RESEARCH

Final Report of the Evaluation of the Pupil Learning Credits Pilot Scheme

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EXECUTIVE SUMMARY

The Pupil Learning Credits (PLC) pilot scheme was announced in February 2001 (Department for Education and Employment (DfEE),[1] 2001a) and ran for two academic years from September 2001. The scheme made extra funding available to around 260 secondary schools with high levels of known Free School Meals eligibility (FSM). Its objective was to provide additional educational opportunities to pupils from financially deprived backgrounds in order to enrich and add depth to their learning. Another objective was to promote inclusion by breaking down barriers preventing disadvantaged pupils from taking part in activities their peers take for granted. The policy also aimed to provide them with the means (such as increased self-confidence and self-esteem and improved attitudes to learning) to improve their levels of attainment. The PLC pilot scheme was particularly targeted at pupils in Key Stage 3 (aged 11 to 14, Years 7 to 9).

In Autumn 2001, the Department for Education and Skills commissioned a consortium comprising the London School of Economics (LSE) and the National Foundation of Educational Research (NFER) to carry out an evaluation of the PLC pilot scheme; this was completed in Spring 2005. The evaluation involved a number of different strands, including telephone interviews with headteachers; questionnaires to pupils in schools that received PLC funding and to pupils in comparison schools that were not receiving these funds; case studies of a small number of schools; two sets of analyses of attainment data; and an analysis of changes in attendance data.

Interviews with headteachers and school case studies

The PLC pilot scheme was popular with the headteachers interviewed by telephone and with case study interviewees. The freedom and flexibility the scheme afforded schools was appreciated by virtually all respondents. Schools decided to fund a wide variety of activities and provision using the resources made available by the PLC pilot scheme. In most cases, this took the form of extending and enhancing pre-existing provision. Activities targeted disadvantaged pupils, although groups were targeted rather than individuals. Schools frequently concentrated the funding on Key Stage 3 (KS3) pupils, however, pupils above Year 9 were also targeted. Monitoring and evaluation were given a low priority by case study interviewees. This may have been a consequence of the short-term nature of the scheme and the fact that funding was not dependent on the submission of a bid or plan.

Surveys of pupils in Year 9 and Year 11

The surveys of pupils involved comparing the responses of pupils in Years 9 and 11 in two samples of PLC schools with pupils in the same years in two samples of comparison schools. The analyses identified some statistically significant associations; however, they do not establish causation.

Year 9 pupils in PLC schools reported less involvement in out-of-school activities than pupils in comparison schools. However, the reverse was true for the Year 11,

[1] The predecessor to the Department for Education and Skills (DfES).

where pupils in PLC schools reported more involvement in out-of-school activities than those in comparison schools.

Few statistically significant differences were identified in terms of pupils' attitudes. Where they were identified, Year 9 pupils in PLC schools tended to show more positive attitudes to school than those in comparison schools, whilst Year 11 pupils in PLC schools tended to show less positive attitudes than those in the comparison schools.[2] Where differences were identified in relation to self-esteem and confidence as learners, pupils in both years in PLC schools responded more positively to these items than pupils in comparison schools.

Statistical analyses of pupil-level attainment data

Two sets of quantitative analyses were carried out. The first set used multi-level modelling, a form of multiple regression, designed to take account of the fact that pupils are clustered within schools and within LEAs. This analysis examines whether, controlling for other factors (including, for example, pupils' prior attainment), pupils attending schools receiving PLC funding achieved significantly different test scores from those at other schools. The second set of analyses used a 'difference-in-differences' approach. The technique is again a form of multiple regression, but addresses whether the difference between attainment in schools receiving PLC funds and attainment in other schools was greater in 2003 than it was in 2001.

