

# Joint Mathematical Council of the United Kingdom

## Minutes of the meeting held at the Royal Statistical Society at 1100 on Tuesday 10 November 2015

### Present

#### *Officers*

Chair

Paul Glaister

Honorary Secretary

Peter Thomas

Honorary Treasurer

Paul Harris

#### *Representatives of Participating Societies*

Adults Learning Mathematics

David Kaye (deputy)

Association of Mathematics Education Teachers

Ros Hyde

Association of Teachers of Mathematics

Sue Pope

British Society for Research into Learning Mathematics

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British Society for the History of Mathematics

June Barrow-Green

Conference of Heads of Departments of Mathematical Sciences

Catherine Hobbs

Edinburgh Mathematical Society

David Pritchard

Institute of Mathematics and its Applications

Chris Chipperton

London Mathematical Society

Alice Rogers

The Mathematical Association

–

Mathematics in Education and Industry

Charlie Stripp

National Association for Numeracy and Mathematics in Colleges

Sally Barton

National Association of Mathematics Advisors

Matt Lewis

National Numeracy

Lynn Churchman

National STEM Centre

Stephen Lyon

NRICH representing the Millennium Mathematics Project

Ems Lord

Operational Research Society

–

Royal Academy of Engineering

–

Royal Statistical Society

–

United Kingdom Mathematics Trust

Bill Richardson

Wales Institute of Mathematical and Computational Sciences

Sofya Lyakhova

#### *Co-opted Members*

Chair of the BCME Committee

David Martin

Immediate Past Chair

Tim Rowland

UK Representative to International Commission on Mathematical Instruction

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#### *Representatives of Observing Societies*

Advisory Committee on Mathematics Education

Robert Barbour

Department for Education [England]

–

Department of Education [Northern Ireland]

–

Education Scotland

Lorna Harvey

Higher Education Academy

–

National Centre for Excellence in the Teaching of Mathematics

John Westwell (deputy)

National College for Teaching and Leadership

–

Office for Standards in Education

–

The Office of Qualifications and Examinations Regulation

–

The Royal Society

David Montagu

#### *Visitors*

Advisory Committee on Mathematics Education Secretariat

Niamh Mc Mahon

Department for Education and Skills [Wales]

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## 1 Introduction

- 1.1 **Welcome** The Chair welcomed everyone to the meeting, especially newcomers.
- 1.2 **Practical Arrangements** The procedure for emergency evacuation was made known to those present.
- 1.3 **Apologies for absence** Apologies for absence were received from Jeff Evans (ALM), Janet Holloway (Ofqual), Jane Imrie (NCETM), Jane Jones (Ofsted), Hilary Povey (BSRLM), Peter Ransom (MA), Neil Sheldon (RSS) and Nick Todd (DE).

## 2 Minutes of the meeting held on Tuesday 16 June 2015

2.1 **Approval** The minutes of the meeting held on Tuesday 16 June 2015 were approved.

2.2 **Matters arising not elsewhere on the agenda**

**6 A Level Mathematics Advisory Board** Alice Rogers drew attention to the call under this item for a GMAB (GCSE Mathematics Advisory Board) and asked what had been done since the meeting on 16 June 2015. Niamh Mc Mahon and Tim Rowland said that the matter had been discussed with ACME, and caution had been expressed about setting up another body. The Chair asked about the impending National Mathematics Subject Committee which would include GCSE within its remit. Alice Rogers said that conversations were taking place between Adrian Smith (Chair of the Council for the Mathematical Sciences) and Tom McLeish (Chair of the Education Committee of The Royal Society). The Chair said he would contact Adrian Smith about what was happening.

Lynn Churchman expressed concern that if a group was not set up now, so it could gather evidence about implementation of the new GCSEs in Mathematics [in England] (which no one else appeared to be doing), it would be too late. She asked that the JMC set up a Working Group. Sue Pope seconded the idea; there was a need to gather current evidence. The Chair said that ACME might convene an Expert Group; Niamh Mc Mahon said that if it did so then there would have to be an open call. Sally Barton said that a JMC Working Group would be the best thing. John Westwell said that with regard to implementing the new GCSEs, there was activity in the Maths Hubs to support schools with this and schools were increasing teaching time but effects on curriculum planning were less clear.

