

Why do some students pursue a chemistry degree and others do not?

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Overview: This study provides new evidence on the reasons why some advanced level chemistry students choose to pursue a chemistry degree while others do not.

Audience: Teachers; education policy makers and influencers; chemistry outreach professionals

Key Points

- The study analysed interview and survey responses from over 520 young people aged 21-22 who took Advanced Level chemistry at age 18 and either did or did not go on to study chemistry in higher education
- A key finding was that degree subject choices are highly relational – that is, not/choosing chemistry was not only based on young people's views or experiences of chemistry but was formulated in relation to other options.
- This relational interpretation helped explain why even students with positive views and experiences of chemistry did not choose the subject at degree level.
- A number of further factors were identified as influencing young people's degree choices including their experiences of school chemistry and chemistry outreach, feeling 'not/ clever enough' to continue with the subject, perceptions of chemistry jobs, associations of chemistry with masculinity and encouragement from others.
- Social inequalities within and beyond chemistry shaped the extent to which young people felt that a chemistry degree might be 'for me', producing unequal patterns of participation.

INTRODUCTION In recent years chemistry degree enrolments have been declining in England, despite Advanced Level enrolment in the subject increasing (HESA, 2022; JCQ, 2021). The paper investigates why some advanced level chemistry students choose to pursue a chemistry degree while others do not. The study uses a sociological lens to analyse data from young people who took A Level chemistry and either did or did not go on to study chemistry at university. Data include open-ended survey responses from 506 young people aged 21-22 and 185 longitudinal interviews conducted with 18 young people (and their parents) who were tracked from age 10-22.

FINDINGS Four key reasons for not/choosing chemistry were found across both the survey and interview data, with the most prevalent being the relational nature of degree subject choices. That is, young people did not/choose to pursue a chemistry degree solely due to their views or experiences of chemistry but rather the choice was formulated in relation to other options. This relational interpretation helped explain why even students with positive views and experiences of chemistry did not choose the subject at degree level.

Other key factors included students' experiences of school and advanced level chemistry A level; feeling 'not /clever enough'; and views of chemistry jobs. Four additional factors were predominantly found in the interview data: associations of chemistry with masculinity; encouragement from a significant adult; views of higher education; and chemistry work experience/outreach. A sociological lens was used to explain how and why young people's degree choices were influenced by social inequalities that combine to shape what degree choices are considered possible and/or desirable.

TAKEAWAYS The paper identifies conceptual and methodological implications for how researchers might conceptualise and understand young people's subject choices and trajectories, but particularly in more relational ways. Suggestions are made for ways that chemistry educators might make changes to practice that could help support a wider spectrum of students to feel more connected with chemistry, including addressing gendered, racialised and classed biases in the culture and practice of chemistry education and by valuing young people's identities and building their chemistry-related capital.

Full Title: Reasons for Not/ Choosing Chemistry: Why Advanced Level Chemistry Students in England Do/ Not Pursue Chemistry Undergraduate Degrees