The multi-level modelling using data for all schools in England indicated that, including a rich set of control variables, pupils in PLC schools made *less* progress to KS3 than did pupils in non-PLC schools. This finding related to Mathematics attainment in 2002, Science attainment in 2003 and also the average KS3 score in 2003. However, attainment at GCSE in 2003, taking into account prior attainment at Key Stage 2, was more impressive in PLC schools than non-PLC schools although most of the gain appears to have been made prior the launch of the PLC policy. That is, for six GCSE outcome measures, pupils at PLC schools achieved significantly better GCSE results in 2003, taking their 1998 KS2 results into account. In contrast, using KS3 results in 2001 as the measure of prior attainment for the pupils taking their GCSEs in 2003, only for one outcome measure - the likelihood of achieving five or more A* to C grades – did those at PLC schools achieve significantly better results than pupils in non-PLC schools.

The difference-in-differences analysis, which considered progress from KS2 to KS3, compared attainment in PLC schools with that in other urban schools *before* the policy was introduced with differences in performance *after* the policy had operated for two years. This analysis indicated that attainment in PLC schools prior to the launch of the policy, and controlling for a range of factors including prior attainment, fell short of that in non-PLC urban schools. However, the difference-in-differences analysis indicated that the gap in attainment between pupils in PLC and non-PLC schools narrowed from 2001 to 2003. This suggests that the policy had a positive effect. An attempt to relate the costs of the pilot scheme to these benefits concluded

[2] These differences could have been the result of the characteristics of the schools or the pupils in the two groups that it was not possible to control for.

that the pilot scheme was cost effective although this was based on some strong assumptions.

The difference-in-differences analysis also suggested that the PLC policy led to a reduction in absences of about one half of a percentage point.

Findings relating to KS3 Mathematics attainment differ between the two methods. The multi-level modelling suggests that, in 2002, pupils in PLC schools performed less well in Mathematics KS3 tests than pupils in other schools. In contrast, the difference-in-differences analysis suggests that participation in the PLC policy was associated with *higher* levels of attainment in Mathematics in 2003. The difference-in-differences analysis also, however, indicates that pupils in PLC schools tended to achieve lower scores in the pre-policy period. Thus, one might conclude that the analyses, taken together, suggest that pupils attending the most disadvantaged urban schools achieve lower Mathematics scores than their counterparts elsewhere but that during the period in which the PLC policy was in effect that gap was narrowed. In addition, it is important to note that the different types of analysis reported in this report involved different comparison groups and different control variables.

Conclusions

The PLC pilot scheme was popular among headteachers who particularly valued its flexibility. Funds were frequently used to extend existing provision. The pupil questionnaires showed mixed responses in terms of involvement in out-of-school activities and attitudes to school.

In relation to attainment at Key Stage 3, multi-level modelling suggested that, taking prior attainment into account, pupils at PLC schools performed *less* well than those at (all) other schools. Analysis which took account of how pupils at PLC schools performed *before* the policy was introduced, that is the difference-in-differences approach, however indicated that schools receiving PLC funding had narrowed the gap with other urban schools from 2001 to 2003 and suggested that the programme had been cost effective.

In terms of wider policy considerations emerging from the evaluation it is suggested that although the delegation of spending decisions to school-level was broadly welcomed, some headteachers would have welcomed more guidance. However, if guidance is given that does not accord with a school's overall philosophy it may not be adhered to. The PLC pilot scheme was intended to target resources on individual pupils; however, schemes that are targeted at individual pupils can be seen as problematic at school-level where practitioners are often very concerned not to appear to single out particular pupils.

The PLC pilot scheme was also intended to target resources on pupils in Key Stage 3. A significant number of schools, however, also opted to target resources on pupils in Key Stage 4. This is perhaps unsurprising as secondary schools currently operate in a competitive climate; by concentrating their effort on enhancing pupils' performance at Key Stage 4 they may well be seeking to improve their results in the highest profile performance indicator, five or more GCSE passes at grades A* to C.