The Chair asked what would be the purpose of and outcome from a GMAB. Sue Pope responded that a group should be formed that commands authority and is independent, that would gather information from schools about what is working and what is not, and it would need to look for what would put right the problems that had arisen. The Chair asked who it could advise. Niamh Mc Mahon queried whether the group would be advising the DfE and noted that it sounded like the proposed body would be more of an implementation group than an advisory group. Lynn Churchman said that she would not want to define it as an implementation group, it should gather information then give advice.

Charlie Stripp expressed concern that increased teaching hours would mean that more teachers would be needed and the more demanding nature of the content would create an increased need for professional development; he asked whether the necessary support was in place. The Chair said he would like to talk to other interested parties, including the DfE. David Kaye, supported by Sally Barton, said that the impact of the new GCSEs will be even greater on colleges than schools; Charlie Stripp said the issues for post-16 were massive: 65% did not get their re-sit last summer. The Chair said he would take this into consideration.

Alice Rogers proposed that the Executive Committee be authorised to set up a Working Group on GCSE. The proposal was approved (with 16 votes in favour, 0 against and 0 abstentions).

## 3 Reports from JMC Executive Committee

3.1 **Chair** The Chair said that he had nothing to report.

3.2 **Honorary Secretary** The Honorary Secretary drew Council's attention to article 4.6 of the JMC's Constitution: 'Each participating Society shall notify the Council by the time of the Annual General Meeting the name of their representative for the following year.' So far he had received notification from five of the 21 Participating Societies and he asked that the other societies should respond. Bill Richardson suggested that it would be more efficient if the Honorary Secretary made the request by email. The Honorary Secretary responded that he had made the request by email but it had not been effective which was why he was now making it orally.

The Honorary Secretary also drew attention to the list of representatives' email addresses and said that he would be seeking to update it during the day.

**[Post-meeting note:** An updated list of representatives' email addresses has been circulated to representatives.]

The Honorary Secretary then turned to the JMC's representation on other bodies. He said that Lynne McClure had resigned as the JMC's representative on the [English] National Maths Hubs Forum and as a result the JMC was not represented at the meeting of the Forum on 4 and 5 November 2015; it was felt that it was important that the JMC was engaged with the Maths Hubs, and in particular was represented at the next forum on 24 and 25 February 2016. He also said that the JMC had yet to appoint a representative to the Numeracy Forum, Sally Barton had been attending on a meeting-by-meeting basis but it was felt that the JMC should appoint a representative on a stable basis. The Honorary Secretary said that the Executive Committee would welcome suggestions of who might act as the JMC's representatives to these bodies.

**[Post-meeting note:** The Executive Committee has appointed Tony Cotton as the JMC's representative to the National Maths Hubs Forum and Sally Barton as the JMC's representative to the Numeracy Forum.]

- 3.3 **Honorary Treasurer** The Honorary Treasurer summarised what had been agreed at the Annual General Meeting for the benefit of those who had not been present. The Annual Accounts had been approved despite the problems with the BCME Committee's accounts, and new subscription rates had been set at the suggested rates.

## 4 ICME

The Chair said that the matter of bursaries for ICME-13 had been discussed at the Executive Committee meeting on 9 November 2015. Tim Rowland said that Chris Budd, as UK Representative to the International Commission on Mathematical Instruction, had responsibility for convening the Bursaries Committee which was to raise funds and then distribute bursaries (which were particularly valuable for schoolteachers and others). Three and a half years ago there had been some sense of dissatisfaction with the process for ICME-12 in 2012; the Council had set up a group, which was convened by David Martin, to consider procedures, criteria and schedule. Chris Budd had been unable to keep to the schedule because of other commitments; until two or three months ago the Bursaries Committee had not existed. The June meeting of the Council had expressed serious concern. Hilary Povey, who is the JMC's representative on the Bursaries Committee, had over the previous four or five months sought to prompt Chris Budd to take action, over who should be represented and of the need to catch up with the schedule. Chris Budd had agreed to attend the Executive Committee meeting on 9 November 2015 but had sent apologies the previous evening (citing ill health and pressure of work). Chris Budd has approached some previous sponsors but it appears not Trinity College, Cambridge. It is not clear when the Bursaries Committee will be in a position to meet, call for applications and then consider applications. ICME is in July 2016 but the deadline for papers was in September 2015. Tim Rowland concluded by saying that the Executive Committee felt very dissatisfied with the state of affairs.

