

Title Aberdeen City

Counting for Success: Reducing the numeracy attainment gap via building capacity across a learning community using action research to facilitate practitioner enquiry.

What did we ask?

At the end of the two year project (August: 2018):

- Will the Practitioner Network (PN), and associated work, have a positive impact on numeracy attainment in a focused group of children including those at the lower end of the attainment gap? (link to NIF: Assessment of Children's Progress)
- Can educational psychologists (EPs) support staff by using with them a 'Spirals of Enquiry' model of practitioner enquiry to engage with and develop their assessments and interventions, and evaluate the impact these have on young people? (link to NIF: Assessment of Children's Progress; Teacher Professionalism; Performance Information)
- Can EPs have a positive impact on staff awareness and confidence in applying research? (link to NIF: Teacher Professionalism; Performance Information)

What is the evidence base?

Practitioner Enquiry Model

The role of teachers in validating practice is set out in the General Teaching Council Scotland (GTCS) standards, '2.3.2 *Have knowledge and understanding of the importance of research and engagement in professional enquiry.*' Practitioner enquiry is 'finding out or an investigation with a rationale and approach that can be explained or defended,' (Menter et al. 2011). McLaughlin et al. (2004) describe why schools engage in practitioner enquiry through research networks. This allows schools to share a set of purposes regarding the educational improvement they want to bring about and they believe that these purposes will be most effectively addressed by working as a network rather than as separate institutions (McLaughlin et al. 2004).

Spirals of Enquiry Model

There are various models of practitioner enquiry. The Spirals of Enquiry Model (SoEM) is a framework designed to encourage collaboration, reflection and active engagement with learners (Halbert & Kaser, 2013). The diagram below details the stages involved.

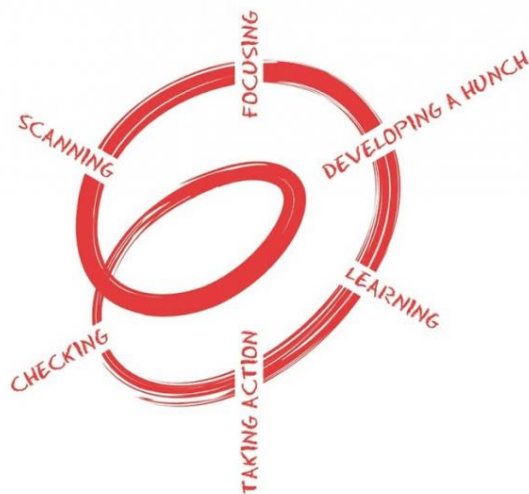


Figure 1: SoEM (including stages) (Timperley, Kaser & Halbert, 2014).

SoEM builds on and develops the evidence base for Enquiry based models. Timperly, Kaser and Halbert, 2014, discuss that projects that have used the SoEM see an increased equity for learners in outcome, show greater consistency within and across learning communities and improved quality of learning experiences.

Mindsets

Theory of Intelligence refers to the belief about whether intelligence is malleable or unchangeable. Dweck (2006) refers to these beliefs as 'growth' or 'fixed' mindsets. Individuals with a fixed mindset believe that intellectual abilities are static. Those with a growth mindset believe that intelligence can be developed. When students with a fixed mindset make mistakes they can give up and believe that they are not smart. Students with a growth mindset have a desire to be challenged and demonstrate resilience when they experience failure. Research suggests that

mindsets can contribute to pupil attainment, including attainment in maths (Blackwell, Trzesniewski & Dweck, 2007).

Numeracy and attainment

Improving numeracy attainment is a key priority in Scottish Education (Education Scotland, 2016). Pupils from disadvantaged backgrounds have a higher chance of not succeeding in school (Educational Scotland, 2016). Pupils in Scotland are particularly doing less well in maths, according to the latest Scottish government figures (Scottish Survey of Literacy and Numeracy, 2015).

What did we do?

Participants: Who was involved?

- One Associated School Group (ASG): Representatives from one secondary school and five associated primaries.
- Four Educational Psychologists (EPs) facilitate the process including the link EP for the ASG.
- The focus children who are classified as either SIMD 1, 2, 3; are Looked After Children or have English as an Additional Language.

Materials:

Model of Practitioner Enquiry

The SoEM was used to explore ongoing evaluation of learners using three key questions :-

- What is going on for our learners?

- How do we know?
- Why does this matter?

Evaluation tools

- GTCS professional standards baseline & qualitative data regarding research experience
- Questionnaire regarding mindsets in general & maths learning
- Focus children's PIPS/INCAS data
- '4 Scanning Questions' from SoEM for focus children
- Assessment data regarding maths levels
- EP observations of team teaching with focus children

Procedure: What did you do?

A long term (2-3 years) ASG numeracy project was already being supported by the school EP. It was agreed EPS would further support the ASG to explore action research within their schools. To build their capacity, skills and knowledge of research in line with the Teacher Professionalism NIF driver whilst developing peer support.

1. Practitioner Network (PN) was established
2. Informal link EP support continued
3. Introductory session including data gathering.
4. Subsequent sessions followed the SoEM with questions revisited,

eliciting experience and reflection sharing, peer support and priorities

5. Practitioners were supported to select measurement tools and used these in their school to consider outcomes for learners in numeracy, to:

- a. Evaluate interventions
- b. Reflect on practice
- c. Modify teaching and learning

What have we found so far?

Data from SoEM and a focus group with HT and practitioner representatives:

- The coaching model was valued
- Collaboration and interaction has increased across the ASG
- PN has increased consistency of approach and practice in the ASG towards numeracy
- Initial self-rating of GTCS baselines were low
- Increase in both knowledge of research and use of data by staff through the PN
- Increase in both number and depth of reflections from PN staff regarding pupils learning and their own practice across the sessions
- Initial evidence in a shift in staff confidence in using research skills through increased consideration from the PN of what the focus children need in relation to intervention and tracking tools
- Greater awareness across the PN sessions of the needs of the focus

children and the consideration of how their teaching needs to be different for them

- The focus children were very literal in their understanding. They struggled to engage with the question ‘where are you going with your learning?’ Their answers to this question were mainly concrete and literal, displaying limited vocabulary particularly around their learning

What do we plan to do next? 100 words

The PN sessions have facilitated teacher reflection and exploration which has led to the following tasks and developments to be taken forward (facilitated and supported by EPS) through to August 2018: -

- Schools to gather post intervention data to look at attainment and outcomes for focus children through:
 - GLS Assessments
 - Numicon observations
- EPS to gather “post” data to look at increases in research and evaluation skills of PN through:
 - Qualitative data from SoEM
 - GTCS research data
 - Mindset Questionnaires
 - SoEM scanning questions
 - Observation schedules and feedback
- Explore pre-intervention data (already gathered) further, measures as detailed above
- Observation schedule (OS) for teaching staff with support strategies
- OS for pupil self/peer evaluation.
- The PN identified they wish to explore the relationship between resilience and

numeracy. BounceBack programme will be one of the tools used to support this.

- Training on the psychological principles underlying BounceBack programme/resilience.
- EPs will facilitate/model classroom observations.
- Parental engagement will be further explored as this is a continuing theme raised at the PN.
- Exploration of the language deprivation effect and interaction with the vocabulary of numeracy
- Continuation of the SoEM

References

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