1. INTRODUCTION

The Pupil Learning Credits (PLC) pilot scheme was announced in February 2001 (Department for Education and Employment (DfEE), 2001a) and ran for two academic years from September 2001. The scheme made extra funding available to secondary schools with high levels of known Free School Meals eligibility (FSM). Its objective was to provide additional educational opportunities to pupils from financially deprived backgrounds in order to enrich and add depth to their learning. Another objective was to promote inclusion by breaking down barriers preventing disadvantaged pupils from taking part in activities their peers take for granted. The pilot scheme also aimed to provide them with the means (such as increased self-confidence and self-esteem and improved attitudes to learning) to improve their levels of attainment.

Altogether 260 schools in disadvantaged areas of England were targeted for funding and schools were given maximum flexibility in how to allocate the additional resources, both within and outside the school day. This was based on the premise that, in many ways, schools are the most appropriate body to decide on the use of the funding since they have most knowledge and understanding of *their* pupils and of the particular local context that may inhibit (or encourage) young people's learning. The pilot scheme was particularly targeted at pupils aged 11 to 14 years (Key Stage 3).

Before the start of the PLC pilot scheme, participating schools received a letter from the DfEE that suggested that the following activities could be funded through the scheme (DFEE, 2001b):

- additional support in the classroom (e.g., teaching assistants);
- educational visits to museums, galleries, and the theatre;
- adventure activities and residential experiences;
- extra tuition in art, music and other performing arts;
- access to computers and educational software, inside and outside school;
- arranging guests/speakers to come and talk to pupils (e.g., on personal health, drugs or special interests/hobbies);
- resources for pupils to use in the home (e.g., books to read for pleasure);
- subscriptions to hobby/interest organisations;
- out-of-school hours enrichment activities provided by the school (e.g., chess/photography clubs); and
- enrolment and equipment for activities not provided by the school (e.g., Guides, karate club).

Schools were also reminded that *'this is by no means an exhaustive list'* and that they *'should feel free to try out* [their] *own ideas'* (DfEE, 2001b).

In order to qualify for inclusion in the PLC pilot scheme, secondary schools had to be located in one of the 24 Phase 1 Excellence in Cities (EiC) areas[3] or in one of six Excellence Cluster areas[4] and, in January 2000, to have had at least 35 per cent of pupils on roll who were known to be eligible for Free School Meals. Funding allocations to schools varied according to school size and Free School Meals eligibility levels; allocations averaged £55,769 for the academic year 2001/02 and £75,000 for 2002/03. Secondary schools with more than half of their pupils known to be eligible for Free School Meals were entitled to a higher per pupil weighting.

The Department for Education and Skills (DfES) commissioned a consortium comprising the London School of Economics (LSE) and the National Foundation of Educational Research (NFER) to carry out an evaluation of the Pupil Learning Credits pilot scheme. The evaluation involved a number of different strands, including telephone interviews with headteachers; case studies of a small number of schools in the pilot scheme; and questionnaires to pupils in schools that received PLC funding and to pupils in comparison schools (outside EiC Phase 1) that were not receiving these funds. Statistical and economic analyses of national pupil-level data were undertaken in order to examine the possible impact of the pilot scheme on pupil attainment and attendance.

This report presents collated findings from the different strands of the evaluation.[5] The following section gives an overview of the methods used. Section 3 presents key research findings, discussing in turn findings from interviews with headteachers and case studies of schools; pupil survey findings; statistical analyses of national pupil-level data; and the economic evaluation. Section 4 concludes the report with some implications for policy and practice.

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[3] **EiC Phase 1 LEAs**: Birmingham, Bradford, Camden, Greenwich, Hackney, Hammersmith and Fulham, Haringey, Islington, Kensington and Chelsea, Knowsley, Lambeth, Leeds, Lewisham, Liverpool, Manchester, Newham, Rotherham, Salford, Sheffield, Southwark, Tower Hamlets, Waltham Forest, Wandsworth, Westminster (excludes Corporation of London as it has no secondary school).

[4] **Excellence Cluster LEAs** included in the PLC pilot scheme: Croydon, Kent, Kirklees, Lancashire, Portsmouth, Walsall.