The Chair said the JMC's options were to express dissatisfaction to Chris Budd or to go higher within the LMS. Alice Rogers explained that responsibility for ICME within the LMS lay with its International Affairs Committee, rather than its Education Committee; if we went higher within the LMS then it should be to the President. She hoped the LMS would still sponsor bursaries. Lynn Churchman asked whether the JMC should make representations formally or informally. The Chair asked Alice Rogers to make informal contact with Chris Budd and if that was unsuccessful then he would take more formal steps.

**[Post-meeting note:** Funding for bursaries for ICME-13 has been secured from the IMA and LMS, and publicity for the bursaries was launched on 26 November 2015.]

## 5 BCME

David Martin, Chair of the BCME Committee, put on record his thanks to the many people working on BCME9. He went on to update his report. The Memorandum of Understanding had now been signed. There was a hold-up with the Treasurer's access to the BCME Committee's accounts. Three Participating Societies had still to name their members of the Reference Group. A Moodle archive was being set up to give members of the Reference Group access to documents. The Reference Group could help by suggesting a conference theme, plenary speakers and sponsors. Two possible venues had been short-listed, University of Warwick and Beaumont Estate, second visits would take place on 17 December 2015.

Ros Hyde thanked David Martin for his work. The Chair said that the JMC was indebted to him, his committee and its subcommittees for their work towards BCME9.

## 6 Reports from Participating Societies

- 6.1 **Association of Mathematics Education Teachers** Ros Hyde said that recruitment and retention continues to be challenging. There have been changes to bursaries; primary bursaries, including those for primary mathematics, have been cut significantly. Lynn Churchman said that the JMC should be thinking about initial teacher education; allocations to providers are restrictive but there is increasing demand for teachers; recruitment and retention decisions are not consistent with other decisions; she asked if this is another "dog's breakfast". Charlie Stripp said that the government had an ambitious reform agenda but without the resources to make it happen, however we must be careful how we say this so as not to be seen as another moaning group. Ros Hyde said there was increasing diversity of provision which can result in competition between initiatives.

The Chair asked if the JMC should contact NCTL, and should this be by letter or a deputation. Sue Pope said that there had been a meeting between JMC and NCTL in the past and it would be timely to make contact with the new person there. Chris Chipperton said that the recruitment issue was vast, he had never known a year like the last one where it was almost impossible to recruit; he was aware that there was someone in the DfE who was willing to listen to heads' concerns. Lynn Churchman asked whether the JMC should take a joint initiative with ASCL and NAHT. John Westwell said that it would be a good thing for the JMC to get together a group to look at this, so there is some accountability about government initiatives over the next few years; the JMC should try to work with DfE and NCTL. Charlie Stripp suggested that the JMC should talk to the Institute of Physics. Sue Pope said that the DfE put money into recruitment but needed to work on retention: it needed to invest in teachers and nurture them; JMC should talk to ASCL and NAHT. Ros Hyde said the JMC could exploit its links through CfSA.

- 6.2 **Institute of Mathematics and its Applications** Chris Chipperton said that Chris Belsom has retired from the IMA's Schools and FE Committee after six years as its Chair. The Mathematics Teacher Training Scholarship (MTTS) scheme had come to the end of its initial three years with modest but useful outcomes; it is to be extended by a year with changes to the application process to make it more attractive. He noted that in this meeting's discussions there were common concerns and possible synergies. The IMA and NCTL are jointly organising an event on 17 November to outline a new initiative, and associated bidding process, for the development of undergraduate mathematics and/or computing degree courses with 'opt-in' Qualified Teacher Status (QTS).

