



Personalising Maths through Information Learning Technology (ILT)

An ETF funded Learning Consortium Project
jointly delivered with Bury College

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An overview and the research that informed the project





Project Aims

To improve teaching, learning and assessment of GCSE maths through the use of personalised and contextualised learning and assessment materials.



Professional Standards

The project also supports the Continuous Professional Development (CPD) of the staff involved, particularly in relation to the following:

- Professional Values and Attributes **(1,6)**
- Professional Knowledge and Understanding **(7,8,10)**
- Professional Skills **(15,16,17,18)**



Why a Collaborative Project?

- Rationale - an Education Training Foundation project towards achieving Outstanding TLA
- Personalised, contextualised, differentiated on-line content
- Previous projects - Reading, Craven and Brighton and Hove Colleges

Professional Standards

Professional Knowledge and Understanding:

- *Evaluate your practice with others and assess its impact on learning (10)*



Why base it on Maths GCSE?

Wilshaw (2016, p78-79) states *‘Ofsted Inspection evidence shows that, for some students, having to retake their GCSE can be demotivating and that attendance at these lessons is lower.’*

Sezen (2016) agrees *‘many learners who arrive at a Further Education college have a very, very negative feeling about the subject after not achieving a "good" pass during their time at school’.*

Professional Standards

Professional Skills: Address the maths and English needs of learners and work creatively to overcome individual barriers to learning (16)



Why change Mind Sets?

Dweck (2006, p5) talks about different mind sets she states *'people may start with different temperaments and different aptitudes, but it is clear that experience, training, and personal effort take them the rest of the way'*.

Professional Standards

Professional Values and Attributes:

- *Reflect on what works best in your teaching and learning to meet the diverse needs of learners (1)*
- *Build positive and collaborative relationships with colleagues and learners (6)*

Why use Supported Experiments?

Petty (2003, p1) states: *‘research shows that if teachers are to improve, they must spend a little time each week deliberately experimenting with new approaches. While they experiment research also shows that they will need the support of feedback and coaching. Without ‘Supported Experiments’, or something very like them, teaching will not change, and nor will student success rates’.*

Professional Standards

Professional Values and Attributes:

- *Reflect on what works best in your teaching and learning to meet the diverse needs of learners (1)*
- *Build positive and collaborative relationships with colleagues and learners (6)*



Why On-line?

Bowes states, *'technology supports achievement, enabling learners to be independent, competent and creative thinkers, as well as effective communicators and problem solvers,'* (Bowes, 2010, p1). Bowes also states, *'technology is essential in teaching and learning mathematics, it influences the mathematics that is taught and enhances students' learning,'* (Bowes, 2010, p2)

Professional Standards

Professional Skills:

- *Promote the benefits of technology and support learners in its use (15)*

Online Demo



How do we use ILT to personalise learning and assessment?

- **Moodle** – Bolton College's **Adaptive Learning Environment**
- **Ada** – Bolton College's **Cognitive Assistant** for learners

What are the underpinning technologies that we use?

- Learning Analytics
- Machine Learning and narrow AI
- Natural Language Processing
- Natural Language Generation



Key Findings to date

- Contextualised and personalised learning provides a richer learning experience for learners
- Data informs the teaching, learning and assessment experience
- The adaptive learning environment scales well