[5] For further details of the PLC evaluation see Braun and West (2004), McNally (2005), Braun *et al*. (2005); for more information about the evaluation of Excellence in Cities see Kendall *et al*. (2005).

2. METHODS

This report draws together the different strands of the evaluation of the Pupil Learning Credits pilot scheme: telephone interviews with headteachers; case studies of schools; surveys of pupils; and analyses of national data sets.

2.1 Telephone survey of headteachers

Headteachers of 250[6] schools receiving PLC funding were contacted during Autumn 2001 with a view to interviewing them by telephone about their early experiences with the PLC pilot scheme. Information from 135 schools was obtained, representing a response rate of 54 per cent. The majority of telephone interviews were conducted with headteachers (72 per cent) and deputy/assistant headteachers (22 per cent). Other interviewees included PLC coordinators and senior teachers with a particular interest in the pilot scheme.

2.2 Case studies

Case studies were carried out in Autumn 2002 and Spring 2003 in 15 secondary schools in receipt of funds from the Pupil Learning Credits pilot scheme. The schools were selected to represent the diversity of the schools participating in the scheme. They thus varied in terms of their geographical location, their position in the DfES School and College Achievement and Attainment Tables[7] at the end of Key Stage 4,[8] levels of known Free School Meals eligibility (ranging from 39 per cent to 75 per cent) and school type. Of the schools included, 13 were community schools, one was foundation and one was voluntary-aided. Three schools were single-sex and 12 were mixed.

Semi-structured interviews with 41 members of staff from 15 secondary schools were carried out. The number of interviewees per school ranged from one to five (the average number was three). In every school except for one,[9] the headteacher was interviewed. Other interviewees included deputy or assistant headteachers, bursars, heads of department, other senior teachers, enrichment and PLC coordinators, learning mentors and other support staff.

2.3 Pupil surveys

Findings from questionnaires completed by Year 9 pupils, in a sample of PLC schools and in a sample of comparison schools, who took their Key Stage 3 (KS3) tests in 2003 and by Year 11 pupils who took their GCSE examinations in 2003 were

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6 Ten of the original 260 schools were reported to have closed or to have been due for closure and were not approached by the research team.

7 Formerly school performance tables.

8 In 2002, the proportion of pupils who gained five or more A* to C grades in their GCSE/GNVQ examinations ranged from 19 per cent to 49 per cent across the case study schools.

9 In this school the deputy headteacher, who was acting headteacher when PLCs were introduced, was interviewed.

analysed as part of the evaluation of the PLC pilot scheme.[10] The samples of pupils from comparison schools were drawn from schools in EiC Phase 2 and Phase 3 areas[11] that, in January 2000, had 35 per cent or more pupils on roll who were known to be eligible for Free School Meals.

The pupil survey formed part of the evaluation of the Excellence in Cities policy,[12] and thus covered a wide range of areas and topics. For the purpose of this report, pupils' answers to questions of particular relevance to the PLC pilot scheme have been analysed. That is, items relating to participation in additional educational activities that may enrich and add depth to pupils' learning are presented.

As noted earlier, the PLC pilot scheme was intended to promote inclusion and to provide pupils with the means to improve their levels of attainment through, for example, raising self-confidence and self-esteem and improving attitudes to learning. Responses of pupils in PLC schools to items relating to these objectives are therefore compared with those of pupils in comparison schools. This form of comparison was not only intended to assess whether pupils in schools receiving PLC funds reported participating in more enrichment activities but also to provide insight into possible mechanisms through which any improvement in attainment (identified through the multi-level modelling) might be being delivered. It is, however, important to note that although the analyses identify statistically significant associations they do not establish causation; thus differences between PLC and comparison schools should not be assumed to arise from the PLC pilot scheme.

2.4 Statistical analyses of national pupil-level data

Two sets of quantitative analyses were carried out for the evaluation.

