

PUPIL MOBILITY AND LOW ATTAINMENT IN MATHEMATICS

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Levels of pupil mobility are known to vary significantly between areas and types of schools but hitherto there has been only limited evidence on the link between pupil mobility and low attainment. Recently available data from a large-scale mathematics study are used here to examine this relationship. A case study of one school is used to illustrate the considerable problems associated with high pupil mobility, including the link with deprivation and resulting social needs. This preliminary study also points out the dangers of comparing school performance in national tests without considering the impact of changing school populations.

INTRODUCTION

We know that changing schools at any time is a stressful and potentially damaging experience for pupils; there is well-documented evidence regarding the experience of pupils moving to different schools at the beginning of KS2 and again at KS3 (Galton & Willcocks, 1983). The effect on children who change schools within a Key Stage, when the normal arrangements made to smooth the transition do not apply, is expected to be much greater. The research questions addressed in this study are:

- What is the level of pupil mobility during the primary years of schooling?
- How does this vary between schools?
- How does attainment in mathematics among children who have moved at least once during a Key Stage compare with the average attainment of children who have been stable during this period?
- Is low attainment among 'movers' more evident in some schools?

This study is in its early stages, and the results and discussion presented here are very preliminary. A great deal of further work and analysis of existing data remains to be carried out, but, by presenting preliminary findings we hope to benefit from informed discussion of the issues.

WHAT DO WE MEAN BY PUPIL MOBILITY?

Pupil mobility is usually defined as 'a child joining or leaving a school at a point other than the normal age at which children start or finish their education at that school' (Dobson & Henthorne, 1999). It is frequently calculated as:

$$\frac{\text{number of joiners} + \text{number of leavers}}{\text{total number on roll}} \times 100 = \text{percentage mobility rate}$$

(This is sometimes referred to as the JPL [joiners plus leavers] formula)

We need, however, to be aware of the other side of the coin, namely, the stability of the pupil population, or the proportion of pupils who remain in a class or school. The level

of 'stability' has a significant effect on school cohesion and is also likely to affect school performance in national tests. Schools with the same level of pupil mobility may yet have very different levels of pupil stability.

EXISTING EVIDENCE ON LEVELS OF PUPIL MOBILITY

Existing data on pupil mobility derives from a number of different sources and demonstrates the variability of the situation between and within LEAs.

The lowest levels for pupil mobility are quoted in the Value Added National Project (VANP) which found that only 17% of Year 6 pupils in a sample of primary school in Avon had changed schools (other than changing from Infant to Junior), suggesting an annual mobility rate of about 4% (SCAA, 1997).

A survey conducted mainly in Solihull and Bradford for the Performance Indicators in Primary Schools (PIPS) project found estimated annual mobility rates of 10% (Tymms & Henderson, 1995). The most recent - and important - study by Dobson & Henthorne (op. cit., also Dobson, Henthorne & Lynas, 2000) found an average annual mobility rate of 10-20% in primary schools in 'diverse urban LEAs'.

A slightly earlier report by the London Research Centre (Hollis, 1998) suggested that pupil mobility was higher in London than in other areas of England.

The common thread running through the findings of all the surveys, however, is that levels of pupil mobility vary significantly between schools. It is equally clear that the reasons for changing school will also be diverse. These include moving for reasons of employment, moving to better housing, refugee families, Gypsy/Traveller families, children moving between parents after family break up and children in care. It is recognised that high pupil mobility in schools is strongly associated with social deprivation, family break up, use of temporary accommodation and other rented housing used by poor families (Dobson & Henthorne, op.cit.).

NEW EVIDENCE ON PUPIL MOBILITY

Since many of the data drawn on here derive from an initiative designed to raise standards of mathematics attainment in the primary school years, a little background information about this initiative is appropriate. For the last five years, the National Institute of Economic and Social Research (NIESR) and the London Borough of Barking and Dagenham (LBBD) have been working together to raise standards of mathematics among primary school pupils. 21 schools in LBBD have participated in the Improving Primary Mathematics project (IPM) from the beginning; at the time of writing the first cohort of pupils has reached Year 6, and will complete their primary schooling in July 2001. The data used here refer to the mobility of pupils between September 1997 (when the present Year 6 cohort entered KS2) and December 2000 (when the present Year 6 cohort were last tested). Thus the period covered is 3 1/3 years rather than the full four years of KS2. Figures on turnover of pupils in this single cohort for the 3 1/3 year period from September 1997 to December 2000 are shown in Table 1.

