Experiences of Learning to Code

Perspectives of Undergraduate Physics Students in 2024

Joe Marsh Rossney Sarah Hogarth
Polux Gabriel Garcia Elizondo Ross Galloway Britton Smith

August 28, 2025

About this site

This site provides access to research materials and outputs produced during the *"Experiences of Learning to Code"* project, which was run by a staff-student collaboration in the School of Physics & Astronomy at the University of Edinburgh from June–December 2024.

The site contains the following contents, navigable via the top panel.

- Project Overview[1]: a concise overview of the aims, methods and key results of the project.
- Resources for Researchers:
  - Project Proposal[2]: the original proposal submitted to the Principle's Teaching Award Scheme (PTAS) in March 2024.
  - Interview Sign-up Survey[3]: the Jisc survey disseminated in September 2024, which enabled undergraduate physics students to put themselves forward for interview.
  - Participant Information & Informed Consent[4]: the combined Participant Information and Informed Consent form, which students were required to have completed prior to their interview.
  - Instructions for Interviewers[5]: step-by-step instructions for conducting 1-1 interviews with students over Microsoft Teams, starting from the point of first contact with the selected student, and ending with instructions on how to redact and format the Microsoft Teams transcript, ready for analysis.

[1] project.html
[2] proposal/proposal.html
[3] jisc-surveys/survey/html
[4] jisc-surveys/participant_info.html
[5] interview-resources/instructions.html

  - Interview Guide[6]: the interview guide used by interviewers during interviews with students.
  - Reading List[7]: a list of references which we found useful during this work.

- Publications & Media: a work in progress!
- Code & Data[8]: this page describes and locates the various code and data artifacts produced during the project.

Authors

During the relevant time period (2024), all authors were affiliated with the School of Physics & Astronomy at the University of Edinburgh. **Joe Marsh Rossney** had recently completed a PhD in theoretical physics, during which time they were a teaching assistant on several different programming courses. **Sarah Hogarth** had recently completed a Bachelors degree in physics, where their dissertation focused on the impact of Generative AI on physics education. **Polux Gabriel Garcia Elizonda** was a Master's student in physics, having also completed a dissertation on Generative AI in physics education. **Ross Galloway** was a Senior Lecturer and leader of the Physics Education Research Group. **Britton Smith** was a Reader in the Institute for Astronomy and Course Organiser for an introductory Python course taken by physics undergraduates.

Author contributions

CRediT: **JMR**: Conceptualisation (lead), Data curation (lead), Formal analysis (equal), Funding acquisition (lead), Investigation (lead), Methodology, Project administration (equal), Software, Supervision (of SH & PGGE), Writing - original draft. **SH**: Data curation (supporting), Formal analysis (equal), Investigation (supporting). **PGGE**: Data curation (supporting), Formal analysis (supporting), Investigation (supporting). **RG**: Conceptualisation (supporting), Funding acquisition (supporting), Project administration (equal), Supervision (of JMR), Writing - review & editing. **BS**: Conceptualisation (supporting), Funding acquisition (supporting).

[6] interview-resources/interview_guide.html
[7] reading_list.html
[8] code_data.html

Acknowledgements

The authors would like to thank **Kristel Torokoff** for playing an instrumental role in securing financial support for this project via the School of Physics and Astronomy. We would also like to thank **Kristel Torokoff** and **Joe Zuntz** for conversations that helped to shape this project.

Financial support

We gratefully acknowledge that funding for this Principle's Teaching Award Scholarship (PTAS) project was provided by the University of Edinburgh Development Trust.

JMR was directly supported by both PTAS and the School of Physics & Astronomy at the University of Edinburgh. **SH** was supported by PTAS. **PGGE** was supported by the School of Physics & Astronomy through the Career Development Summer Scholarship programme.

Correspondence

- `joemar@ceh.ac.uk` for enquiries related to the project, website, code and data.