Multi-level modelling

Pupils' academic progress is examined by means of multilevel modelling using the national pupil-level (also called value-added) datasets for 2001, 2002 and 2003. Multilevel modelling is a form of regression analysis that takes account of the fact that data are clustered. By allowing for a hierarchical structure of the data, a multilevel modelling approach enables us to control for background factors at different levels (in our case, at individual pupil, school and LEA level). **Annex A** provides the list of background variables included in the model.

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[10] The PLC pilot scheme was particularly targeted at pupils in Key Stage 3, but the telephone interviews with headteachers and the case studies of schools revealed that many schools decided to also target the funding on other year groups (see Braun and West, 2004); for this reason, it was decided to focus in the analysis on pupils in Years 9 and 11.

[11] **EiC Phase 2 LEAs**: Barking and Dagenham, Brent, Bristol, Ealing, Gateshead, Halton, Hartlepool, Kingston upon Hull, Leicester City, Middlesbrough, Newcastle, North Tyneside, Nottingham, Redcar and Cleveland, Rochdale, St Helens, part of Sefton, Solihull, South Tyneside, Stockton-on-Tees, Stoke-on-Trent, Sunderland and Wirral. **EiC Phase 3 LEAs:** remaining part of Sefton, Sandwell, Hounslow, Wolverhampton, Oldham, Barnsley, Doncaster, Luton, Blackburn with Darwen, Enfield and Blackpool.

[12] The evaluation was carried out by a consortium comprising the NFER, the LSE and the Institute for Fiscal Studies (see Kendall *et al*., 2005; NFER, 2005).

As part of the evaluation of Excellence in Cities, national value-added data linking Key Stage 3 (KS3) and Key Stage 4 (KS4) results in 2003 to prior attainment and information from the Pupil Level Annual School Census (PLASC) were modelled[13] in order to assess the possible impact of EiC on pupils' progress during Key Stage 3 and Key Stage 4. Given that the PLC pilot scheme targeted additional resources on particular schools that were also part of the Excellence in Cities Policy, statistical analyses were undertaken in order to establish any associations between the PLC pilot scheme and various attainment outcomes, having controlled for other variables.

Economic evaluation

The economic evaluation involved analyses of the effect of the PLC pilot scheme on pupil attainment and school attendance. It uses a 'difference-in-differences' approach that compares PLC and comparison group schools before and after the pilot scheme (i.e., outcomes for 2003 relative to 2001), whilst controlling for changes in a set of background variables known to be associated with attainment. Two comparison groups are used, non-PLC schools in areas designated as EiC Phase 1 and non-PLC schools in areas designated as EiC Phase 1 or Phase 2. A cost-benefit analysis is also presented which considers the possible impact of any increase in attainment resulting from the PLC pilot scheme on subsequent labour market earnings.

[13] This modelling was carried out by Ian Schagen at NFER and we are grateful to him for allowing us to present extracts from his analysis in this report.

3. RESEARCH FINDINGS

3.1 Interviews with headteachers and case studies of schools

Summary

The PLC pilot scheme was popular with the headteachers interviewed by telephone and with case study interviewees. The freedom and flexibility the scheme afforded schools was appreciated by virtually all respondents to the telephone survey and by case study interviewees.

Schools decided to fund a wide variety of activities and provision out of PLC resources. In most cases, this took the form of extending and enhancing pre-existing provision.

Headteachers reported consulting with their senior management team and to a lesser extent with other teachers about activities that should be offered and to whom. Consultation with parents was not common.

The telephone surveys and the case studies indicated that activities were targeted on disadvantaged pupils. Groups were targeted rather than individuals. Although schools frequently concentrated the funding on Key Stage 3 pupils, pupils above Year 9 were also targeted.

The short-term nature of the scheme and the fact that funding was not dependent on conditions, such as the submission of a bid or plan, may have contributed to monitoring and evaluation at school-level being given a low priority by case study interviewees.

