

Why Students Don't Choose Postgraduate Chemistry: *The Impact of Social and Economic Factors*

A (MChem) Master's project by **Tyler Nagbe**
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About Me



- Fourth Year (MChem) student from the University of Southampton.
- Completed placements at the ICR, Johnson Matthey and GSK.
- Currently part of student advisory panel for Widening Participation Team at Southampton.

Background

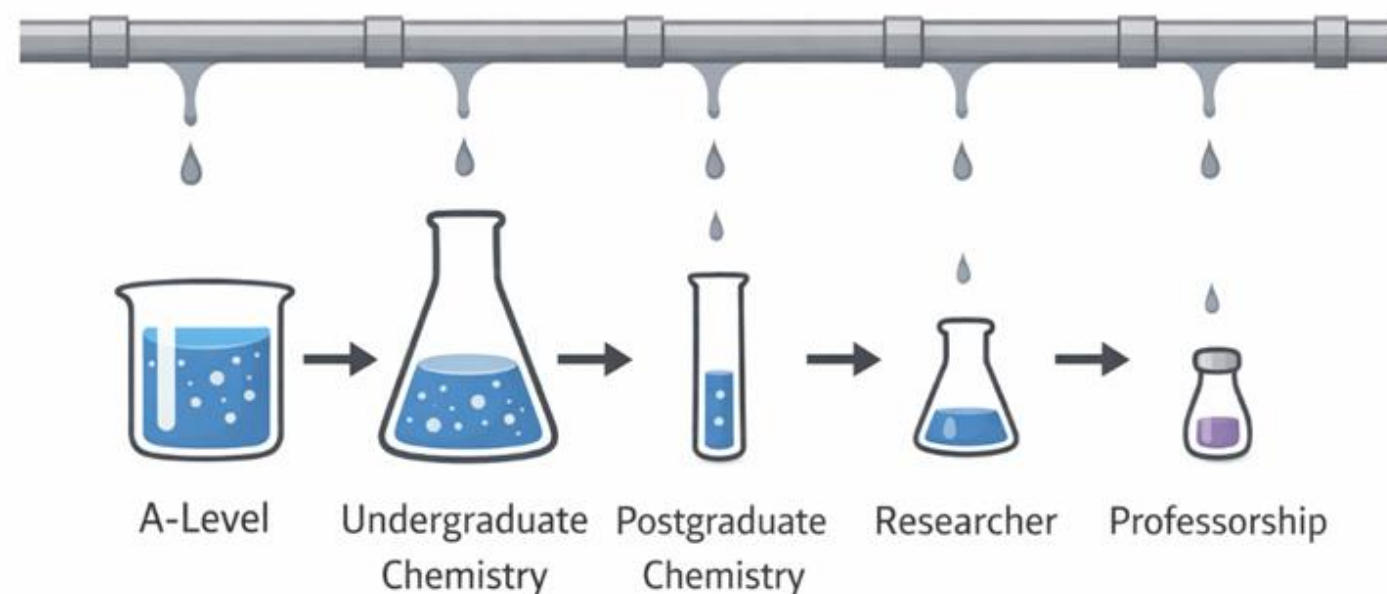


Figure 1- Graphic depicting the leaky pipeline. The leakages are key transition points where an individual makes the decision to progress or opt out.

- Worked based on the leaky pipeline, where ‘leakages’ occur at key transition points.
- Cases of underrepresentation along the educational pipeline
- Leaky pipeline explains *what* happens along the educational pipeline but does not explain *why* it happens?

Research Aims

1) How does interest in postgraduate study vary across socio-economic backgrounds and social identities?



2) What factors contribute to differences in interest in postgraduate study among students from different socio-economic backgrounds and social identities?

