INTRODUCTION AND BACKGROUND

The catch up numeracy project was set up and run by the Education Endowment Foundation (EEF). The EEF is an independent charity dedicated to breaking the link between family income and educational achievement, to ensure that children from all backgrounds can fulfil their potential.

Catch Up Numeracy is a one-to-one intervention for primary school children who are struggling with numeracy. It consists of two 15-minute sessions a week, usually delivered by TAs over a thirty week period. In preparation for the intervention, the TAs received three half-day training sessions and were given detailed lesson plans. The intervention divides numeracy into ten components, tests children’s ability on each component and targets subsequent intervention so that the tutor can address the specific area needing development. Components include counting verbally, counting objects, reading and writing, hundreds, tens and units, ordinal numbers, word problems, estimation, remembered facts and derived facts and translation. This approach is based on evidence showing that numeracy is not a single skill, but that it is a compound of several discreet skills. Children and adults may be very strong in some skills but very weak in others. Brain imaging studies suggest that these different skills are handled by different parts of the brain. The Catch Up intervention aims to recognise this by enabling tutors to diagnose and treat problems precisely and effectively.

RESEARCH DESIGN

The Catch Up intervention was run for 30 weeks and delivered to Year 2-6 pupils who were struggling with numeracy, as identified by teaching Assistances (TAs). Six pupils from each of the participating 54 primary schools were randomly assigned to one of three groups: a control group which received normal teaching, a Catch Up Numeracy intervention group which received the intervention described above and an “equivalent time” group which received two 15-minute sessions a week without Catch Up numeracy, in order to replicate the one to one nature of the intervention.

BARRIERS AND THREATS TO INTERNAL VALIDITY

The main threat to the internal validity of the trial was the possibility that TAs delivering Catch Up Numeracy passed on knowledge of the intervention to those TAs in the “time equivalent” group within the same school. There is some evidence to suggest that the time equivalent group of TAs had some knowledge of Catch Up Numeracy and amended their approach in the light of this knowledge. It is unclear whether this had an impact on the results of the trial. The process evaluation revealed that there was some variance in the way in which the intervention was delivered, including a failure to deliver two 15-minute sessions each week for the full 30 weeks. Successful implementation would therefore benefit from TAs having enough time to plan and prepare for the sessions, with time scheduled within the existing timetable.

TAs and Catch Up coordinators identified a number of barriers to delivering Catch Up Numeracy:

- A lack of time for TAs to plan and prepare for the sessions and problems with fitting two 15-minute sessions a week within the existing school timetable. This was mentioned by ten TAs and twelve coordinators.
- Regular pupil absence made it difficult to deliver all the sessions. This was mentioned by seven TAs and three coordinators.
- The negative attitude of some pupils who, for example, resented being singled out as “not very good at maths” or being taken out of subjects they enjoyed such as PE. This was mentioned by six TAs and five coordinators.
- The difficulty in finding suitable resources to run the intervention. This was mentioned by six TAs and five coordinators.
- The difficulty in finding a suitable location within schools to run the sessions. This was mentioned by two TAs and three coordinators.
- A lack of senior management support and commitment. This was mentioned by four TAs and five coordinators.
COST OF THE INTERVENTION

The per pupil cost of the intervention is estimated at £130. This includes resources, direct salary costs of the TA, initial training and on-going monitoring and support. Estimates are based on schools delivering the intervention to 40 pupils and training two TAs and one teacher as the Catch Up Coordinator who supports the TAs but does not work directly with pupils.

KEY FINDINGS

- The overall effect size of Catch Up Numeracy in comparison to the “business as usual” control group was +0.21, meaning that the programme led to a noticeable difference in numeracy outcomes. This effect size suggests that, on average, pupils receiving the interventions would make approximately three additional months of progress over the course of the year.
- The “time equivalent” group also showed similar significant gains (+0.27), suggesting that the effect is likely to be the result of regular and sustained one-to-one teaching rather than a direct benefit of the Catch Up intervention.
- The study shows one-to-one teaching with TAs is an effective strategy to increase numeracy skills in Y2-6 pupils. Sub-group analysis did not identify any differential effects for pupil gender or eligibility for free school meals.
- The process evaluation indicated that most TAs valued Catch Up Numeracy and believed that it had a positive impact on pupils’ confidence, engagement with learning and willingness to attempt numeracy problems.
- TAs expressed satisfaction in delivering Catch Up numeracy and many (ten) mentioned the confidence they had gained from being given the responsibility of running an intervention in school. Six TAs also commented that they had gained a greater insight into pupils’ strengths and weaknesses in maths as a result of delivering Catch Up.
- Twelve coordinators commented in the professional development benefits for TAs. Coordinators reported fewer outcomes for themselves; these included increased awareness of how to support pupils with numeracy and fresh ideas about numeracy activities.

The full document can be downloaded from:
http://www.nfer.ac.uk/publications/EFCU01/EFCU01.pdf