The Chair said that if such courses were to come about it could be fatal to some higher education initial teacher training provision. Sue Pope asked what the educational background was of applicants for MTTS; she was also concerned whether those undertaking MTTS were going into the state sector. Charlie Stripp said all but one were in the state sector. Chris Chipperton said he would take this back to those involved with MTTS. Sue Pope said that the MTTS was not attracting new people, unlike the parallel scheme in Physics. Stephen Lyon said that PGCE courses struggle to retain secondary mathematics students. Ros Hyde said that the dropout varies across subjects rather than across routes; it was higher for mathematics than many other subjects; she added that drop-out rates by route and subject are not published at present.

- 6.3 **The Mathematical Association** The report was noted.

## 7 Reports from Observing Societies

- 7.1 **Advisory Committee on Mathematics Education** Robert Barbour drew attention to section 2.3 of the ACME report and said that ACME would be launching its report on Initial Teacher Education on 12 November; it was mostly about initial teacher education but there was a section on recruitment and retention to highlight the need to provide the elements of a long-term strategic plan; present short-term initiatives were not building on a long-term plan, there was a need for a ten-year plan. An ACME snapshot from December 2014 has all the data on teacher supply.

Robert Barbour then said that new work planned for 2016 included the Professional Development Journey of Teachers, this would be funded separately and undertaken by an expert panel. The open call for members of the expert panel was launched on 9 November 2015. An open call for membership of the Outer Circle had just closed and there would soon be an open call for new members of ACME.

- 7.2 **National Centre for Excellence in the Teaching of Mathematics** John Westwell highlighted the major programme for Primary Mathematics Teaching for Mastery Specialists which was proving popular with teachers and was seeing excellent collaborative working; pilot teacher research groups will begin in 2016. On future funding for NCETM, positive noises had been heard from the DfE Mathematics Team but there can be nothing definite until the Comprehensive Spending Review is complete. Stephen Lyon said that it was very interesting to see in the report such a wide range of activities; the hub leads must be very busy. Charlie Stripp said that hub leads had developed a sense of direction and were becoming local leaders in mathematics education.

- 7.3 **National College for Teaching and Leadership** The report was noted.

## 8 Reports from meetings

- 8.1 **Council for Subject Associations: 12 October 2015** Ros Hyde drew attention to a possible action to provide a JMC representative on the CfSA group to draw together ITE concerns across all of the subject associations; she proposed that the JMC send a representative. The Chair asked for suggestions of a possible representative. Sue Pope proposed Ros Hyde and it was agreed that Ros Hyde would represent the JMC and if she needed a deputy then she would look to MMSA.

- 8.2 **Numeracy Forum: 19 October 2015** Sally Barton said that she had been unable to attend the meeting but Sue Pope had attended as ATM representative. She said it was an important forum for JMC as it engages with employers, getting them in the same room as educators and it was possible to clarify misunderstandings.
- 8.3 **OCR Mathematics Consultative Forum: 21 October 2015** David Martin said he would send the official record of the meeting when it was received. Alice Rogers said that there was a strong feeling in many bodies that GCSE Statistics should have coursework. Sally Barton said that it was clear through CfSA that several subjects were having issues with the removal of coursework. Charlie Stripp said this was an ideological issue for the government. There was then a discussion of the need for coursework in GCSE Statistics. It was also noted that Ofqual was looking for subject experts for statistics.
- 8.4 **National Maths Hubs Forum: 4/5 November 2015** This item was dealt with under item 3.2.

## 10 Any other business not elsewhere on the agenda

None.

## 9 Discussion

**A Mathematics Teacher's Professional Journey** Robert Barbour led the discussion which would feed into ACME's new project on this topic; he began by describing the context. He said that if one started teaching today one might still be teaching in 2060. There was a need for good guidance for teachers as they progress from novice to expert. The output from the Expert Panel will be aimed primarily at the teacher on the journey or the professional development coordinator in a school – the outputs are to be documents of practical use. He asked what images came to mind when one thinks of a teacher's professional journey. There was then a plenary discussion.

Catherine Hobbs said there should be staged recognition of the milestones along the path, paralleling Chartered status in other professions, as is being developed by the Higher Education Academy for higher education.