Total no. of pupils on roll September 1997	1421
Total no. always on roll	1132
Total no. of joiners	259
Total no. of leavers	292
Total no. joining then leaving	92
JPL over 31/3 years	65%
Average Annual JPL	20%

Table 1: Turnover of pupils for the 31/3-year period from September 1997 to December 2000

This is a reasonably high average level for annual mobility, but, judged by the findings from other studies referred to earlier, by no means exceptionally high for an outer London borough.

Consistent with the findings from other studies, levels of mobility were found to vary significantly between schools. While in one school pupil mobility was only 6%, in three schools it was 30% or higher. These three schools have been the subject of further study.

An important factor affecting the level of mobility turnover was found to be the provision of temporary housing and/or social housing perceived as being undesirable close to each of the three schools. As families became eligible for permanent and/or preferred accommodation, they moved into a different school catchment area.

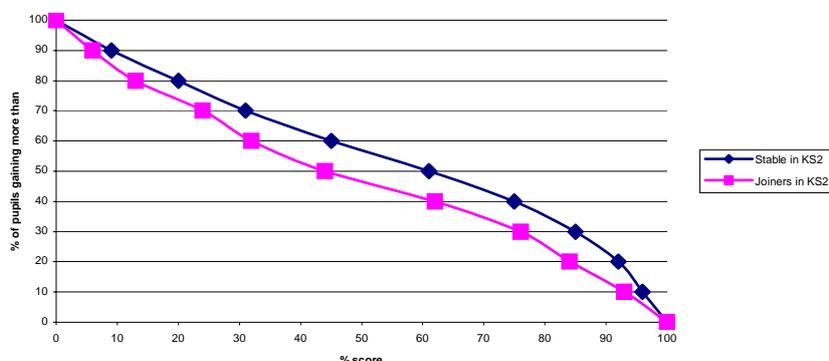
ATTAINMENT IN MATHEMATICS

There are obvious difficulties in measuring the progress made by pupils who move schools, since in any longitudinal study it is only possible to measure the progress of the 'stable' pupils who are present both at the beginning and the end of the study period. It is clearly difficult to track pupils who move schools during the period of a study, while those pupils who 'join' during a study will not have had their attainment measured initially, thus preventing any assessment of progress.

More detailed information on attainment of 'mobile pupils' is now available from the IPM project referred to earlier. As part of this project, pupils from Year 2 in LBBD upwards have been routinely tested three times a year in order to monitor pupil attainment, school attainment, and the effectiveness of the teaching materials on individual topics. The detailed testing programme has achieved high levels of pupil participation - typically 95%. From the details of pupils on roll at the time of each test (referred to here as 'IPM' tests in order to distinguish them from national tests), we have been able to build up a very clear picture of the standards and progress achieved by pupils in project schools, and also of those pupils joining project schools. Pupils in Year 1 have not been tested as part of the project, and so little information is at present available on the progress of 'joiners' during Key Stage 1, although we are in the process of relating performance on Baseline Assessment on entry to schooling to performance in Year 2 IPM tests. The focus here, therefore, is mainly on attainment and progress in

mathematics during Key Stage 2. For example, we can examine attainment of the current cohort of Year 6 pupils in the most recent tests (December 2000) and compare the performance of pupils who have moved schools during KS 2 with that of pupils who have been 'stable' (Fig. 1).

Figure 1: Percentage distribution of performance by Year 6 pupils in December 2000



Clearly the results can include only 'joiners' during KS2 not 'leavers', and thus the picture of the under-attainment of the mobile population is not complete. We can see, however, that at all points in the distribution scores of the 'joiners' were below those of the 'stable' population. Overall, the mean scores of the 'stable' population and the 'joiners' were 58% and 50% respectively.

As part of the project, we have been concerned with measuring low attainment, identifying its causes and finding ways of reducing it. Defining 'low attainment' and 'very low attainment' as achieving test scores of less than 40% and 25% respectively. we find that the proportions of these pupils were disproportionately high among schools with high mobility (see Table 2).

	% of low attainers	% of very low attainers	Other pupils	Total	No. of pupils
Schools of high mobility (30% or higher)	38%	18%	44%	100%	180
Other schools	29%	10%	71%	100%	1017

Table 2: Percentages of low-attaining pupils in Year 6 by level of school mobility

Among schools with high levels of pupil mobility, the percentages of 'joiners' who were also low attainers are even more marked (see Table 3).

