46%. In most Schools, students with prior OU qualifications were more likely to study PGR part-time. In the Faculty overall, 11% of full-time and 40% of part-time PhD students had completed taught qualifications with the OU.

Survey and interview responses demonstrated that 49% of graduates and 69% of students on capstone modules had considered applying to PGR at any university, primarily motivated by subject interest and career development. However, the number who actually applied for PGR at the OU was much lower. The main barriers identified to progression to PGR were cost, time, location constraints, limited part-time opportunities, lack of practical and/or research experience, limited access to information and support, lack of confidence, and health challenges.

The project has resulted in evidence-based insights into rates of progression from STEM taught courses to PGR and the reasons that students choose to pursue or not pursue this pathway. It also identified recommendations to potentially remove barriers and increase progression from taught study to PGR for OU STEM students. Key recommendations included offering opportunities for students on taught programmes to engage with PGR students and access additional information about this pathway. These opportunities could be provided via mentoring schemes, introductory courses, and/or “taster” sessions. Further work could evaluate the impact of these proposed actions, compare progression to PGR at the OU with the wider HE sector, and explore funding options to support part-time PGR study.

Aims and scope

In parts of the Higher Education (HE) sector, there is often a well-established pathway for students to progress from taught courses to postgraduate research within the same institution. However, at the Open University (OU) it is generally perceived that relatively few STEM postgraduate research students have previously completed a taught qualification with the University compared to other HE institutions. This perception is largely based on limited data and anecdotal evidence. To date, no systematic evaluation of the progression rates from taught courses to postgraduate research (PGR) at the OU had been conducted.

In the wider HE sector, there is also increasing interest in the barriers preventing students from progressing to PGR, with the aim of widening access (Gaskell & Lingwood, 2019). This includes reviewing the progression of under-represented student groups, such as those from ethnic minorities, those with disabilities, or those from low socio-economic backgrounds (Lindner 2020; Sotiropoulou, 2022; Badrie et al., 2023), as well as the progression of female students to specific PGR topics (Reger, Gallen and Bowden, 2022). However, little is known about the rates of progression to PGR by students on part-time distance learning courses, such as OU undergraduate and taught postgraduate qualifications. The OU's mission focuses on being open to people, including those from under-represented groups and those studying alongside other commitments (The Open University, 2025). However, low rates of progression from taught courses to PGR may

indicate potential barriers in the progression of the diverse student population along this pathway.

The main aim of this project was to investigate the progression of OU STEM students from undergraduate and taught postgraduate courses to PGR at the University and their reasons for pursuing or not pursuing this pathway. The project objectives were to:

- evaluate the current rate of progression from undergraduate and taught postgraduate courses to postgraduate research at the OU (full-time and part-time).
- conduct student surveys and follow-up interviews to obtain information about student decisions relating to the pipeline to postgraduate research.
- conduct thematic analysis to identify the common themes and topics in responses to surveys and interviews about progression to postgraduate research.
- disseminate the results of the project via feedback to appropriate groups within the OU and externally.

The scope of the project included all of the schools in the STEM faculty and both full-time and part-time modes of study. The anticipated project outcomes included:

- evaluation of the current situation in relation to the progression of OU STEM students from taught courses to postgraduate research
- enhanced understanding of the reasons for low progression from OU taught qualifications to OU PhD research,
- an indication of whether a follow-on project to propose and test recommended improvements to current practices would be appropriate.

Activities

A mixed-methods approach, including obtaining institutional data and conducting surveys and interviews, was used to investigate the progression of students from taught undergraduate and postgraduate programmes to PGR in the STEM Faculty. This approach was selected as it allowed for a quantitative assessment of current progression rates as well as a qualitative evaluation of student motivations and potential barriers. Table 1 outlines the data collection approaches used including their purpose and target group(s).

The original project plan included interviews with staff including capstone module chairs, postgraduate qualification leads, and STEM postgraduate research tutors. A discussion was held with postgraduate research tutors regarding the project to establish what information is currently given to students about progression to postgraduate research. Further interviews with colleagues were not conducted as it was agreed that informal discussions may be more insightful while minimising demands on their time.

The qualifications examined during this project were: MSc Mathematics (F04), MSc Technology Management (F36), MSc Engineering (F46), MSc Systems thinking in practice (F47), MSc Environmental management (F65), MSc Computing (F66), MSc Space science and technology (F77), MSc Mental Health Science (F78), MSc Cyber security (F87), Master of Engineering (M04), BSc Economics and Mathematical Sciences (Q15), BSc Mathematics (Q31), BSc Mathematics and statistics (Q36), BSc Mathematics and its learning (Q46), BSc Environmental science (Q52), BSc Design and innovation (Q61), BSc Computing

and IT (Q62), BSc Natural sciences (Q64), Bachelor of Engineering (Q65), BSc Computing and IT and a second subject (Q67), BSc Health sciences (Q71), BSc Mathematics and physics (Q77), BSc Geography and environmental science (R16), BSc Combined STEM (R28), BSc Physics (R51), BSc Biology (R58), and BSc Chemistry (R59).

The undergraduate and postgraduate capstone modules examined during this project were: The computing and IT project (TM470), The engineering project (T452), Science project modules (SXH390, SXC390, SXB390, SXP390, SXG390, SXE390), Innovation: designing for change (T317), Environment: responding to change (SDT306), Project for Master of environmental science (S840), Masters level project in physical sciences (S841/SXS841), Research project (T802), MSc project: researching in context (T803), Dissertation in mathematics (M840), MSc project module (SXH890), MEng Individual project (T460), and Team engineering (T885).

