



**Self-evaluation framework for Initial Teacher
Education symposium
Workshop synopses**

**Workshops 1 – 4
Delivered 11am – 12pm**



Self-evaluation framework for Initial Teacher Education symposium Workshop synopses

Registration for the symposium is from 9am on Tuesday 8th October and delegates will choose three workshops (one for each time slot) at registration on a first come, first served basis.

Workshops 1 – 4 Delivered 11am – 12pm

1. Scottish Attainment Challenge Project

Title: Preparing new teachers to address the Attainment Challenge: Progress in the SCDE Teacher Education project.

Style: Presentation, led by Moyra Boland & Catherine Doherty (University of Glasgow) with project members.

Brief Synopsis:

The Scottish Council of Deans of Education were invited to develop a research agenda in teacher education to contribute to the Scottish Attainment Challenge. In 2018, funding was secured for a three year research programme involving representatives of eight Schools of Education across Scotland. The aim informing a suite of projects is to research how the sector might better prepare early career teachers (understood as final year ITE and probationer year) to work more effectively to improve literacy and numeracy attainment and health and wellbeing outcomes in schools serving pupils from SIMD 1-40 backgrounds. Under this common purpose, the research programme has three strands:

1. eight research projects conducted by individual Schools of Education reflecting their context, strengths and priorities;
2. an overarching collaborative project to achieve a perspective across the national sector;
3. three PhD studentships hosted in the Universities of Edinburgh, Glasgow and Stirling.

This presentation will first position the projects in broader research on teacher education, then draw on work in progress in some of the university projects, and the collaborative project pertinent to this event's focus on numeracy. An audit of what we currently do across our teacher education highlights some special considerations particular to numeracy, and other considerations it shares with other curricular areas.

2. The University of Aberdeen:

Title: Valuing Diversity, Developing Flexibility and Making Connections

Style: Presentation, led by Helen Martin and Catriona MacDonald

Brief Synopsis:

This presentation will explore the implications of working with student teachers in a way that integrates literature from maths recovery, cognitively guided instruction and realistic mathematics education approaches. The context is the development of a mathematics education course within the four-year MA Education programme. To create the space and time to think more slowly, the course focuses on the key shift in thinking from additive to multiplicative reasoning. The first semester explored additive reasoning working with children aged 4–7 years old and the second semester focuses on multiplicative reasoning working with children aged 8–12 years old. Each semester consists of six 3-hour sessions, followed by five weeks in a primary school. The course assignment requires student teachers to report on their analysis of pupils' mathematical thinking based on video-taped task-based interviews with a small group of children. Student teachers are asked to design tasks that value the diversity of strategies that the children work with.

Bibliography:

- Carpenter, T.P., Fennema, E., Franke, M.L., Levi, L., & Empson, S.B. (2015). *Children's mathematics: Cognitively guided instruction*. (2nd Edition). Portsmouth, NH: Heinemann.
- Fosnot, C. T., & Dolk, M. (2001). *Young mathematicians at work: Constructing multiplication and division*. New Hampshire: Heinemann.
- Fosnot, C. T., & Dolk, M. (2001). *Young mathematicians at work: Constructing Number Sense, Addition and Subtraction*. New Hampshire: Heinemann.
- Wright, R.J., Ellemor-Collins, D., & Tabor, P. D. (2012). *Developing number knowledge: Assessment, teaching and intervention with 7-11 year olds*. London: Sage.
- Wright, R.J., Stanger, G., Stafford, A.K., & Martland, J. (2015). *Teaching Number in the Classroom with 4 -8 year olds*. (2nd Edition). London: Paul Chapman.

3. The University of Strathclyde

Title: Primary Maths ITE – developing expertise with an understanding of inclusive pedagogy.

Style: Interactive Presentation, led by June Pisaneschi & Jackie Marshall

Brief Synopsis:

This presentation will showcase a model of partnership that has been developed to support student teachers' understandings of inclusive practice using the 'Strathclyde 3 Domains Model'.

During the final year of their ITE undergraduate programme, primary student teachers work cooperatively to support the learning of an individual child at one of three local primary schools. The results have demonstrated significant benefits for the student teachers' knowledge and understanding of mathematical concepts, responsive teaching, assessment practice and inclusive approaches to learning.

A longitudinal research study will be conducted to determine which contexts and experiences have the most impact on student teachers' learning in maths. Student teachers taking part in the 'numeracy clinic' will make up 5 of the 15 participants in this



qualitative case study, with the other 5 participants currently undertaking a one year PGDE primary programme.