	% of low attainers	% of very low attainers	Other pupils	Total	No. of pupils
Stable pupils	36%	16%	48%	100%	120
Joiners	42%	22%	36%	100%	60

Table 3: Low-attaining pupils in Year 6 among schools with high levels of pupil mobility

A more detailed study is being made of the three schools with the highest levels of pupil mobility, and the ways in which they are able to respond. It is probably no coincidence that all three have more than 40% of pupils eligible for FSM and in one school this reaches 58%.

CASE STUDY OF ONE SCHOOL WITH HIGH PUPIL MOBILITY

Some detail is provided here in respect of just one of these schools in order to understand the problems better. This is a four-form entry 'all-through' primary school located in an area of poor housing and much temporary accommodation. It has endeavoured for a number of years to raise standards of attainment and has had considerable success in this respect. For example, during the last three years the proportions of children reaching 'expected' standards in mathematics have increased from 73% to 86% at KS1 and from 43% to 69% at KS2. It is clear, however, that relatively recently - during the last eighteen months - events have occurred that have had an additional effect on levels of pupil mobility. For example, during the school year 1999-2000, 170 pupils with refugee status (out of an 'on roll' number of 700) joined the school. Although this school has long been accustomed to a rapidly-changing pupil population (for example, out of the 135 pupils in Reception in 1994/5, only 30 are now in Year 6 - and some of those left and rejoined during the intervening years), the rate of change is now increasing

During this six-month period, there has been an average of ten changes of pupils each week. New class lists are produced by the head teacher during weekends. Office staff use their best endeavours to obtain background information on pupils joining the school, by means of the 'unique pupil number' system introduced by DfEE in September 2000. This, however, is proving fallible due to the high incidence of 'temporary' pupil numbers issued by schools and the consequent difficulties of tracking these pupils. With little background information available for joining pupils, assessment of pupils' levels of attainment in core subjects on entry to the school becomes more important, yet no resources are available for this.

Additionally, given the high numbers of refugee children joining the school, there is an obvious associated cost for EAL support and interpreters. At the present time among pupils attending the school and their parents, 36 different languages are spoken. The head reports that separate parents' evenings are held for different ethnic groups in order to provide appropriate interpreting support, and also in an effort to develop sound home-school relationships through parental involvement with the school.

For many of the families whose children join the school, their social needs were described as being diverse and complex. The multiple social needs of many of the 'indigenous white population' were said to be as challenging as the needs of the refugee families. The quality of temporary accommodation close to the school tends to be used to house families that have suffered family break up, domestic violence, child abuse or need family protection. With 58% FSM, levels of poverty are also high. The need for greater financial support to meet the needs of the recently increased levels of mobility was stressed by the headteacher.

Although the need for assessing children on arrival and 'settling them in' was completely acknowledged, there were no resources available for this purpose.

The head also commented that, ironically, the fact that some schools with high turnover are perceived by parents as being less desirable than others is likely to lead to a greater number of 'joiners'. For example, at a popular, over-subscribed school, if a pupil leaves the vacancy created will be filled from the waiting list, consisting of pupils already resident in the catchment area. A less popular school which is not full will clearly attract a greater number of pupils moving into the area, who may well have greater needs.

Schools with low pupil mobility can afford to have an effective policy with regard to the assessment and 'integration' of new pupils, and also to follow up their leaving pupils. This is regarded as a luxury by schools with high pupil mobility, however, who can do little more than cope from day-to-day with new arrivals.

CONCLUSION

In the context of the multiple problems associated with increasingly high levels of pupil mobility, the improvement achieved by the school in terms of NC test results during the last three years seems remarkable. Yet even this attainment is not fully appreciated, since comparisons are inevitably made with the performances of other schools where pupil populations are more stable. Head teachers argue - with some justification - that comparisons of NC test results should be made in relation to pupils present throughout the relevant Key Stage, and who were taught by the school concerned, rather than of pupils who joined the school at a later stage - and some only just prior to the test date.

It seems unlikely that the new established levels of pupil mobility will decrease significantly in the foreseeable future. Schools with high pupil turnover clearly need appropriate levels of support in order to respond adequately to their pupils' needs. The head teacher whose school had made significant progress in standards of attainment, was most reasonable in his requests for support, saying that just one additional member of staff would enable him to provide a much better start for the new pupils. Greater appreciation and understanding by the government of the problems associated with pupil mobility is a top priority.

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