Methodology

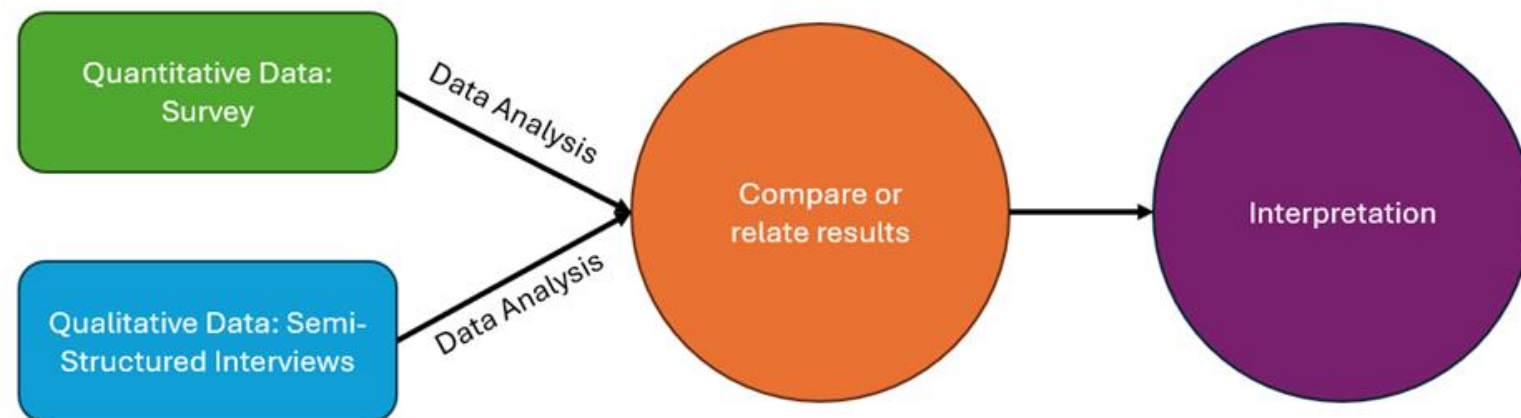


Figure 2- Graphic depicting mixed-methods approach used in this study.

- **Survey:** Used to get a generalised view and to identify patterns in data.
- **Semi-structured interview:** To provide richer insights and to explore unanticipated themes.

Survey

| Category | |
|---------------------------------|--|
| Academic Engagement + Enjoyment | Higher scores indicated the participant enjoys their discipline and is more engaged in university. |
| Stress/Workload | Higher scores indicated the participant experiences more stress and difficulty at university. |
| Financial Wellbeing | A higher score indicated the participants experience more financial difficulty at university. |
| Sense of Belonging | A higher score indicated the participants had a stronger sense of belonging in Chemistry and university. |

- Used to get a generalised view and to identify patterns in data.
- Composite score categories used to understand how participants experienced and felt about university + explain for significant differences in PhD interest.
- Score categories scored out of 5.

Survey Findings

'Lots of people in academia seem to be quite unserious and mean, perhaps this just isn't a good fit for me.'

'I don't find my course interesting enough to do a PhD, and I feel that I don't fit in with my peers enough to continue further than a master's due to the lack of diversity.'

Survey data consisted of 108 students from 24 universities across the UK.

- Key Question: **Would you want to do a PhD in Chemistry at the end of your current degree?**
- Significant relationship found between gender and interest in PhD; **Women** expressed disinterest in doing a PhD.
- Women also reported a lower sense of belonging than men, further reflected in longer worded answers.

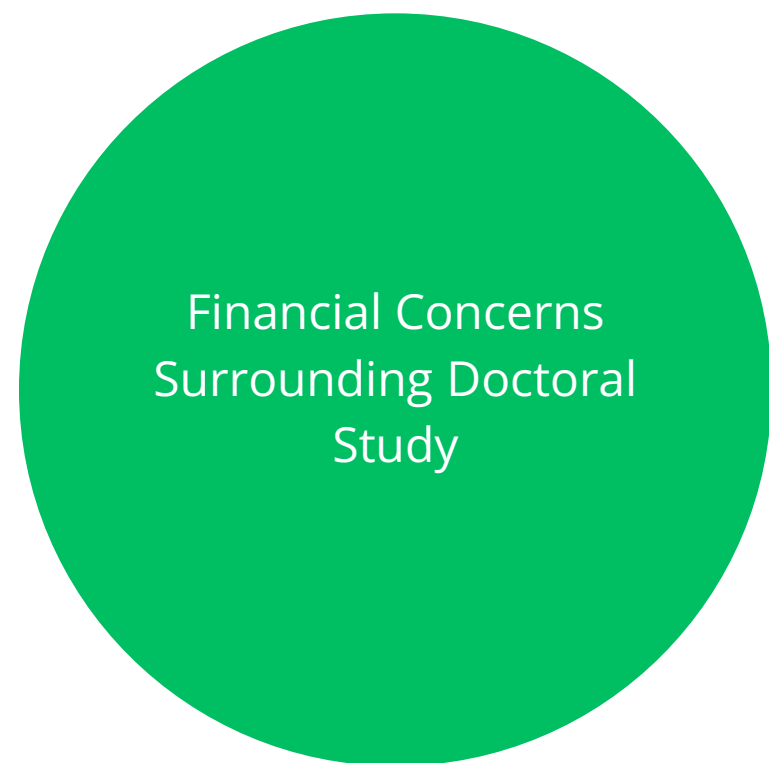
Semi Structured Interviews

Table 1- Demographic breakdown of participants from semi-structured interviews.

