

## Mathematics Education and Digital Technologies

Working Group, October 2021 - June 2022

### Information and call for expressions of interest

#### Introduction

In September 2011, the JMC published a working group report entitled [Digital technologies and mathematics education](#). A decade later, the JMC is keen to revisit this work in the light of changes in education systems, transformations in the uses of technology, and following the impact of the global pandemic. What has changed since 2011; why has such little progress been made on the Council's previous recommendations; and what needs to happen to ensure that school learners of mathematics benefit from working mathematically with digital technologies?

A series of *divergent* discussions amongst the JMC Trustees, the JMC Council and in a joint meeting with the Royal Society's Advisory Committee on Mathematics Education helped to open up the range and complexity of opportunities and challenges in this area. The Council now needs to *converge* on a plan of action.

Given recent calls to realise a 'great leap forward' for educational technology, this is an opportune time for JMC to coordinate its expertise and experience to inform the debate. Curriculum reform is not expected anytime soon - in England at least – and mandated adoption of particular digital tools seems unlikely. The JMC's intention is therefore largely to stimulate debate, understand the current state of practice, propose ways forward and identify the barriers to, and incentives for, progress.

#### Aims

- To utilise the expertise and experience of JMC members and invited others to catalyse debate on the specific opportunities for, and challenges of, using digital technology to enhance mathematics learning;
- To synthesise relevant evidence of different types (e.g. research/grey literature, expert practice) and communicate effectively to different high-level audiences;
- To understand why such little progress has been made on the 2011 JMC report recommendations;
- To explore variations across the UK to inform understanding of where and how digital technology can benefit learners of mathematics;
- To explore variations between (secondary) schools to understand how and why digital technologies get deployed, or not, in learning mathematics;
- To explore teacher capacity and confidence, including the roles of initial training and professional development, for enhanced use of digital technologies.

#### Proposed Approach

At this stage it is only possible to set out the starting point and initial direction of travel for the Working Group (WG).

The WG will comprise around 12 people and will be chaired by the JMC Chair.

Meetings of the WG will start in October, be online in the first instance, and be monthly with a review of the process in January 2022. They are likely to be for 2 hours and late afternoon (e.g. 3-5pm)

As a working group, members should expect to be 'working' and might be invited to contribute to a sub-theme of the WG, or be asked to prepare a contribution to one of the meetings.

### Initial activities

In the first meeting, the WG will agree a 3-month plan of action, and a provisional plan for the remainder of the WG.

We expect that during the autumn the group will:

- Agree and commission a small project to include a number of case studies of effective (secondary) maths departments who are either a) innovators and/or champions, or b) sceptics and/or resisters, of digital technology *for* mathematics learning. This would be reported at the start of 2022;
- Receive oral reports on interesting cases of digital technology use, innovation and change at different system scales, e.g. national policy of adopting Geogebra in ROI, challenge of examining large dataset in England. The WG will identify other interesting cases.

### Possible longer term actions and/or deliverables

- A mapping of the grey literature, recent initiatives and professional development landscape specifically in the area of digital technology for mathematics education;
- A high-level vision for digitally-enhanced mathematics education for the four home nations, proposed next steps and associated risks and opportunities, including some form of theory of change model

### Other considerations

RS/ACME also proposes to undertake some work in this area, and the projects of Mathematics Futures Programmes will be relevant. It will be important to ensure effective communication and complementarity between the groups. ACME's focus is more likely to be on international case studies of strategic change and innovation.

### Action required

Since this will be a JMC Working Group, we would like the majority of WG members to be existing representatives sitting on the Council.

We do not know what level of interest there will be in the WG and the Trustees will be aiming to finalise membership early in the autumn term in order to set up a first meeting in October.

**If you are interested in joining the working group, please email Chris Chipperton by Friday 3<sup>rd</sup> September at [secretary@jmc.org.uk](mailto:secretary@jmc.org.uk)**

If you think another member of your organisation, or other expert in our mathematics education community, would be able to make a strong contribution to the group, please also let Chris know.