

EDITORIAL

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In August 2024, delegates from across the globe gathered at the University of Limerick (Ollscoil Luimnigh) for the annual CETL-MSOR conference, and this edition of MSOR Connections is dedicated to sharing a collection of ideas, issues, solutions and opinions on the teaching, support and assessment of mathematics and statistics, that were presented at that conference. Themes covered at the conference included Linking research and practice in mathematics and statistics education in Higher Education, Teaching mathematics for mathematics specialist and non-mathematics specialist groups, The changing nature of mathematics and statistics learning support, and Exploring the affective domain in third-level mathematics and statistics education

This edition starts with five articles that address issues associated with studying mathematics when transitioning to higher education. The first is a case study by Banks which describes the design of a credit-bearing module at the University of Liverpool aimed at supporting students in the transition from school to studying mathematics at undergraduate level. This is followed by another case study by Ahmed and August describing an initiative introduced at the University of Glasgow to ease the transition into university-level mathematics and promote student engagement. These two case studies are then followed by three research articles, the first of which by Curran et al., investigates if issues which cause students difficulty with mathematics are present for students beyond their first year of university, focusing specifically on issues that undergraduate engineering students at an Irish university have identified as causing them difficulty when studying mathematics. Ryan and Fitzmaurice then investigates mathematics anxiety among out-of-field secondary teachers enrolled in Ireland's Professional Diploma in Mathematics for Teaching (PDMT), discussing ways to reduce mathematics anxiety amongst future PDMT students. The final article in this first group of five, by Brignell et al., then explores whether students hold stereotypes about academic staff, and whether this results in negative consequences for students and creates barriers to learning mathematics, discussing steps that staff can take to address these barriers.

The edition then presents three articles that explore issues associated with supporting and facilitating student learning in the mathematical sciences in higher education. The first of these is a research article by Mackenzie and Ahmed, which describes the "The Hub", a large maths and stats support centre at the University of Glasgow, exploring trends in the impact of engagement in maths support on students' final grade, as well as identifying gaps in students' knowledge. This is followed by an article by Steele which discusses different models for the provision of maths support, providing some background around how this is undertaken at the University of Manchester. The third and final article in this group by Mair et al. reports on the development and outcomes of a workshop focused on improving the accessibility of maths for visually impaired people, held at the University of Glasgow in 2024.

We then have a series of four articles that present opportunities through learning and assessment for developing students' confidence and communication skills with mathematics as well as their employability skills. The first by Russell is a case study that showcases an extra-curricular activity involving a large local employer and offered to undergraduate mathematics students at the University of Liverpool in 2024. This challenged students to work in groups with the aim of developing confidence in their skills and a greater awareness of the opportunities for mathematics graduates.

This is followed by a research article by Jones et al. describing opportunities for students at the University of Middlesex to work as mathematical ambassadors and to apply skills in communicating mathematics during a range of outreach and public engagement events. This explores the impact on increasing confidence and knowledge of mathematical topics, as well as enhancing their employability, communication skills, and social capital. Hobson et al. then presents a research article, which reports on a new assessment strategy for students on the Mathematics, Physics and Engineering integrated Foundation Year programmes at the University of Lincoln. This used group-work and co-created industry contexts in assessments and explores the impact this has had not just on attainment but also attendance and students' sense of belonging. This is followed by a second research article by Jones et al., which considers how authentic mathematical activities (i.e. the kind of tasks a maths graduate can expect in the workplace) are incorporated into the design and delivery of undergraduate programmes at Middlesex University. This discusses the implementation, benefits, and challenges involved and the effect on students' perceptions of mathematics. One of the authentic assessment contexts considered involves students' use of Generative AI as an aid to solving mathematics problems and as an aid to developing means of communicating results such as through animations.

The use of Generative AI as an assistive tool to improve productivity is also the theme of the final article which concludes this edition. This is a case study by Manning, which describes an approach to creating step-by-step draft maths solutions using Generative AI, which are then reviewed and corrected. In particular, ChatGPT is used and the article highlights the strengths and limitations of using ChatGPT for this purpose.

Finally, we would like to say thank you to all these authors for sharing their work. *MSOR Connections* can only function if the community it serves continues to provide content, so we strongly encourage you to consider writing case studies about your practice, accounts of your research into teaching, learning, assessment and support, and your opinions on issues you face in your work. However, just as important are the many reviewers who continue to contribute hugely to the sharing of this good practice and experience, but often go unacknowledged – thank you too for all your support for the journal. We can all help with the functioning of the journal by volunteering as a peer-reviewer. When you register with the journal website, there is an option to tick to register as a reviewer. It is very helpful if you write something in the 'reviewing interests' box, so that when we are selecting reviewers for a paper, we can know what sorts of articles you feel comfortable reviewing. To submit an article or register as a reviewer, just go to <http://journals.gre.ac.uk/> and look for *MSOR Connections*.