Introduction

This section reports on the key findings to emerge from the interviews with headteachers and case studies of schools (see Braun and West, 2004 for details) and addresses the following themes: activities and provision funded by the Pupil Learning Credits pilot scheme; aims and objectives at school-level; consultation and decision making within schools; pupils targeted for PLC activities/provision; individuals involved in running PLC activities; school-level monitoring and evaluation; and the main strengths and weaknesses of the scheme.

Activities and provision funded by PLC funds

The telephone interviews showed that each of the following activities was partly or fully-funded by PLC resources in at least two-thirds of the participating schools surveyed: curriculum enrichment and extension activities; educational visits to museums, galleries and the theatre; access to computers and educational software inside school; residential experiences; and outdoor and adventure activities. A small number of schools used PLC funds to support pupils' hobbies or interests and to provide bursaries for pupils to pursue a particular line of interest.

The findings from the 15 case studies of PLC schools complemented the picture gained from the telephone survey. The schools spent PLC resources on a wide variety of activities and provision, including trips and residential activities, extra-

curricular activities, departmental resources, staffing, outside specialists/visitors and prizes/awards. Whilst all case study schools reported that they had introduced new activities or purchased new resources specifically as a result of the PLC pilot scheme, in most cases pre-existing provision was extended or enhanced – for example, more frequent field trips or a wider variety of extra-curricular activities were provided.

The telephone interviews with headteachers revealed that schools had utilised a range of other funding streams to fund PLC-supported activities. These included Standards Fund grants, the main school budget, and the New Opportunities Fund, each of which were mentioned by at least three-quarters of interviewees.

The finding that the PLC funding stream was only rarely used as a 'stand-alone' fund was confirmed by the case studies. Interviewees reported using PLC funds both in conjunction with and as a replacement for other funding sources. They emphasised that schools frequently do not use funds separately: *'In reality, every pot of money is used in a variety of different ways…you know what you want and you need to pay for it, so you try to* [combine] *funds.*' This insight is of particular importance to the evaluation as it means that any changes in outcomes, even if attributable to specific activities, cannot necessarily be inferred to arise from a single funding stream.

School-level aims and objectives

Headteachers were asked about the aims and objectives of their schools' PLC-funded activities. Two-thirds of headteachers surveyed by telephone reported that the chosen activities had been funded to enable the school to provide more activities or new opportunities. Just over a third stated that they wanted to extend opportunities to all of their pupils and the same proportion reported a focus on enhancing learning and raising standards.

The case studies provided an opportunity to explore in more depth the aims and objectives of the PLC pilot scheme in the schools concerned. Interviewees were keenly aware of the social and financial deprivation in many of their pupils' homes:

> *A middle-class family would have books in the home, leisure time to visit places of interest…access to computers, perhaps private tuition…A lot of our girls and their families don't even have an awareness that these things* [are] *part of* [education].

Thus combating social and financial disadvantage; extending pupils' educational experiences; raising aspirations and self-esteem; and improving attainment and achievement were all described by interviewees as the primary objectives of the pilot scheme in their school.

The strategies employed in the case study schools to achieve these aims involved extending and enhancing the educational and learning opportunities offered to their pupils, against the backdrop of a relatively disadvantaged pupil population: *'Our kids don't find learning easy – so the more exciting and 'buzzing' we can make it, the more chance we have to succeed.'* Generally improving school resources and equipment and trying to establish a positive school ethos were also identified as key strategies.

Consultation and decision making

In order to examine the processes involved in planning and setting up PLC-funded provision, consultation at school-level about targeting and spending decisions was investigated.

In 80 per cent of the schools surveyed, the decision about which pupils or groups of pupils should be targeted by PLC resources was made by the senior management team. In nine out of ten schools, there was reported to be consultation about the specific activities to be offered; in around three-quarters of schools both the school's senior management team and other teachers were consulted, and in over a quarter of schools, pupils were consulted. In a small proportion of schools (five per cent) parents and carers were consulted on the pupils to be targeted by PLC resources; ten per cent of schools reported consultation with parents about activities that should be offered.