Data collection method	Purpose	Target group(s)
Institutional data	Determine rates of progression from STEM undergraduate and taught postgraduate programmes to PGR.	<p>All STEM students who completed identified STEM qualifications between 2018 and 2023.</p> <p>PGR students registered on a PhD or MPhil in STEM in March 2024 who previously completed a taught qualification with the OU.</p>
Survey 1 - graduates	Assess outcomes for graduates from OU taught courses, including whether they considered PGR and any barriers they encountered.	Students who conferred identified taught qualifications in 2023/2024.

Interview 1 – taught students	Establish details regarding student decisions, motivations and barriers relating to pursuing PGR after completing an OU taught qualification.	Students who completed identified taught qualifications in 2023/2024 and expressed interest in a follow-up interview.
Survey 2 – students studying capstone modules	Determine intent of students registered on capstone modules in relation to pursuing PGR, including motivations and potential barriers.	Students registered on identified capstone modules in March 2025.
Interview 2 – PGR students	Gather insights from PGR students who previously studied taught courses at the University, focusing on their progression to PGR, including expectations, preparation, and any barriers faced.	PhD and MPhil students in STEM who previously completed taught OU qualifications (registered before September 2024).

Table 1 An overview of the data collection methods used and the project objectives they address.

Rates of progression

Quantitative institutional data were collected to evaluate rates of progression from taught courses to PGR at the OU. This included obtaining the previous qualification history of OU STEM PGR students registered in April 2024 to ascertain how many had previously completed taught courses with the University. The data included which School students were registered in, their initial study mode (full-time or part-time), their current study mode and which OU qualifications they had previously studied (if applicable). Demographic information was also collected, including age group, sex, ethnicity, and disability. Analyses, including chi-squared tests, examined differences in population distributions by gender, ethnicity, study mode, age, disability status, and School between those who had studied taught courses with the OU and those who had not.

Data were also obtained in relation to students who completed the identified STEM undergraduate and taught postgraduate qualifications at the OU from 2018/19 to 2022/23 to determine their subsequent study pathways. Information included which qualification(s) had been completed and when, grades obtained and PGR study mode. Demographic data were also collected, including age group, disability, IMD quintile, ethnicity and country of residence.

Surveys

Two surveys were sent, one to students who had completed taught qualifications (survey 1), and another to students in the final stages of studying OU taught qualifications (survey 2). Both surveys included multiple choice

questions (single and multi-select) and open response questions. Surveys were conducted using the JISC Online Surveys platform and responses were anonymised. Quantitative analyses of responses to multiple-choice survey questions involved calculating percentages and generating graphs for comparison in Microsoft Excel. To maintain continuity between the quantitative and qualitative analyses, Microsoft Excel was also used for the qualitative analysis of these data. This involved manually coding the responses to open-ended questions in accordance with the themes that had already been identified from the interview transcripts (outlined in the subsequent section).

Survey 1 – Graduates

Survey 1 asked graduates about their awareness of OU PGR opportunities, whether they considered applying for PGR and the main perceived barriers to pursuing PGR. It also requested demographic information that may highlight variables that impact progression to PGR, including gender, ethnicity, age, employment, caring responsibilities and disability. This survey invited respondents to indicate whether they would be willing to take part in a follow-up interview. It was sent in December 2024 to 4,342 students who completed the identified STEM taught qualifications in 2023 and 2024. There were 228 responses to this survey (5% response rate). Supporting documents and questions for survey 1 are provided in Appendix C.

Survey 2 – Students on capstone modules

Survey 2 asked students studying STEM capstone modules about the likelihood of them applying for PGR, their awareness of OU PGR opportunities, and the

perceived barriers to progressing to PGR. It also requested the same demographic data as survey 1. It was sent in March 2025 to 1,971 students registered on identified capstone modules. There were 84 responses to this survey (4% response rate). Supporting documents and questions for survey 2 are provided in Appendix D.

Interviews

Semi-structured interviews were conducted with graduates from OU taught courses and STEM PGR students. All interviews were conducted remotely via Microsoft Teams between 6th November 2024 and 27th March 2025. This platform was selected for its accessibility and convenience, as it allowed participation without the need for additional software downloads and supported the automatic generation of transcripts. Prior to each interview, participants provided written informed consent, and consent for audio recording was confirmed verbally at the start of each session. Automatically generated transcripts were reviewed for accuracy and corrected where necessary, before being anonymised to preserve participant confidentiality. During the transcription process, a denaturalised approach was used to place the focus on the content of interviews rather than the exact linguistic features or speech patterns (e.g. pauses, nonverbal utterances or accents) (Oliver, Serovich and Mason, 2005). This method was appropriate to interpret the meanings, perceptions, and experiences conveyed by participants, rather than to explore conversational structure or delivery.

To ensure neutrality and mitigate any potential power imbalances, all interviews were conducted by a single researcher, a PhD student on the project team (Rolland, Dewaele and Costa, 2019). This prevented any perception of coercion or evaluative judgement that might arise if interviews had been conducted by academic staff with prior teaching or assessment relationships. The semi-structured approach was adopted to allow for flexibility while ensuring consistency between interviews.

The interview responses were analysed thematically using Braun and Clarke's (2021) six phase approach to reflexive thematic analysis. NVivo 15 software was used to facilitate the systematic organisation and coding of the qualitative data. A multi-layered coding process with two iterative cycles was applied. During the first cycle, diverse coding techniques were employed, including initial, attribute, structural, in Vivo, values and descriptive coding, to ensure comprehensive engagement with the data (Saldaña, 2013). This was followed by a second cycle of focused and pattern coding, which synthesised the most prominent and recurrent codes into broader thematic categories. To support transparency and rigour, a codebook was developed to define each code and track analytical decisions. Further details of the methods and analytical decisions relating to the interviews are provided in Appendix E.

