

An enquiry into improving numerical reasoning in a group of higher ability learners in KS2.



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Inquiry Background

The focus of this Inquiry and my overall aim was to improve the learners' ability to numerically reason. I planned to do this by specifically focusing on developing the teaching of numerical reasoning across the curriculum providing learners with better opportunities to develop their skills. The intention is that by improving the teaching of numerical reasoning we would see an upturn in the performance of a group of five underperforming Year 4 higher ability learners whose results in the National test were lower than expected.

Literature

Studying the literature in this area helped me to gain a deeper understanding in two main areas;

- Firstly defining exactly what the term numerical reasoning encompassed. The Welsh Government offered a succinct and conclusive definition "Through reasoning, people are able to recognise how to use numbers to tackle a real-life situation, and plan a strategy to solve it." (Welsh Government 2012).

- The second part of the review focused on methods used to improve numerical reasoning skills the best were selected to form part of my intervention.

Intervention methods

The intervention methods used were:

- "What's your problem?" numerical reasoning interactive wall display.
- A3 Numerical reasoning support mat to be used in class..
- Daily ten minute bursts of numerical reasoning activities using resources gathered from meetings with other professionals



Figures 1&2. Examples of numerical reasoning wall display and support mat intervention methods.

Conclusions and Impact

The following conclusive statements refer to the impact of the intervention:

- The intervention had made a positive impact on the numerical skills of the group of higher ability learners, with increased assessment scores and confidence amongst learners.
- Resources have been shared with staff to be used across the school.
- Learners particularly engaged with the learning mat and the found its questioning created an approach to follow

Future Work

To continue to assess the success of these methods in the long run to ensure that success of this project is not short term. Assess the impact, negative or positive, to a larger group of learners over a longer period of time. To share the findings of this research within the consortium.

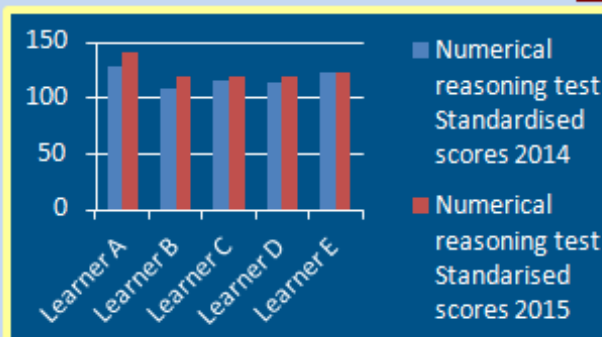


Figure 3. A chart showing a comparison of national test standardised scores from before and after the intervention

Data findings

Using triangulation to assess my results has allowed me to confidently state that the data consistently showed that my intervention has had a positive effect on the learners' development in numerical reasoning. The following chart is typical of the positive results seen throughout the results.

Data collection methods

In order to collect reliable and useful data the following data collection methods were used to gather quantitative and qualitative data:

- Observations of group numerical reasoning challenge to be performed before and after intervention.
- Statistical analysis of national test results and in class assessments. Again to be conducted before and after intervention.
- Textual analysis of numerical reasoning activities before and after intervention.
- Group interview using pupil voice to gauge success.

References

Welsh Government (June 2012) Developing numerical reasoning (online) Available from (accessed 29 September 2013).