Concurrently, the PGDE maths programme is being audited and reviewed, with developments to be implemented in the newly accredited PGDE, session 2020-21. The iterative design of the research study will facilitate the gathering of data across two cohorts of PGDE students, pre and post review. An overview of both programmes will be shared, with an opportunity for audience members to consider the challenges of responsive teaching using real examples from the 'numeracy clinic'.

4. Edinburgh Napier University

Title: Embedding Numeracy in the Edinburgh Napier PGDE Programme

Style: Presentation, led by Andrew Gallacher

Brief Synopsis:

The new PGDE programme at Edinburgh Napier is unique in that it is solely for Secondary, and in the first year it includes Maths and the three sciences. As the programme has also been designed from new, we have been in a unique position to enhance the already existing numeracy skills our students possess and so ensure that we can cover all the main issue that they will encounter when working with pupils in schools.

In the first instance the programme team are undertaking regular data literacy challenges to ensure that our students are aware of the curricular demands, and this will then lead to a week focusing on numeracy to include a lecture and workshops delivered by the responsible QIO from Edinburgh City Council. This will also enable an understanding of the professional role in delivering numeracy across the curriculum, with theory extending to practice.

The mathematics students will also be spending a block of time extending their knowledge to primary methodology, and this will include current models of numeracy schemes adopted in various Local Authorities. This is intended to allow these secondary students a greater understand the transition phase and so be better able to support pupils by having a working understanding of prior learning.



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**Workshops 5 – 8
Delivered 12pm – 1pm**

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5. Queen Margaret University Edinburgh

Title: Embedding Numeracy Education in the Initial Teacher Education (ITE) Programmes at Queen Margaret University (QMU)

Style: Interactive presentation, led by Chris Green & Sandra Eady

Brief Synopsis:

Queen Margaret University (QMU) will be commencing its new ITE programmes (BA (Hons) Education Studies (Primary) and PGDE (Secondary) Home Economics) in 2019/20. During this interactive presentation, we will aim to outline QMU's planned approach to developing confidence and competence in Numeracy Education for both PGDE Home Economics and Undergraduate ITE Primary students.

We will illustrate how we plan to embed numeracy across our ITE courses, based around initial consultations with Local Authorities and colleagues from other ITE Providers.

As part of this we will outline how QMU's key focus on social justice and inclusive pedagogy will inform our practice to ensure that we are meeting the key themes around numeracy education, including 'closing the attainment gap', while also considering the current Enhancement Theme of 'Evidence for Enhancement: Improving the students experience'.

Through the use of interactive examples we hope to highlight how QMU will address the challenges faced in preparing student teachers to teach numeracy through and across the curriculum, using a variety of approaches from Outdoor Learning to developing digital and data literacy skills, ultimately preparing them to meet the Standard for Provisional Registration.

5. The University of Glasgow

Title: Enhancing students' mathematical experiences in ITE programmes

Style: Presentation, led by Ismail Zambat and Cristina Mio

The presentation will start with an overview of the ITE programmes provided at the University of Glasgow as they relate to Mathematics education. Particular attention will be given to the quality of the programmes with respect to curriculum structure, effective pedagogy, students' learning and teaching experience. Specific principles currently practiced to enhance mathematical experiences in ITE will be presented, such as the promotion of a pupil-centred approach to the teaching of numeracy. Challenges and priorities relating to numeracy in ITE will be considered, such as helping students move from their already established mindset of direct knowledge transmission of mathematics to a guiding mode that fosters the active involvement of pupils in knowledge construction.



7. The University of the Highlands and Islands

Title: Numeracy as local and digital

Style: Workshop, led by Craig Lowther, Inverness College UHI, Kat MacIntyre, Perth College UHI and Morag Redford, Executive Office, UHI.

Brief Synopsis:

This workshop explores numeracy in the cross-sector, English and Gaelic Medium, PGDE programmes in the University of the Highlands and Islands. We use evaluation feedback and analysis from students and staff to explore the local and digital connections between student groups in eight local colleges, undertaking teaching experience in rural and remote schools. Through the structure of a goldfish bowl discussion participants will act as discussants and observers exploring two sets of questions. These discussions contribute to a final discussion that presents Numeracy in these programme as place-responsive and school-mediated to support the development of 'rural teachers'.

