Impact study summary:
The perceived impact of Numicon on children’s mathematical learning

Oxford University Press (OUP) wanted to find out in more detail how teachers were using Numicon and how they perceived its impact on children’s mathematical learning, since the wide variety of Numicon resources and components allows Numicon to be used in a varied and flexible way. OUP organised a study to be conducted by a specialist education market research company. Data was collected by eSurvey from a large database of Numicon users who were using at least one component from the Numicon range and a sufficiently large sample size was chosen in order to enable robust statistical analysis and valid conclusions to be made. The size of the study represented the full range of regions; types of schools; responsibilities and roles within school; and number of years of teaching experience.

Initial findings
The study found that almost all (93%) primary maths teachers surveyed use Numicon with Key Stage 1 year groups, with 81% of teachers using Numicon with Early Years/Foundation Stage year groups. More than half (57%) use Numicon with Key Stage 2 year groups.

Of the primary maths teachers surveyed, 91% perceive Numicon to have had a positive impact on children’s mathematical learning. 36% of this 91% said that they perceive Numicon to have had a very significant positive impact on children’s mathematical learning.

When asked why they perceive Numicon to have had a positive impact on children’s mathematical learning, many teachers attributed this to the visual nature of the programme, with others also highlighting its help with the understanding of mathematical concepts. Teachers also stressed that Numicon’s practical and tactile values had engaged pupils.

Specific findings
In order to gain more information on Numicon’s impact on children’s mathematical learning, specific questions were asked and the findings are shown below.

Children’s problem solving and reasoning ability
Numicon is perceived to have a similarly positive impact on both of these skills. 69% of teachers indicate that they perceive Numicon to have a positive impact on problem solving (12% very significant positive impact, 57% significant positive impact). 72% say that they perceive Numicon to have a positive impact on mathematical reasoning, of which 13% perceive it to have a very significant positive impact.

Pupil confidence and enjoyment
95% of primary maths teachers perceive Numicon to have a positive impact on pupil enjoyment with 42% of these perceiving a very significant positive impact. Similar figures were found for the positive impact on pupil confidence.
Teacher confidence and enjoyment
The large majority (nearly 80%) consider the impact of Numicon on teacher confidence and enjoyment to be significantly positive.

Pupil progress
92% of teachers felt that their pupils had made progress since their school started using Numicon. 59% of these felt that their pupils had made good progress, with a further 13% feeling that their pupils made very good progress. The remaining 8% of teachers in the study responded “don’t know” rather than saying their students had made no progress.

Support for teaching high/low ability children
Almost all (97%) primary school maths teachers either agree or strongly agree with the statement that Numicon helps teachers support lower ability children, while just over half of teachers (58%) also think that Numicon supports teachers in challenging more able children in maths.

It has to be emphasised that the results from this impact study reflect the perceptions of teachers rather than actual performance data, but the findings provide evidence to suggest that Numicon is widely perceived to have a significant positive impact on children’s mathematical learning.

This study was planned and implemented using the Oxford Impact Framework. The Framework is a systematic approach to evaluating the impact of Oxford University Press products and services, developed through a unique collaboration with the National Foundation for Educational Research (NFER) and supported by the Oxford University Department of Education.

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This summary was written by Simon d’Angelo, mathematics teacher, consultant, author, and experienced Numicon trainer, who has been involved in classroom research projects which focus on how children understand and learn mathematics with King’s College, London and the University of Oxford. He has taught mathematics in the UK, USA and New Zealand and is a Mathematics Trainer for teacher in Saudi Arabia.

For more information about Numicon, visit www.oxfordprimary.co.uk/numicon