Interview 1 – Taught students

Interviews were conducted in March 2025 with 14 graduate students who had volunteered to take part in their response to survey 1. This enabled further discussions about motivations for pursuing PGR, how well their taught course prepared them for PGR study and if they had experienced any barriers to

progression to PGR. Further details about interview 1, including the questions and participant information sheet, are provided in Appendix F.

Interview 2 – PGR students

Interviews with 21 STEM PGR students who had previously completed an OU taught qualification were conducted in November 2024. The interviews explored factors that influenced their decision to pursue PGR study, how well prepared they felt and whether there were any barriers to pursuing this pathway. Further details about interview 2, including the questions and participant information sheet, are provided in Appendix G.

Findings

Rates of progression

In April 2024, there were 220 PGRs in the STEM Faculty, with 138 (63%) and 82 (37%) registered to full-time and part-time study modes, respectively. Among all the STEM PGR students, 22% had previously completed taught courses with the University. When separated by study mode, 11% of full-time and 40% of part-time PhD students had completed taught qualifications with the OU.

Rates of progression by School

Separating progression rates by School highlights variations in the number and proportion of PGR students who previously completed OU undergraduate or taught postgraduate qualifications, as shown in Table 2. It should be noted that some Schools have more PGR students in total than others. Consequently, the presence or absence of a single student with a previous taught qualification can have a much greater impact on the percentage in Schools with fewer PGR students in total.

The School of Mathematics and Statistics had the highest overall proportion of PGR students who had completed OU taught programmes (around 46%). In contrast, the School of Physical Sciences, Knowledge Media Institute and the School of Earth, Environment and Ecosystems had the lowest overall proportions of PGR students with OU taught qualifications (below 15%). One explanation for the higher proportion of PGR students in the School of Mathematics and Statistics who had previously completed taught courses at the University is that

PGR in this area generally does not require lab or fieldwork, as is the case for some (though not all) PGR students in other Schools. The relatively large proportion of PGR students in the School of Mathematics and Statistics who have previously studied with the OU is notable, particularly given that this School requires a Master’s qualification for entry to PGR. Similarly, the School of Engineering and Innovation, in which some PGR students undertake laboratory and field-based research, also has a higher-than-average proportion of PGR students who have completed an OU taught course, as well as a higher-than-average proportion of part-time PGR students.

School	Total number of PGRs	Number of PGRs with OU taught qualification	% of PGRs with OU taught qualification
Computing and Communications	26	5	19.2
Earth, Environment and Ecosystems	28	4	14.3
Engineering and Innovation	45	14	31.1
Knowledge Media Institute	15	2	13.3

Life, Health and Chemical Sciences	25	4	16.0
Mathematics and Statistics	26	12	46.2
Physical Sciences	55	7	12.7

Table 2 The total number of PGRs in each School. The number and percentage who had previously completed an OU undergraduate or taught postgraduate course.

Figure 1 shows the number and percentage of PGR students in each School who had previously completed OU undergraduate or taught postgraduate qualifications split by study mode (full-time or part-time). When separated by study mode, more of the PGR students with previous OU qualifications were studying part-time than full-time. The percentage of part-time PGR students with previous OU taught qualifications was higher than for full-time in every School except Life, Health and Chemical Sciences. This reflects the results seen at the wider STEM faculty level in terms of study mode.

