Bethany (Beth) Woollacott

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About me

I am currently a postdoctoral research associate for the Centre for Early Mathematics Learning in the Department of Mathematics Education, Loughborough University. I am a mixed methods researcher with a philosophy embedded in methodological pragmatism. I am also an invited editorial advisory board member for the *International Journal of Mathematical Education in Science and Technology.*

Research Interests

My main research interests are the educational research practice gap, mathematics textbooks, and mathematical reading.

The Educational Research-Practice Gap

My postdoctoral role predominantly involves investigating how we can improve the effectiveness of communication between researchers and practitioners, working with a team of researchers from Loughborough University, UCL, and the University of Bristol.

Some of our projects include: (1) framing the research-practice journey, collating research and posing questions to support researchers with creating impact (Howard-Jones, Woollacott & Gilmore, 2024), (2) creating a programme of research exploring the efficacy of summaries of educational research (e.g., Woollacott, 2025), and (3) investigating the barriers that educators face when engaging with research (Woollacott, Guy & Lortie-Forgues, under review).

Mathematics Textbooks

Mathematics textbooks were the topic of my PhD thesis (an ESRC-funded collaborative studentship with Oxford University Press). I investigated the under-researched area of students' and authors' perceptions of college-level mathematics textbooks in England, using questionnaires, semi-structured interviews and reflexive thematic analysis. I then focussed on mathematical textbook design, using eye-tracking technology and comparative judgement.

For more detail, you can find my thesis here or in Woollacott, Alcock & Inglis (2023).

Mathematical Reading

I became interested in mathematical reading during my doctoral research investigating mathematics textbooks. I interviewed and surveyed English college-level students, finding that their self-reported use of their textbook exposition was much higher than anticipated from the existing literature (Wang, 2021, Pepin & Haggarty, 2001). Delving deeper, I found a wealth of research discussing the complexity of reading mathematical texts and the expectation that students would struggle with mathematical reading.

This led to a programme of research using eye-tracking technology to investigate the cognitive reading processes in mathematics (e.g., Woollacott & Strohmaier, in press). I am also regularly invited to deliver practitioner-facing workshops discussing the importance of mathematical reading (see here) and I am currently investigating mathematical oracy in a related research project.

Additional Interests

I am a freelance **educational consultant** and have worked with publishers to support their educational STEM resources. Please get in touch if you think I might be able to help you.

I established and led an **Academic Writing Workshop** for the Department of Mathematics Education, Loughborough University (2019–2025). With an undergraduate in mathematics, I found that writing academically was one of the hardest learning curves when entering academia. After reading Barbara Sarnecka's *The Writing Workshop*, I established our department's writing workshop, hoping to create a supportive writing community and improve my academic writing. Over the years, the workshop has grown from strength to strength and is now a permanent feature of our department. Our writing community is something that I am extremely proud of, and our weekly sessions give everyone a chance to dedicate time for writing. I have led various academic writing skills sessions over the years and I am very happy to share resources and tips for anyone intending to establish something similar in their department.

From 2022–2025, I was the **Director of the Centre for Mathematical Cognition blog** at Loughborough University. This involved leading all aspects of the blog's strategy, content and delivery, editing colleagues' submissions for a public, wide-ranging audience. You can find the blog here.

I also hold a **Level 2 BTEC in Mental Health Awareness** ensuring that I am prepared to support the emotional and mental wellbeing of my colleagues – something which I believe is extremely important.

Publications

Under review and in prep **Woollacott, B.**, & Strohmaier, A. (in prep). Analysing the impact of linguistic modifications on how students read and learn from their mathematics textbooks. *Proceedings of the 5th Conference of the International Conference of Mathematics Textbooks.* Trondheim, Norway: ICMT.

Woollacott, B., Guy, N., & Lortie-Forgues, H. (under review). Barriers to Interacting with Research for Early Years and Primary Educators.

Francome, T., **Woollacott, B.**, Foster, C., Strauss, J., Chen, O., Shore, C., & Jones, I. (under review). Research in mathematics education: The questions teachers ask, and the questions researchers answer.

Simms, S., **Woollacott, B.**, Lortie-Forgues, H., Inglis, M., Foster, C. (under review). How should we communicate research findings to teachers? No difference in teachers' intentions to use evidence across 512 versions of a research summary.

Lewis, M., Wortha, F., Lortie-Forgues, H., **Woollacott, B.**, & Foster, C. (under review). A bidimensional model of mathematics educator beliefs.