In the case study schools, discussions about the sorts of activities that should be offered and to whom commonly took place at senior management level. Other teachers and pupils had an input through staff meetings and via the school council respectively. None of the case study schools consulted with parents/carers specifically about the PLC pilot scheme and some interviewees highlighted the problems they had encountered when attempting to carry out consultations, for example:

> *We consult parents over some things, but it's actually really hard work to get feedback from parents. When we do it, it's over big changes to the school.*

However, parents' suggestions obtained as part of other consultation exercises were taken into account in some of the case study schools visited.

Pupils targeted by PLC funds

The Pupil Learning Credits pilot scheme was originally conceived as focusing predominantly on pupils in Key Stage 3 (Years 7, 8 and 9). Yet, as the pilot scheme both enabled and encouraged schools to make their own spending and targeting decisions, the question as to which pupils were actually involved and targeted by the scheme was explored in the telephone interviews and the case studies.

The telephone interviews revealed that in over eight out of ten schools, PLC funding was targeted on groups of pupils and in half on individual pupils. Some respondents thus indicated that they targeted both individuals and groups of pupils. In around nine out of ten schools, each year group in Key Stage 3 was involved. Around half of the headteachers indicated that they had used PLC funds for year groups above Year 9. Case study schools used PLC funds with most year groups, though generally emphasised provision for the younger age group.

The telephone interviews showed that the criteria used most frequently to make the decision about which pupils should be targeted by PLC resources were disadvantaged or socially deprived pupils and known eligibility for Free School Meals. Just under a third of headteachers had concerns in principle with initiatives such as the PLC pilot scheme targeting particular pupils or groups of pupils. Interestingly, fewer than one

in ten respondents stated that they had any concerns about the way their school had targeted pupils for PLCs.

Again, the case studies confirmed this pattern of targeting; interviewees reported using a range of criteria such as known Free School Meals eligibility, low achievement or behavioural problems. This frequently took the form of targeting certain activities at particular groups of pupils, such as providing subsidies for school trips and residential activities for pupils known to be eligible for Free School Meals, or providing remedial classes targeted at underachieving pupils. On occasion, interviewees in the case study schools also mentioned that individual pupils had been targeted, for example for subscriptions for clubs outside of school. A number of interviewees in the case study schools were opposed to using funds in targeted ways that would benefit some pupils and not others: *'We thought it would be impossible* [not to include everybody] *– the staff wouldn't have felt comfortable only allowing some to benefit and not others.'* Several interviewees felt strongly that in their school, disadvantage was universal and so did not use PLC funds to target certain pupils or certain groups of pupils: *'Poverty in the school runs right across the spectrum…the governors did not want any differentiation, all pupils were in need.'*

The question as to whether there were certain pupils, or groups of pupils, who interviewees would have liked to have seen participate in PLC funded provision, but who had not got involved, was explored in the case studies. Whilst this was not generally seen as a problem, interviewees in some of the schools reported that there was at times a lack of involvement in extra-curricular or after-school activities. Reasons given for this included organisational problems, such as a lack of 'advertising'. Problems were also encountered at a school where many pupils travelled long distances to school by bus and consequently faced difficulties in attending after-school activities. Similar problems arose for pupils who had other commitments after school such as assisting with childcare or attending religious classes. Sometimes the obstacles to participation were also psychological; one interviewee in a school that tried to get pupils involved in arts activities in the wider region explained that even some of her brightest and most talented pupils: *'lose all their confidence when they are out of* [the immediate neighbourhood]'. The case study schools concerned were working to overcome these barriers to participation.

Individuals involved in running PLC activities

In order for new initiatives, such as the Pupil Learning Credits pilot scheme, to be successfully translated into practice, the availability and dedication of staff in schools is crucial. In the light of ongoing concerns about teacher workload, both the telephone survey and the case studies explored questions related to the organisation and delivery of PLC activities/provision.

In most schools surveyed by telephone, teachers were involved with running PLC activities but in some schools other staff, such as learning support assistants, private tutors/instructors, learning mentors and other school support staff were also involved. In a minority of cases, headteachers reported that there had been difficulties in finding staff to run activities. Parents and carers were involved in running PLC activities in around one in ten schools.