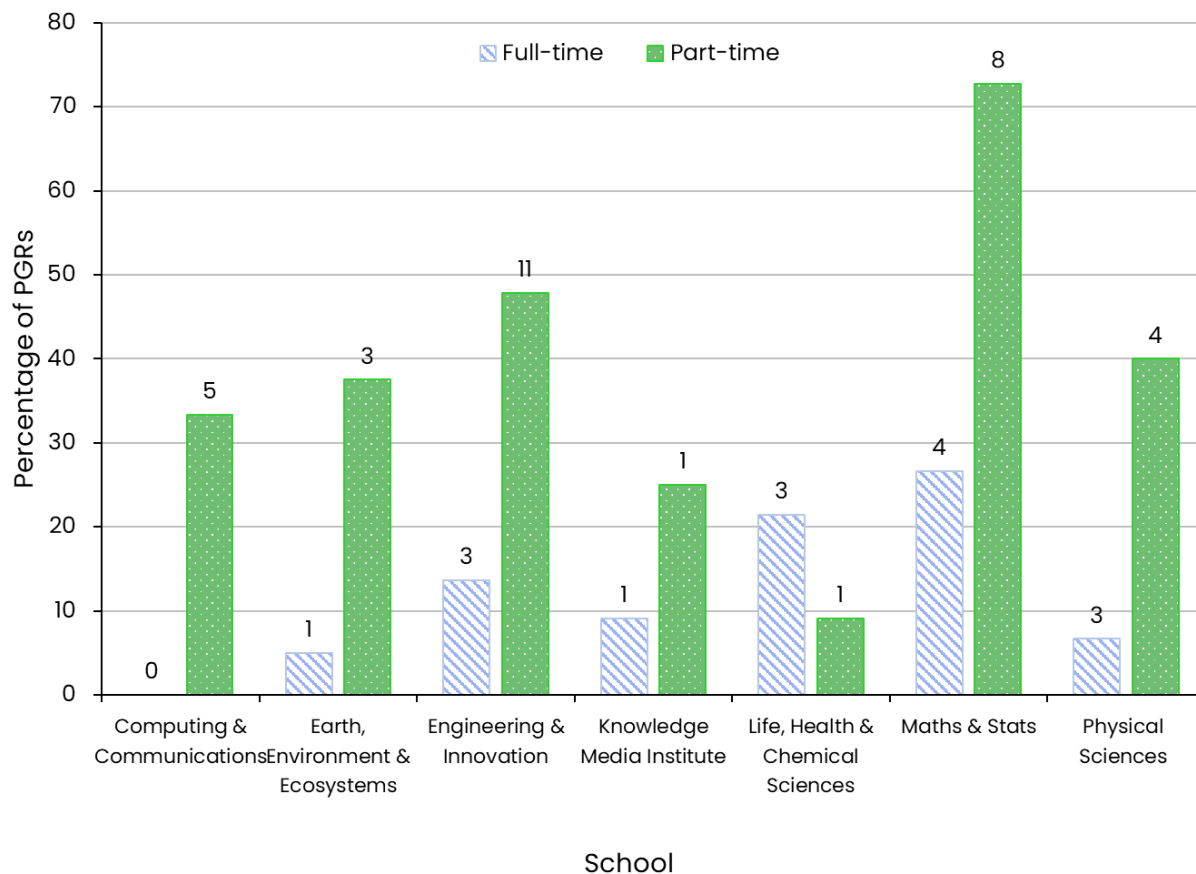


Figure 1 The percentage and number of STEM PGR students in each School who have completed OU undergraduate or taught postgraduate qualifications, separated by study mode (full-time and part-time). Bars represent the percentage of the PGR population within each School for each study mode, with percentages calculated separately for full-time and part-time PGR students. The actual numbers are shown as values above the bars. Some Schools have a higher total number of PGR students, so proportions differ even when the actual numbers are similar.

Demographic data analysis

Demographic data on current OU STEM PGR students were analysed to assess variations between those who had previously completed a taught course at the

University and those who had not. There was no significant variation in the distributions of the population by gender or ethnicity.

There was a strong correlation between having studied at least one OU taught course and being a part-time PGR student, rather than full-time ($p < .001$). This result is unsurprising, as many surveyed and interviewed PGR students reported choosing the OU for part-time study (often due to work or caring responsibilities), as explored further below. As previous study of an OU taught course is strongly correlated with being a part-time PGR, similar OU/non-OU and part-time/full-time patterns appear in some (though not all) of the other factors investigated. As a result, it is difficult to determine whether the findings are driven primarily by OU background or part-time status, although possible explanations are discussed below.

Current PGR students who had previously studied an OU taught programme were significantly older than those who had not ($p < .001$). As no students under 26 had completed an OU course, age categories were combined for the chi-squared test. Prior OU study is likely to be a confounding variable (as stated above); students who previously studied with the OU are more likely to undertake a part-time PhD. Indeed, part-time PGR students were more likely to be older than those studying full-time ($p < .001$). One explanation is that part-time study takes longer, so students are older by the time they start PGR. However, the pattern persists through all age ranges, indicating additional contributing factors. For example, older students may be more likely to study part-time due to employment or caring responsibilities. Funding may also play a role as part-time PGR students may be more likely to self-fund, and older

students may be better positioned to do so. Further investigation of funding mechanisms for OU PGR students by mode of study is needed.

A smaller proportion of STEM PGR students declared a disability (4.9%) than students on the taught courses examined in this project (17.4%). Students who declared a disability were more likely to have previously studied an OU taught course ($p < .05$). Although a higher proportion of PGR students with a declared disability were studying part-time, this result was not statistically significant. There is no consistent mapping between disability declaration, prior OU study, and part-time study mode, so the correlation between disability declaration and prior OU study cannot be attributed to study mode alone. However, survey and interview responses (discussed below) indicate that some taught students would require part-time PGR opportunities or would be unable to relocate near campus due to disability.

Motivations for pursuing PGR

Surveys 1 and 2 asked whether OU graduates and students registered on STEM capstone modules had considered applying for PGR at any university (not just the OU). The selection of multiple PGR options was permitted. Figure 2 shows the responses, with PGR qualifications differentiated by type and study mode. Of the 228 graduates who replied to survey 1, 49% indicated that they had considered applying for a PGR qualification at any university. Their main motivation for considering applying for PGR was interest in the subject (78% of responses), followed by career development (49%), progression to research (38%) and career change (20%). Of the 84 students on capstone modules who responded to survey 2, 69% stated that they would consider applying for PGR at any

university. Similarly to graduates, their main motivation for considering applying for PGR was interest in the subject (86% of responses), followed by career change (46%), and career development and progression to research (both 43%). Both graduates and current students were more likely to consider applying for part-time study for all PGR options. This reflects findings from the analysis of current PGR student demographic data.