2025 **Woollacott, B.** (2025). Effective research communication in education: Early years practitioners' views of research summaries. *Review of Education, 13*(1). https://doi.org/10.1002/rev3.70032

2024 Howard-Jones, P., **Woollacott, B.**, & Gilmore, C. (2024). The journey from educational research to classroom practice. *Journal of Education for Teaching, 51*(1), 173–187. https://doi.org/10.1080/02607476.2024.2432942

Woollacott, B., Alcock, L., & Inglis, M. (2024). Does highlighting key information help or hinder mathematical reading? In Evans, T., Marmur, O., Hunter, J., Leach, G., & Jhagroo, J. (Eds.), *Proceedings of the 47th Conference of the International Group for the Psychology of Mathematics Education (Vol. 1)*, p. 238. Auckland, New Zealand: PME.

Foster, C., **Woollacott, B.**, Francome, T., Shore, C., Peters, C., & Morley, H. (2024). Challenges in applying principles from cognitive science to the design of a school mathematics curriculum. *The Curriculum Journal, 35*(1), 489–513. https://doi.org/10.1002/curj.249

2023 Howard-Jones, P., **Woollacott, B.**, Sims, S., Moeller, K., Lortie-Forgues, H., Inglis, M., Jay, T., Gilmore, C., Foster. C. (2023). From findings to impact: Implications of current research for researcher-practitioner communication. In C. Panagiotakopoulos & C. Dimitriadis (Eds.), *Book of abstracts of the 23rd biennial EARLI conference for research on learning and instruction*, p. 123. Thessaloniki, Greece: EARLI & Aristotle University of Thessaloniki. https://www.earli.org/assets/files/EARLI2023-BOA-280823.pdf

Woollacott, B., Alcock, L., & Inglis, M. (2023). The spatial contiguity principle in mathematics textbooks. *Research in Mathematics Education, 26*(3), 386–406. https://doi.org/10.1080/14794802.2022.2158122

2021 **Woollacott, B.**, Alcock, L., & Inglis, M. (2021). The spatial contiguity principle in mathematics textbooks. *Proceedings of the 44th Conference of the International Group for the Psychology of Mathematics Education*, virtual, 4, 299-306.

2019 **Woollacott, B.**, Alcock, L., & Inglis, M. (2019). A mathematics college textbook: design intentions and reading practice. *Proceedings of the Third International Conference of Mathematics Textbook Research and Development*, Germany, 391-391.

Van Dooren, W., Christou, K., Depaepe, F., Inglis, M., Määttä, S., McMullen, J., Obersteiner, A., Heck Ribeiras, P., Van Hoof, J., Triandafyllou, M., Vamvakoussi, X., Verschaffel, L., Wittmann, G., & **Woollacott, B.** (2019). Tackling the natural number bias – A comparative textbook analysis. *Book of abstracts of the 18th biennial EARLI conference for research on learning and instruction*, p. 84. Aachen, Germany.

Presentations

Invited talks

Woollacott, B. *Using CJ to Investigate Textbook Design.* Comparative Judgement Consortium Day Meeting, University of Birmingham (UK), January 2025.

Woollacott, B. *Insights into Mathematics Reading via Mathematics Textbooks.* Technology-Enhanced Mathematical Sciences Education (TEMSE) seminar series, University of Edinburgh (UK), March 2025.

Woollacott, B. *Barriers to interacting with research for Early Years and Primary Educators.* Teacher Education and Educational Studies Research Cluster (TERIC) seminar series, University of Derby (UK), April 2025.

Conference presentations

2025 Woollacott, B., & Strohmaier, A. Analysing the impact of linguistic modifications on how students read and learn from their mathematics textbooks. *The 5th International Conference of Mathematics Textbooks*, Trondheim (Norway), June 2025.

2024 Woollacott, B., Alcock, L., & Inglis, M. Identifying key information: skill or design feature? *British Society for Research into Learning Mathematics (BSRLM) Summer Conference*, Loughborough University (UK), June 2024.

Woollacott, B., Alcock, L., & Inglis, M. Does highlighting key information help or hinder mathematical reading? *The 47th Conference of the International Group for the Psychology of Mathematics Education*, Auckland (New Zealand), July 2024.

Woollacott, B., Guy, L., & Lortie-Forgues, H. Barriers to Interacting with Research for Early Years Practitioners. *British Educational Research Association (BERA) Conference and World Education Research Association (WERA) Focal Meeting*, University of Manchester (UK), September 2024.

Woollacott, B., Guy, L., & Lortie-Forgues, H. Understanding the Challenges that Early Years and Primary Practitioners Face when Interacting with Research. *British Society for Research into Learning Mathematics (BSRLM) Autumn Conference*, University of Southampton (UK), November 2024.

2023 Woollacott, B. Early Years practitioners' perspectives on effective communication of research. *British Society for Research into Learning Mathematics (BSRLM) Spring Conference*, IOE University College London (UK), March 2023.

Woollacott, B., Alcock, L., & Inglis, M. The Spatial Contiguity Principle in Mathematics Education. *Mathematics and Cognition Learning Society (MCLS) 6th Annual Conference*, Loughborough University (UK), June 2023.

