

P3: INNOVATIVE USE OF THE INTERACTIVE WHITEBOARD WITH Y1 EAL PUPILS IN NUMERACY

Cynthia Pinner, Class Teacher, The Cape Primary School, Sandwell Cluster

Aim

The central purpose of my research was to test the hypothesis that innovative use of the interactive whiteboard improves teaching and learning, particularly with EAL pupils with low attainment.

Methodology and Context

My methodology was therefore to design innovative learning objects, use them and evaluate the lessons and analyse the results. I chose to analyse an instance where I had designed an interactive whiteboard 'Notebook' file and later a more powerful electronic presentation in the context of numeracy lessons. In September 70% of the numeracy group had not reached their Early Learning Goals in numeracy, but one pupil was at level 1.

I designed a notebook to provide a lesson framework to model the objective: to read, calculate and record addition.



Figure 1.1-Oral starter: counting in steps of one –Pupils counted orally & physically drew the steps onto the screen –designed to support later counting in 2's/5's/10's etc.

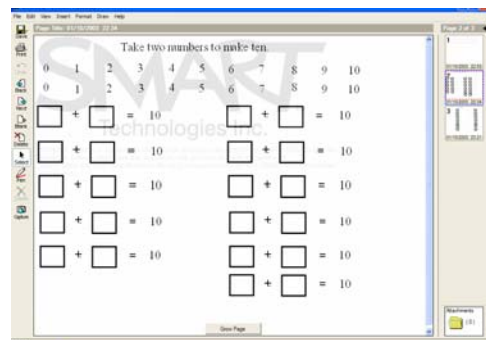


Figure 1.2 – Identify number bonds to ten – Pupils had to find two numbers which added to ten and drag and drop them into the boxes to make a sum – designed to enhance understanding of number sentences.

The new technology, reminiscent of the mass media, stimulated the children into wanting to achieve, the tasks were completed reinforcing the concept for all ability groups. Pupil-scribed work was converted to text by the software handwriting recognition.

The amended notebook was saved to the server at the end of the lesson; subsequent re-visiting of the notebook acted as a visual stimulus to recall both a visual and physical task; allowing EAL pupils access without having to rely on linguistics to recall the event.

I felt that the whole class work was effective but the follow-up paper task showed pupils still struggling with the concept of

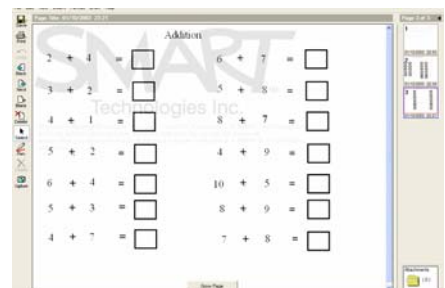


Figure 1.3 Read, calculate & record-pupils had to read each number sentence orally, calculate the answer and scribe the correct answer into the box –designed to simulate a paper-based exercise

independent reading, calculating and recording; my immediate reaction was that I needed a concept model that I could revisit. I therefore created an animated electronic presentation modelling the concept and strategies for addition calculations. The slides were created with animation on mouse-click to allow as much time as necessary for discussion at every step.



Figure 1.4 Understanding Pictorial Addition

1. The icon of three candles appeared; the pupils counted them, said the number and 'air-wrote' the numeral '3', followed by its appearance.
2. This process was repeated with the word 'and', the icon of five candles and the word 'equals'
3. The pupils counted the candles altogether to calculate the answer and air-wrote it prior to the Numeral '8' appearing.
4. The process was repeated for the second



Figure 1.5 Reading and Understanding an Abstract/Written Sum

1. The numeral '6' appeared; pupils counted to six orally, at each count a block appeared on screen, [repeated physically with cubes by Lower Ability Group]
2. The symbol '+' appeared and pupils asked what it meant ('add' or 'and'),
3. The process was repeated with the numeral '8' and '=' symbol
4. Thinking time and Paired Talk was given

The three number sentences were worked through successfully before embarking on the plenary. The confidence and speed of the replies in the plenary demonstrated that everyone had really understood the concept of reading, calculating the answer and recording.

This was confirmed the next day when, following a quick review, pupils were given independent tasks, differentiated by concrete, pictorial and abstract operations and each child succeeded at their own level.

Findings

The inherent quality of using the interactive whiteboard is the ability to:

- Include a variety of objects to attract all learning styles
- Produce and save learning objects during initial planning
- Reduce lesson time-costs hence improving pacing
- Save interactive work allowing immediate recall of the lesson
- Provide tasks requiring gross motor control which support fine motor manipulative tasks
- Give pupils with poor fine motor skills access
- Include visual clues which reduces reliance on language to assimilate concepts

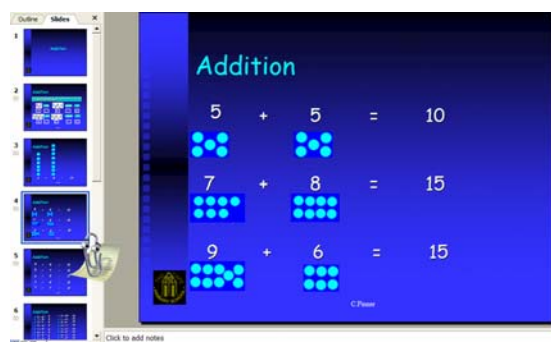


Figure 1.6 Modelling an addition strategy

1. the sum '5 + 5 =' appeared
2. Pupils read and verbalised it,
3. 'Thinking time' and 'paired and shared talk' were given to support calculation strategies.
4. The numeral attribute icons appeared for the less able pupils to count and combine them.

- Model correct layout.

However these qualities are insufficient without:

- Innovative creation of learning objects, tailored to children's abilities which encourage multi-sensory learning
- Meaningful interaction between pupils and teacher
- Good pupil self-image
- Supportive ethos that transforms mistakes into learning pathways.

Please also see:

- **Innovative Use of the Interactive Whiteboard with Y1 EAL Pupils in Literacy**
- **Creating Innovative Learning Resources for the Interactive Whiteboard for use with Y1 EAL Pupils**