8. The University of Dundee

Title: The opportunities and challenges of the primary-secondary interface in numeracy and mathematics

Style: Roundtable discussion, led by Tara Harper

Brief Synopsis:

Staff at the University of Dundee work across ITE programmes giving them an insight into the learning and teaching of numeracy in primary and secondary. Consequently, two key issues have been identified in relation to numeracy and mathematics. The first issue is one of pedagogy. The way that maths is taught in primary and secondary, potentially differing due to practical reasons such as structural constraints, highlights the need for opportunities for student teachers to learn from and with each other. The second issue is one of understanding learners' mathematical journeys and/or trajectories. Increasing the awareness of primary and secondary student teachers of these journeys would hopefully lead to a more joined up approach to learning and teaching in numeracy at the primary-secondary interface.



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**Workshops 9 – 12
Delivered 1.45pm – 2.45pm**

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Delivered 1.45pm – 2.45pm

9. The University of Stirling

Title: Becoming a critical and reflective mathematics teacher.

Style: Interactive roundtables, led by Constantinos Xenofontos & Dalene Swanson

Secondary: Disrupting mathematical myths, embracing critical mathematics education

In EDUU9T6, teacher candidates are afforded the opportunity to bring HE Mathematics to the secondary curriculum. A 'curriculum studies' approach offers opportunities for students to think deeply about the nature of mathematics and its role in secondary classrooms. While developing curricular materials that create bridges or highlight dissonances with HE Mathematics, the process exposes caricatures of mathematics, identifies these constructs, and claims made in the name of mathematics (learning). Module EDUU9T6 offers opportunities to disrupt maths myths and engage critical mathematics education, affording particular practices to engage students in mathematics in cultural, historical, philosophical and political context(s).

Primary: Reflection as a key element of primary mathematics teacher education

In the primary programme, students of all specialisms attend two numeracy modules, EDUU9P3 and EDUU9P5. The former takes place in their second year and it is concerned with the development of subject knowledge. In particular, we examine important mathematical concepts and processes children typically learn in primary schools. In the latter module, taking place in the third year, students examine topics explicitly related to mathematics pedagogy. In both modules, reflection plays a vital part of students' development and assessment. In EDUU9P3, students explore the literature around a specific topic and make links between what research informs us and their own experiences (schooling, from the module). In EDUU9P5, students organise a mathematical fair at which schools are invited. Specifically, working in pairs, students develop their own interactive games for primary pupils. After the fair, students discuss the effectiveness of their games, making research-informed reflections regarding what went well and what could have been done differently.

10. The Royal Conservatoire of Scotland

Title: Responsibility of All – Numeracy of All?

Style: Short presentation followed by workshop, led by John Gormely

Brief Synopsis:

Following a short presentation where ITE staff and students of the Royal Conservatoire will highlight where numeracy and additional support needs are embedded within our programmes, participants will engage in a workshop where together we will explore what numeracy 'feels' like in the world of music. Probing

questions will be posed about the nature of numeracy and whether the Experiences & Outcomes and Benchmarks Statements sufficiently capture the numeracy of all as a Responsibility of All.

11. The University of the West of Scotland

Title: Exploring Aspects of Numeracy Provision within the PGDE Programmes at the University of the West of Scotland

Type: Presentation, led by Louise Barrett and Stephen Day

Brief Synopsis:

This presentation will outline the practices used by the university to support and provide PGDE Primary and Secondary students with a detailed understanding of their professional responsibilities in relation to numeracy. It will consider the challenges faced, by PGDE Primary students in particular, in developing their own understanding of important aspects of numeracy and the strategies adopted by the university to support them. Finally, the presentation will explore how numeracy skills developed within the PGDE Primary and Secondary programmes are contextualised in relation to assessing and reporting on pupil progress as part of students' development of data literacy.

12. The University of Edinburgh

Title: The complexity of teaching numeracy in ITE: the case of decimal fractions and percentages

Style: Presentation/discussion, led by Ruth Forrester

Brief synopsis:

This session will provide information about ways in which we support student teachers to prepare for their future numeracy teaching during ITE at Moray House. Broad approaches will be illustrated by looking at extracts from our classes introducing the teaching of decimal fractions and percentages.

Students appear to learn a lot and feedback on these classes is generally very positive, but we do have some concerns about the longer-term effectiveness of our input.

The aim of this session is to illustrate some of the challenges in developing the teaching of numeracy, to outline some ways we have tried to meet these challenges, and to invite discussion of ongoing concerns.

There will be opportunities to consider issues such as:

- the complexity and varied types of thinking /knowledge/skills we aim to develop;
- the constraints of university contact teaching hours;
- the great variations in students' own understanding of the maths concepts they will be expected to teach;



- the difficulties of transferring pedagogical ideas learned about in university classes to the school classroom;
- the challenge of promoting masters level learning before students have much classroom experience.