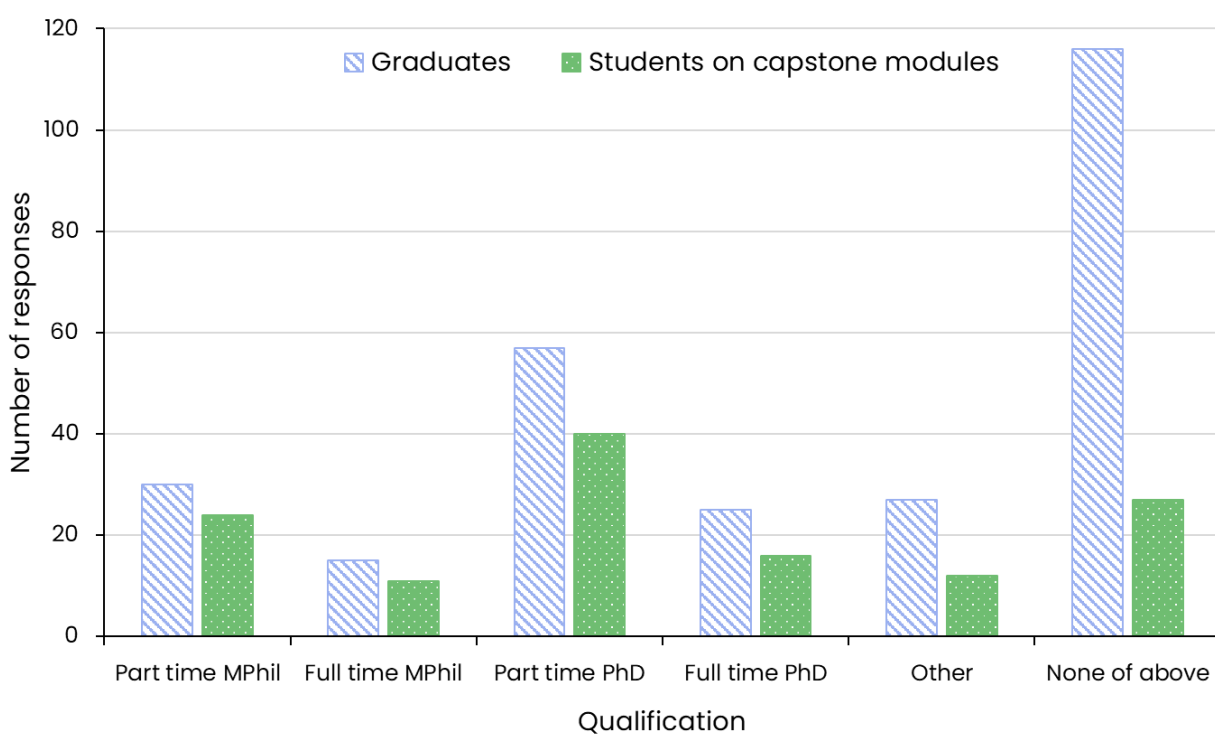


Figure 2 The number of graduates of OU STEM taught courses and students studying capstone modules who considered applying for PGR at any university.

When asked about the OU specifically, 37% of graduate respondents stated that they had considered applying for PGR at the University. 57% of students registered on STEM capstone modules indicated that they would consider applying for PGR at the OU. The 12 percentage point decrease in both surveys, compared with students considering PGR at any university, may indicate limited

awareness of OU PGR opportunities, which is discussed further in relation to barriers to PGR below.

It should be noted that there seemed to have been confusion in some cases about the difference between taught and research qualifications at postgraduate level. For example, some respondents to the surveys indicated that they had considered applying for an 'other' PGR option, but their open response specified a taught postgraduate qualification. Consequently it is possible that some students who indicated that they had considered applying to undertake PGR may have actually been considering PG taught courses.

While around half of the graduates had considered applying for PGR at any university, only 28% did actually apply. Similarly, only 8% of the graduates applied for PGR qualifications at the OU. Figure 3 shows a comparison of the number of graduates of OU STEM taught courses who considered applying for PGR at any university with those who did apply.

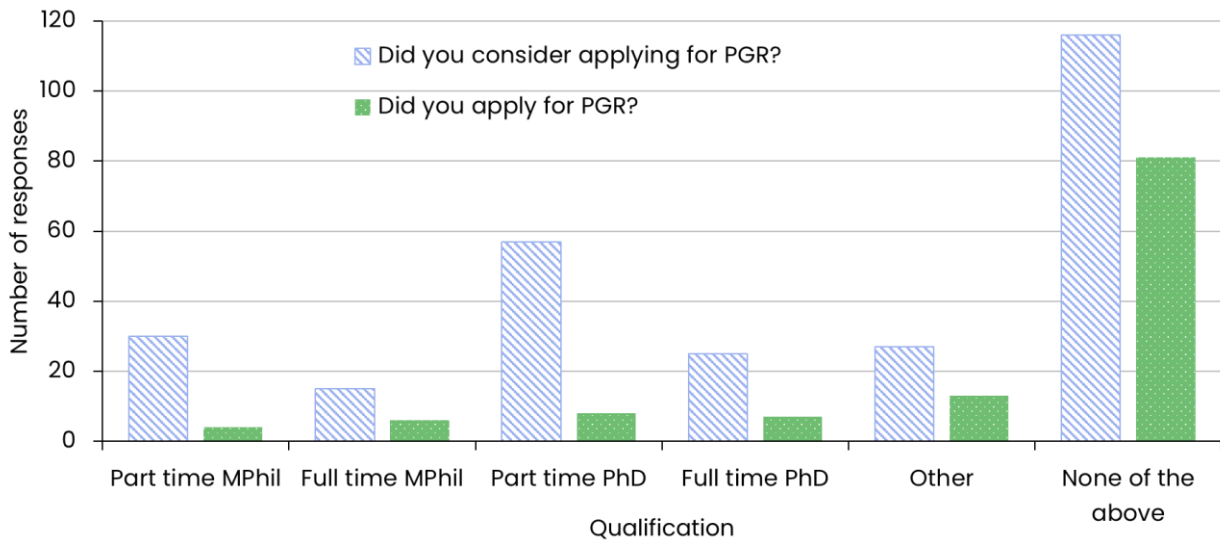


Figure 3 Comparison of the number of graduates of OU STEM taught courses who considered applying for PGR at any university with those who did apply.

Barriers to PGR

Surveys and interviews asked OU graduates and students registered on STEM capstone modules what they felt were the main barriers to pursuing PGR, either at the OU or elsewhere. Table 3 summarises the themes that were identified in the responses to the surveys and interviews. The themes presented here were mentioned in at least five responses in either survey.