| ID | Gender | Race | University Type | Lower SES? (Yes/No) | Disability (Yes/No) | Industrial Placement (Yes/No) | PhD Interest? (Yes/No/I'm not sure) | Religion | Sexuality | Extra Information |
|----|--------|-------|-----------------------------|------------------------|---------------------|----------------------------------|--|-----------|-----------|---------------------------------------|
| 1 | Male | White | Russell Group | No | No | Yes | Yes | | Gay | Parent has a PhD; Master's Year |
| 2 | Female | Black | Russell Group | No | Yes | No | No | Christian | | |
| 3 | Female | Asian | Russell Group | No | No | Yes | No | | | Master's Year |
| 4 | Female | Black | Non-Russell Group | No | No | No | No | | | |
| 5 | Male | White | Russell Group | No | Yes | No | Yes | | | |
| 6 | Female | White | Russell Group | No | Yes | No | No | | | |
| 7 | Female | Black | Russell Group | Yes | Yes | No | No | Muslim | | First-generation Student; Master's |
| 8 | Female | Black | Russell Group | No | No | Yes | Yes | Christian | Lesbian | Parent has a PhD; Master's Year |
| 9 | Female | White | Russell Group (Oxbridge) | No | No | No | No | | | Master's Year |
| 10 | Male | Black | Russell Group | Yes | No | Yes | No | | | |

Interview Findings

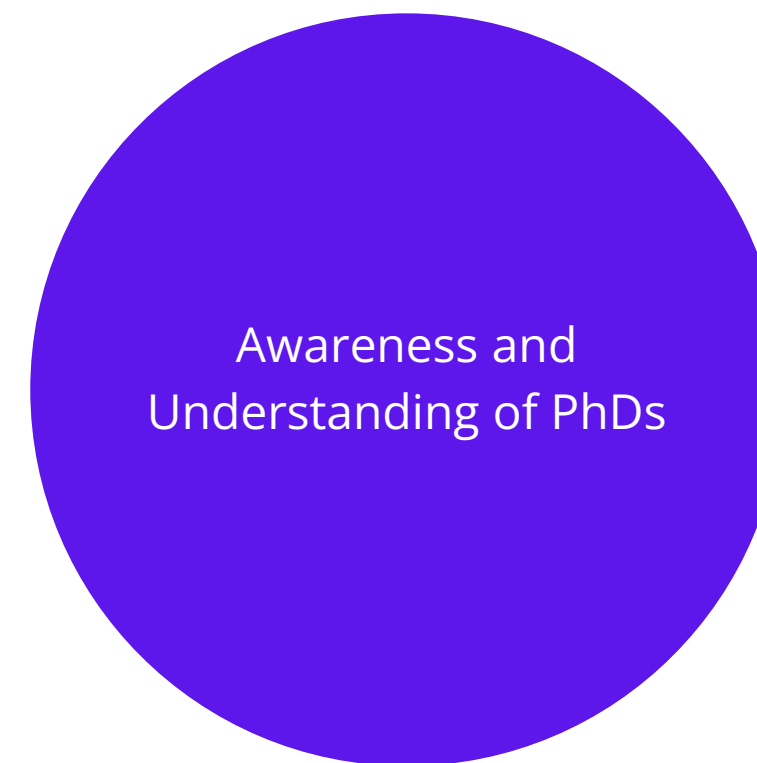
Three key barriers mentioned:



Financial Concerns
Surrounding Doctoral
Study



Chemistry Culture, and
Sense of Belonging



Awareness and
Understanding of PhDs



Interview Findings

'I think money's pretty much the main aspect. I love research and I love like conducting research. I love writing articles and lit reviews and things like that.

But if I'm going to be financially struggling as a result, it doesn't seem worth it to me. I have a lot of goals in terms of finance...I want to be able to move out of my parents' place and rent or things like that.

A 21K stipend isn't going to help me do that.'

Financial Concerns surrounding Doctoral Study

- Participants with awareness on funding still felt the current stipend was not enough to support living costs.
- Some participants also highlighted concerns surrounding the lack of clarity over career prospects after doctoral study.

Interview Findings

'The microaggressions I get from like demonstrators - to me that demonstrates the type of people that would be working in the lab, and I don't want to be around those types of people. It's not necessarily making me look forward to having a job because it's ... going to be like the same thing over and over and over again, like no one's going to take me seriously'

Chemistry Culture, and Sense of Belonging

- Some participants expressed exclusionary behaviour that has affected their sense of belonging.
- Some participants said that more representation might change their mind about chemistry and academia.

Interview Findings

'I don't know anything about them. I'm as confused as everybody else who's not doing a degree. I couldn't tell you how long they are. I couldn't tell you how people fund them. I couldn't tell you anything.'

Awareness and Understanding of PhDs

- Lack of information has added to hesitancy about pursuing PhD.
- Difference in information was noticeable between Master's vs. Bachelors's and those who had industrial placement or not.

Research Aims

1) How does interest in postgraduate study vary across socio-economic backgrounds and social identities?



2) What factors contribute to differences in interest in postgraduate study among students from different socio-economic backgrounds and social identities?

Summary

- Survey data shows, PhD interest differs by gender. Women expressed disinterest in postgraduate study.
- Women also reported a lower sense of belonging, possibly explaining why.
- Additional barriers of financial concerns, culture and lack of representation, and lack of awareness also contribute as barriers.

Implications

- Information about PhDs needs to be communicated earlier.
- Discussions over departmental culture to ensure students/staff feel comfortable, safe and valued.
- Longitudinal data needed, as study relied in recall.

Thank You!
Any Questions