Woollacott, B., & Strohmaier, A. Emotions during reading of mathematical texts: A detailed multi-method process analysis. *Scientific Research Community Meeting*, Loughborough University (UK), June 2023.

Woollacott, B. Early Years practitioners' perspectives on effective communication of research. *British Educational Research Association (BERA) Conference*, Aston University (UK), September 2023.

2022 Woollacott, B. Research to practice: can we do it? *Loughborough University Annual Research Conference*, Loughborough University (UK), December 2022.

2021 Woollacott, B., Alcock, L., & Inglis, M. The spatial contiguity principle in mathematics textbooks. *The 44th Conference of the International Group for the Psychology of Mathematics Education*, virtual, June 2021.

2020 Woollacott, B. A Level students' self-reported use and perceptions of their mathematics textbooks. *British Society for Research into Learning Mathematics (BSRLM) Spring Conference*, University of Cambridge (UK), March 2020.

2019 Woollacott, B., Alcock, L., & Inglis, M. A mathematics college textbook: design intentions and reading practice. *The 3rd International Conference of Mathematics Textbook Research and Development*, Paderborn (Germany), June 2019.

Public Engagement

Invited Talks and Workshops

2024 Woollacott, B. Reading in Mathematics. *North West One Maths Hubs Local Leaders in Mathematics Education Day Conference (National Centre for Excellence in the Teaching of Mathematics)*, Manchester (UK), June 2024.

Woollacott, B. Exploring and addressing the challenge of reading mathematics. *The International Group for the Psychology of Mathematics Education Teacher Conference*, University of Auckland (New Zealand), July 2024.

Woollacott, B. Through the Lens: Insights into Mathematics Textbooks and Mathematical Reading. *The Institute of Mathematics and its Applications: East Midlands Branch*, University of Nottingham (UK), September 2024.

2023 Woollacott, B. "Reading Maths is Hard". *Co-op Academies Trust Joint Primary and Secondary Mathematics Day Conference*, Manchester (UK), November 2023.

School talks

Woollacott, B. Mathematical reading, explanation of a PhD and women in academia. *St. Edward's School*, Oxford (UK), July 2022.

Woollacott, B. What I do and how I got here. *John Port Spencer Academy*, Derby (UK), June 2022.

Woollacott, B. The Spatial Contiguity Principle in Mathematics Textbooks. *Headington School* (Oxford, UK), online, June 2021.

Woollacott, B. My Journey with a Maths Degree. *Woodbrook Vale School*, Loughborough (UK), January 2020.

Woollacott, B. My Research and How I Got Here. *West Buckland School*, North Devon (UK), February 2020.

Podcasts, Videos, and Blogposts

Podcasts and videos

PhDs and Maths Textbooks – Mr Barton Maths Podcast, available here.

"Reading Maths is Hard" – Professional Development video for the Loughborough University Mathematics Education Network, available here.

Blogposts

Woollacott, B. (2025, April 3). How Early Years practitioners engage with research summaries. Centre for Mathematical Cognition Blog, Loughborough University. https://blog.lboro.ac.uk/cmc/2025/04/03/bridging-the-gap-how-early-years-practitioners-engage-with-research-summaries/

Foster, C., & **Woollacott, B.** (2024, May 8). Using principles from cognitive science to design a school mathematics curriculum. British Educational Research Association Blog. https://www.bera.ac.uk/blog/using-principles-from-cognitive-science-to-design-a-school-mathematics-curriculum

Woollacott, B. (2023, June 14). The future of maths textbook design. Oxford Education Blog. https://educationblog.oup.com/secondary/the-future-of-maths-textbook-design-bethany-woollacott

Woollacott, B. (2021, February 1). How writing workshops have lifted lockdown. Centre for Mathematical Cognition Blog, Loughborough University. https://blog.lboro.ac.uk/cmc/2021/02/01/how-writing-workshops-have-lifted-lockdown/

Grants and Awards

Grants

Reading to Learn Mathematics. (under review). *Swedish Research Council Research Grants Open Call 2025.*

Emotions during reading of mathematical texts: A detailed multi-method process analysis. (2023). *British Academy Small Grant from the Centre for Mathematical Cognition, Loughborough University.*

Learning post-compulsory mathematics by reading. (2017). *Economic and Social Research Council Doctoral Training Partnership 3+1 Collaborative Studentship Award.*

Awards

Positive Impact on Wellbeing Award, School of Science Awards 2025, Loughborough University.

Inspirational Women Award, Loughborough University Women's Network 2025 Award, Loughborough University.

Open Research Excellence Award, Open Research Community Awards 2022, Loughborough University.

Best Postgraduate Demonstrator Award – Second Place, School of Science Awards 2018, Loughborough University.

Contact

Please feel free to use the contact information below – I really enjoy presenting my research to varied audiences, hearing feedback and sharing ideas so please get in touch if you would like me to come and visit your group.

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