Cost and time

The most commonly identified barrier to postgraduate research was cost (mentioned in 36% of responses in survey 1 and 46% of responses in survey 2), which was frequently linked to the need to give up current paid employment for a PhD studentship. This links to the time commitment required to undertake PGR. The most common reason provided for studying a taught qualification with the

OU was the ability to study alongside work commitments (39% of responses to survey 1 and 44% of responses to survey 2). It is therefore unsurprising that “time commitment” was seen as a significant barrier to pursuing PGR (either at the OU or elsewhere). It was not always clear whether students were referring to the number of hours needed per week, or the fact that completing a research degree would take several years.

Location and study mode

Students frequently mentioned that pursuing PGR would not be possible if they needed to attend a specific location, expressing a preference for local or online provision. This included individuals who had completed OU taught qualifications outside the UK and wanted to continue PGR studies in the same location. The rates of progression outlined above also highlighted that part-time PGRs are more likely than full-time PGRs to have completed taught courses with the OU. This is unsurprising, as part-time study likely represents a continuation of the study mode with which these students are already familiar. This finding, together with data showing that a greater number of students considered applying for part-time PGR options, suggests that many OU students would prefer to pursue part-time PGR. The University’s recent introduction of a distance-learning route for full-time and part-time PGR students, both inside or outside the UK, may help to remove these barriers relating to location and study mode, and support progression to PGR among students completing taught courses at the OU. Progression rates should be monitored, and future evaluation could explore whether the availability of a distance study option has had a measurable impact.

Preparation

Survey and interview responses indicated that limited practical or research experience may be a significant perceived barrier for OU STEM students pursuing PGR opportunities. This aligns with the progression patterns evaluated above, as Schools that do not require practical experience for PhD studentship consideration have a higher proportion of PGRs with previous OU taught qualifications. The lack of practical experience was anticipated to be a barrier at the start of this project, but student responses indicated it was an even greater concern than expected. The issue appears to be particularly significant when OU graduates compete with candidates from other institutions offering face-to-face practical experience. In these cases, OU students may face a barrier that other graduates do not.

Introducing in-person practical experience may not be feasible for all OU students due to geographic, time, cost, or access constraints. Alternatives such as home experiments kits or online interactive experiments (e.g. OpenSTEM labs) could support practical skills development and help mitigate this barrier. However, they may not be suitable for all modules, and some students may still perceive them as less valuable than hands-on practical experience. Interviews with graduates of STEM taught programmes indicated that several respondents would find a preparatory session or course helpful to provide insight into what PGR involves.

Some students reported that they did not believe they were eligible to apply for PGR. For example, two graduates of the BSc (Hons) Mathematics and one from the BSc (Hons) Combined STEM assumed they would be required to complete a

master's degree before progressing. This perception was reinforced by School-level entry requirements, some of which explicitly state that applicants must hold a master's qualification. For instance, the School of Mathematics and Statistics advises that, "On account of the lack of a project element, we do not generally view the OU's undergraduate mathematics and statistics degree offerings as sufficient preparation for PhD research, but each case is considered on its own merits." This contributes to the belief that progression from an OU undergraduate programme to PGR study is not possible without first completing a master's degree, creating an additional barrier for some OU STEM students. These perceptions are not entirely consistent with the progression rate data, which show that the School of Mathematics and Statistics have the highest proportion of PGRs who have previously completed OU taught courses. However, all of these PGR students completed a taught master's degree with the OU, rather than progressing straight from undergraduate study to PGR.

Confidence

Another key theme that emerged from the findings concerned students' confidence in attempting to progress to PGR. Several students who had completed taught courses with the OU expressed uncertainty about whether they possessed the necessary aptitude to undertake a PhD. There were related factors contributing to this lack of confidence among OU students and graduates. For instance, some were unsure about how to find out about PGR opportunities that were available to them after completing their taught qualification.

Students enrolled on OU taught courses typically have limited or no direct contact with PGR students or academic staff involved in creating studentships or supervising PGR students. Therefore, many students on taught qualifications primarily rely on advertised projects, either on the OU's website or external platforms, as the main source of information about PGR opportunities. This was reflected in the survey responses, which showed that although 88% and 83% of respondents to surveys 1 and 2, respectively, were aware that the University offers PGR opportunities, the majority (56% in survey 1 and 79% in survey 2) had become aware of these opportunities through online searches rather than through university communications. In addition, some of the survey responses revealed a lack of understanding of what PGR is (for example, answers mentioning progression to taught postgraduate qualifications). This lack of understanding can be viewed as further evidence for a paucity of information about PGR for students on taught programmes.

Similarly, a lack of confidence among some students also appeared to relate to the amount of support they received in pursuing PGR opportunities. Findings indicated that students on taught programmes who were potentially interested in continuing to PGR were uncertain about how to access relevant guidance and support. This theme of support was also highlighted by OU PGR students who had successfully progressed from taught qualifications within the University. Some noted that attending PGR information sessions prior to commencing a PhD would have been beneficial. They also commented that stronger integration of current PGR students into the taught student community could help to raise awareness and foster a more supportive environment. This

aligns with findings from previous investigations that highlighted the importance of providing support to remove barriers to progression to PGR. For example, students enrolled on undergraduate engineering courses were more likely to apply for a PhD programme if they had experienced positive interactions with current postgraduate students, encouragement by faculty advisors to pursue graduate opportunities, and mentoring (Borrego et al., 2018). Establishing support networks and implementing 'Bridge Programs' has also been shown to reduce inequities in the progression of students from underrepresented racial and ethnic minority groups to PGR (Hodapp and Woodle, 2017).