Chris Chipperton said that the journey was a roller-coaster with an incline, teachers were continually having to learn new things.

Ros Hyde said that there was a range of different possibilities, not just up the ladder, and more recognition was needed of the alternative routes (such as in the classroom and mentoring), valuing them would aid retention.

Matt Lewis asked if we knew what moving from novice to expert meant.

Charlie Stripp asked what the intended outcome was.

Sally Barton said that something was needed about the individual (teaching is at times solitary) and the group (developing using group support and adjusting to the different ethos in different places).

Ems Lord said that in some other countries teachers have time out to do other things and this might be looked at rather than qualifications.

Bill Richardson said that if you saw an expert teacher teach then you would recognise the expertise but it was difficult to write a specification.

The Council then divided into small groups to undertake three activities, with the framing question of what are the milestones.

ACTIVITY 1 – 20minutes

### PROFESSIONAL LEARNING JOURNEY FOR TEACHERS OF MATHEMATICS

#### Notes:

Use the timeline to mark the major career steps for a teacher of mathematics.

You will want to consider:

- What are the main mathematics-related experiences/activities/ professional development that would enable a teacher to advance during each stage of their career?
- How can we think about this across phases?



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| ACTIVITY 2 – 10 minutes   |  |  |
| <b>Essential sources and learning from previous experiences</b> |  |  |
| <b>SOURCES</b>  | What sources should the Expert Panel be drawing on in order to develop this journey?   |  |
| <b>GOOD MODELS?</b>   | Have you seen other professional journeys within or outside the field of mathematics that could be useful?   |  |
| <b>LESSONS</b>  | What should the Expert Panel avoid?  |  |
| <b>LINKING TO OTHER WORK?</b>                                   | <p>For example:</p> <ul style="list-style-type: none"> <li>• How does this work fit with the Department for Education's Expert Panel on professional development?</li> <li>•</li> <li>• How does it fit with ASE's and Wellcome's professional learning journey for science teachers?</li> </ul> |  |

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| ACTIVITY 3 – 15 minutes  |  |
| <i>Set out, in order of significance, the major experiences that have fostered your own development.</i>   |  |
| Notes:   |  |
| <ul style="list-style-type: none"> <li>• You can include education and training, practical experiences etc..</li> <li>• You may wish to remove details that identify you.</li> <li>• You may want to spend time on this by yourself, but are also welcome to discuss with others in your group.</li> </ul> |  |
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| <b>On reflection, is there anything from this that is useful to consider for the Expert Panel's work?</b>  |  |
|  |  |

There followed a plenary session chaired by Robert Barbour.

John Westwell spoke of the qualification milestones which began with qualified status, then a newly qualified teacher (for whom we could be more ambitious in our expectations) would work alongside a 'Chartered Teacher' for about five years to achieve expert professional status (which some professions call 'Chartered').

Alice Rogers said that in universities there were sabbaticals which were invigorating; they were something teaching lacked; they could be cost-effective if they led to retention.

Sue Pope said a linear model may be too restrictive; it should not become a treadmill, yet more hoops to get through.

Lorna Harvey said the Education Scotland Development Team had only two permanent members of staff, the rest of the staff were on secondment.

Matt Lewis suggested that the Expert Panel should look at practice overseas. There should not be a tick list of what makes an expert teacher. There should be respect for those who were expert in the classroom and other teachers should get to work with them, indeed there should be an entitlement to work with excellent teachers. He asked how we connect teachers.

Tim Rowland said that teachers need to engage with professional development activities, including through professional organisations.

Charlie Stripp said there must be recognition of expert teachers.

Sue Pope said there was a need to educate headteachers to want the attributes of expert teachers in their teachers.

Sally Barton said that action research was needed, not just listening to others.

Robert Barbour concluded the discussion and invited participants to send further contributions to ACME.

## **11 Conclusion**

Having thanked Robert Barbour for leading the discussion session, the Chair closed the meeting.

## **12 Dates of future meetings**

Tuesday 23 February 2016

Tuesday 14 June 2016

Tuesday 8 November 2016

These meetings will be held at the Royal Statistical Society and begin at 1100.