ABSTRACT. This article describes the work of the Low Attainers Mathematics Project which has produced the report Better Mathematics (Ahmed, 1987). Mention is made of the way in which the report was written. The article concludes with some remarks about bringing about large scale changes in teaching method through research.

1. INTRODUCTION

1987 saw the publication of Better Mathematics, a curriculum development study based on the Low Attainers Mathematics Project (LAMP) carried out at the Mathematics Curriculum Development Centre at the West Sussex Institute of Higher Education, Bognor. This was one of three projects relating to the needs of low-attaining secondary pupils funded by the Department of Education and Science (DES) in the wake of the Cockcroft Report (Cockcroft, 1982). In broad terms the Project aimed at developing good practice in the teaching of low attainers in mathematics. Its success and applicability to pupils of all ages and abilities has led the DES and thirty-four Local Education Authorities to fund a further three-year project, Raising Achievement in Mathematics Project (RAMP 1986–89). This, like LAMP, is directed by Afzal Ahmed.

The Cockcroft Committee was evidently concerned at the learning of mathematics by low-attaining pupils, in particular those found in about the lowest 40% in terms of attainment in mathematics. The Committee’s interest in such pupils was not a matter for surprise as in many schools their teaching left much to be desired. There was a tendency to underestimate the ability of many low attainers, with the result that they became bored and often uncooperative. The mathematics was often presented in short steps which the pupils could assimilate in a lesson but which then were largely forgotten by the beginning of the next one. Such teaching led to repetition because ‘basic’ skills had not been learned. So it was not uncommon to meet pupils who were being introduced to the four rules of fractions for the fourth time in their school career. Nevertheless, a number of teachers had been teaching low attainers far more effectively and the Cockcroft Committee was able to build on their experience.
2. HOW LAMP WORKED

The Project started in 1983 and involved the six counties of East Sussex, West Sussex, Hampshire, the Isle of Wight, Dorset and Surrey. These six counties together liberated twelve teacher-researchers, mostly from secondary schools, to attend the Mathematics Centre at Bognor Regis each Wednesday for three school years. On these days they worked in a number of ways including:

- working together, discussing, sharing and reflecting on classroom experiences both successful and unsuccessful,
- working in groups focusing on specific issues, including the examination of a number of previous relevant curriculum development and research projects, both in mathematics and in other curriculum areas,
- developing strategies for in-service work in their schools and with other teachers,
- exploring mathematical situations and evaluating possible outcomes,
- evaluating the effectiveness of commercial resources in the classroom,
- exploring the creative use of microcomputers in the mathematics classroom,
- working with other teachers on in-service courses,
- working with other teachers in their classrooms (Ahmed, 1987; 6, 7).

On their four days in school, the teacher/researchers explored possibilities and ideas within their own classrooms, involved their colleagues through collaborative teaching and kept personal records. Other teachers in their own schools also sometimes wrote about their experiences. Teachers on courses wrote about their work on a systematic basis.

As interest in the Project grew, networks of teachers formed and members of these groups also sometimes wrote about their work. This sometimes needed prompting: if a group thought an idea was a good one, someone might suggest "Why don't you write about that?" Or a tape recording might be made. In a number of schools, parents got involved in the work and some of them wrote about their experiences. It was an important ongoing strategy that LAMP used to employ, and RAMP still does, to involve individuals writing and talking about their own situations and experiences in a personal and uninhibited way.

These 'case studies', and extracts from them, prove invaluable to other teachers. By their nature they are not prescriptive. Within each experience there are ingredients which other teachers may identify as being transferable to their own classroom. As a result they are encouraged to try out ideas with their own pupils. When groups of teachers come together in this way to pool their strategies and experiences their individual options are increased and useful common features emerge that help to isolate elements such as teacher personality that are not necessarily transferable. Through such discussion and personal experimentation the