Health

Health emerged as a theme across both surveys of taught students and graduates, as well as interviews with PGR students, with particular emphasis on mental health in the context of PGR. Students on taught programmes identified mental health challenges as a potential barrier to pursuing PGR, while current PGR students noted that enhanced support for students with mental health issues would be beneficial. This finding reflects a wider issue of mental health support within the HE sector, particularly at PGR level (Bergvall et al., 2025). Evidence suggested that poor mental health in undergraduate students can reduce resilience, which is a key competency for successfully navigating the pathway to, and progression through, PGR (Ahluwalia et al., 2023). This is particularly relevant to OU students, many of whom experience mental health issues, but it also highlights the importance of effective mental health support for all students pursuing PGR pathways in HE institutions.

Theme	Details	Student quote(s)
Cost (S1: 82, S2: 39, I: 31)	<ul style="list-style-type: none"> • financial cost of PGR • financial implications of time away from work commitments • supporting a family financially 	<p>S1 - <i>"Cost - both in terms of finance and time taken away from other work"</i></p> <p>S2 - <i>"I have to work full time at the moment to support my household and family"</i></p> <p>I - <i>"And if you're a mature student, you have probably built up a career and probably in a good level of income to take that pay cut is a big sacrifice and sometimes not possible with your financial commitments."</i></p>
Time and/or other commitments (S1: 69, S2: 34, I: 8)	<ul style="list-style-type: none"> • fitting in PGR around full or part-time employment • family and caring responsibilities 	<p>S1 - <i>"Being able to fit in around full-time employment"</i></p> <p>S2 - <i>"Lack of flexible opportunities for those with caring responsibilities"</i></p>
Location (S1: 30, S2: 8, I: 22)	<ul style="list-style-type: none"> • finding a nearby university with a suitable PhD topic • not wanting to have to relocate • the requirement to come to campus • located outside of the UK 	<p>S1 - <i>"...it is necessary to be close enough to a university to study for a PhD"</i></p> <p>S2 - <i>"Ability to reside, work and study at the country/state of research/study"</i></p> <p>I - <i>"But my perception is that if I'm going to do a PhD, you have to spend an amount of time either at an</i></p>

		<i>associate university or Milton Keynes. And it's not something I can do remotely."</i>
Preparation (including practical and research experience) (S1: 29, S2: 14, I: 21)	<ul style="list-style-type: none"> • limited opportunities for face to face or real-life lab experience during taught courses • no research project module in the taught qualification. 	<p>S1 - <i>"Limited or no face to face opportunities to enhance the distance online learning"</i></p> <p>S1 - <i>"The OU degree I did has no research component whatsoever"</i></p> <p>S2 - <i>"The lack of practical experience, e.g. laboratory experience."</i></p> <p>I - <i>"When I speak to people from other universities about postgrad study, they are concerned about my lack of lab experience."</i></p> <p>I - <i>"if you're going to say having a substantial project option is key to doing research, have a project option."</i></p>
Support (S1: 20, S2: 5)	<ul style="list-style-type: none"> • not knowing where to find more information or who to talk to about PGR • lack of advice 	<p>S1 - <i>"No contact was ever made about the options and how I could do this."</i></p> <p>S2 - <i>"No guidance on how to write/prepare a proposal."</i></p>
Opportunity or entry requirements (S1: 17, S2: 9, I: 6)	<ul style="list-style-type: none"> • few part-time options for PGR • entry requirements on some School websites stating that students could not carry on 	<p>S1 - <i>"There should be more robust part-time options"</i></p> <p>S1 - <i>"Website explicitly says BSc inadequate preparation for OU PhD owing to lack of project."</i></p>

	directly to a PhD without doing postgraduate taught study first	
Age (S1: 8, S2: 3)	<ul style="list-style-type: none"> retired not wanting to embark on a long-term qualification in later life 	<p>S1 - <i>"I suspect that other institutions with limited spaces will rule me out in favour of (younger) students who need qualifications for career purposes"</i></p> <p>S2 - <i>"starting a long term academic role at this point might be tricky"</i></p>
Health (S1: 8, S2: 3, I: 1)	<ul style="list-style-type: none"> challenges relating to health issues lack of accessibility due to disability mental health 	<p>S1 - <i>"Intensity of study with disability"</i></p> <p>S1 - <i>"mobility issues"</i></p> <p>S2 - <i>"If I would receive enough support for my dyslexia. Worry's about my mental health."</i></p>
Confidence (S1: 6, S2: 5, I: 9)	<ul style="list-style-type: none"> not being sure if they are good enough to carry on to do a PhD after taught studies being unsure about where to find information about suitability 	<p>S1 - <i>"I don't think I am good enough to undertake a research qualification. How do you even know?!"</i></p> <p>S2 - <i>"...lack of belief in being able to achieve it."</i></p> <p>I - <i>"I had a bit of impostor syndrome."</i></p>

Table 3 The main themes arising from surveys 1 and 2, and interviews with STEM graduates from taught courses regarding barriers to progression to PGR, including details on each theme and associated student quotes. The

frequency of theme occurrence within the responses is shown in brackets. S1 is survey 1, S2 is survey 2, and I is interview.

Recommendations/Further work

There are several recommendations based on the findings of this project that could potentially enhance the pathway from taught courses to PGR for OU STEM students. One key recommendation is to increase opportunities for students on taught programmes to engage directly with current PGR students. In interviews with current PGR students strategies such as drop-in sessions and buddy schemes were suggested. The development of networking or mentoring schemes could help address barriers related to limited awareness, confidence, and access to informal support, thereby supporting informed decision-making about progression to PGR.

Additionally, interview participants highlighted the potential value of short “taster” sessions or introductory courses designed to provide insights into what PGR involves. One possible strategy for implementing this is the development of an OpenLearn course. While some disciplines currently offer subject-specific resources ([Applying to study for a PhD in psychology](#), for example), this is not widely available across STEM. Although OpenLearn hosts a course on [“Succeeding in postgraduate study”](#), there is no equivalent offering for PGR. An introductory course for students interested in PGR could help to standardise access to preparatory information and better inform prospective applicants.

Potential opportunities for further work based on the findings of this project include:

- trialling strategies outlined in the recommendations above and evaluating the outcomes

- considering whether OU STEM students progress to PGR study in other institutions
- comparing the progression rates for OU students to those in the wider HE sector
- investigating funding sources for part-time PGR opportunities.

Impact

This project has produced evidence-based insights into rates of progression from STEM taught courses to PGR. By combining institutional data with insights from surveys and interviews, the study also provides a comprehensive understanding of student motivations to pursue this pathway and perceived barriers impeding progress. At an institutional level, the identification of barriers to progression has enabled recommendations for potential actions to potentially enhance the pathway from taught courses to PGR for OU STEM students.

The project also has potential impact on widening participation in PGR. By identifying challenges faced by students, including those who study part-time, have other time commitments, or face health issues, the findings highlight barriers that may disproportionately affect OU students who want to pursue PGR opportunities. Addressing these issues could support increased access to PGR and align with institutional commitments to equality and inclusion. These insights may also be relevant to other institutions in the HE sector, as evidenced by planned participation in the [Widening Participation in Postgraduate Research' workshop](#) at Durham University.

The project has prompted actions to address barriers that students encounter when aiming to progress to PGR, especially limited practical lab experience. A presentation about the findings at the 2025 ViCEPHEC (Variety in Chemistry Education/Physics Higher Education Conference) led to significant interest from other universities. As a result, the University of Cambridge suggested that the OU

should advertise their programme of research experience placements (specifically in their School of Physical Sciences and their School of Technology) to undergraduate students. Directors of Teaching in relevant OU STEM Schools have agreed to do this. These internships offer eight weeks of research experience, free accommodation in a college and payment at the Real Living Wage, which, should an OU student be successful, would address any actual and perceived lack of research/practical experience. See [Research Experience Placements - School of the Physical Sciences](#) and [Technology Research Experience Placements - School of Technology](#) for details of the 2026 schemes.

The OU has recently introduced distance PGR opportunities. While this change is not an outcome of this project, the findings presented here provide evidence to support the value of this PGR offering and demonstrate how an identified barrier to progression has been addressed.

Key stakeholders in the project area have been, and will continue to be, informed of the project outcomes. The project team has shared findings with the STEM scholarship community at eSTeEM conferences and is in communication with the Director of STEM Postgraduate Research to explore the implementation of actions aimed at removing barriers to progression to PGR. For example, the project team would like to propose offering sessions for undergraduate and taught postgraduate students to provide insights into PhD opportunities and the pathways available at the OU. Additionally, the team is liaising with STEM Directors of Teaching to identify ways to better prepare students for PGR study.

Dissemination

Deliverables

Fraser-McDonald, A., Jordan, S. and Sharp, D. (2024). An investigation into the progression of OU STEM students from taught courses to postgraduate research.

Poster presented at: *The 13th eSTEEeM Annual Conference 2025: Sharing Scholarship and Best Practice – Implementing What Works*, 10 Apr – 11 April 2024.

Fraser-McDonald, A., Jordan, S., Sharp, D. and Sides, T. (2025). Exploring factors influencing progression from taught study to postgraduate research at the OU.

In: *The 14th eSTEEeM Annual Conference 2025: Innovations in Impact*, 30 Apr – 1 May 2025, Online.

Fraser-McDonald, A., Jordan, S., Sharp, D. and Sides, T. (2025). Progression from remote learning to postgraduate research: what are the barriers? In: *Horizons in STEM Higher Education Conference: Making Connections, Innovating and Sharing Pedagogy*, 25–26 Jun 2025, Birmingham, UK.

Jordan, S., Fraser-McDonald, A. Sharp, D. and Sides, T. (2025). Progression from taught courses to postgraduate research: barriers and enablers. In: *Variety in Chemistry Education/Physics Higher Education Conference*, 28–29 Aug 2025, Liverpool, UK.

Submission accepted for the 14th eSTEEeM Annual Conference 2025 proceedings (awaiting publication).

Manuscript submitted to New Directions in the Teaching of Natural Sciences – minor revisions requested and submitted (awaiting publication).

Participation confirmed at '[Widening Participation in Postgraduate Research Workshop](#)' on 31st March and 1st April 2026, Durham, UK. (presentation).

Figures and tables

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University approval processes

- SRPP – Approval from the Student Research Project Panel/Staff Survey Project Panel was obtained according to the Open University’s code of practice and procedures before embarking on this project. Application numbers 2024/2820, 2024/2821 and 2024/2822.
- Ethical review – An ethical review was obtained according to the Open University’s code of practice and procedures before embarking on this project. HREC Reference number 2024-0543-2.
- Data Protection Impact Assessment/Compliance Check – A Data Protection Impact Assessment/Compliance Check was obtained according to the Open University’s code of practice and procedures before embarking on this project. Data Protection reference number 1122-2024.

Appendices

Fraser-McDonald_Appendix C_Survey 1 documentation and questions

Fraser-McDonald_Appendix D_Survey 2 documentation and questions

Fraser-McDonald_Appendix E_Further details of qualitative analysis

Fraser-McDonald_Appendix F - Interview 1 documentation and questions

Fraser-McDonald_Appendix G - Interview 2 documentation and questions