Case study schools also drew on a wide variety of individuals, both from within and outside of the school community, to provide PLC activities. Teachers were involved at both organisational and delivery level and other school staff were given the opportunity to take on new roles and responsibilities. In spite of the temporary nature of the PLC pilot scheme, new staff were also employed in a number of case study schools.

Finding staff to run PLC activities was not generally considered to have been a problem by case study interviewees. Indeed, the fact that PLC activities were additional, flexible and well-resourced helped foster staff enthusiasm according to some of the headteachers in case study schools, who found that there had been *'a lot of volunteers'* and that *'people were falling over themselves'*. However, for certain times, such as Saturdays, it was reported to have been more difficult to find school staff to run PLC activities.

In half of the schools surveyed by telephone, teachers were paid extra for their involvement in PLC activities. In the case study schools, practices in relation to whether or not school staff were paid extra for their involvement with the PLC pilot scheme varied widely. Paying teachers for PLC activities was a controversial issue for some of the interviewees who regretted the loss of a *'tradition of volunteering'* within the teaching profession.

Monitoring and evaluation

Respondents in case study schools were asked about monitoring and evaluation. The type of monitoring and evaluation activities described by interviewees varied considerably, ranging from regular informal discussions about the use of the money within the senior management team, to a designated member of staff collecting background, participation and attainment data on individual pupils and analysing the findings.

The fact that the scheme was only temporary and that it was not compulsory for schools to monitor its implementation may have acted as a disincentive to put in place more elaborate monitoring or evaluation systems. As one interviewee explained:

> *If* [PLCs] *continued I would want to build in much stronger evaluative procedures to inform expenditure and which projects were having a strong and positive effect. If it's a regular part of the funding, there is more encouragement for me to build in these processes.*

In general, interviewees in the case study schools were more comfortable with monitoring aspects such as attendance at activities and pupil feedback; however, they were unsure about evaluation or how to interpret the findings. The following comment made by a PLC coordinator was fairly typical:

> *We monitor* [PLCs]*…I collect reports from heads of faculty, teachers and also feedback from the pupils. Evaluating it is another matter: how do you separate the impacts from PLCs from those of the Key Stage 3 strategy – I don't think it can be done, this school certainly couldn't* [do it].

Main strengths and weaknesses of the scheme

The PLC pilot scheme was considered to have been a 'good idea' by the overwhelming majority of headteachers interviewed in the telephone survey. The money associated with the pilot scheme was appreciated and PLCs were felt to have provided new and enhanced opportunities for pupils, in particular those from disadvantaged backgrounds. Nine out of ten headteachers reported that the PLC pilot scheme fostered creativity or innovation and over nine out of ten appreciated the freedom given to schools to decide how to spend PLC money. Eight out of ten headteachers surveyed indicated that this freedom or lack of DfES guidance had made spending decisions easy.

Interviewees in the case study schools were asked about the strengths and weaknesses of the PLC pilot scheme. As with respondents to the telephone survey they identified the flexibility of the scheme; the additional money and resources it provided; and its ease of administration as the main strengths of the scheme. The short-term nature of the pilot scheme and some administrative uncertainties at the outset, in particular in relation to appropriate uses for the fund, were seen as the main drawbacks. It is also noteworthy that in some of the case study schools where PLCs constituted a substantial sum of money, this was seen as not entirely unproblematic, as the following quote illustrates: *'In some ways, it was* [a] *huge amount for such* [a] *short space of time* [and] *it required an awful lot of thought'*.

3.2 Pupil surveys

Summary

The Pupil Learning Credits pilot scheme had a short duration (lasting only two academic years) and it may take a longer period than this to make a contribution to any measurable outcomes. The pupil surveys were carried out in the second year of the PLC pilot scheme.

Year 9 pupils in PLC schools reported more visits to museums, art galleries and the theatre, than pupils in comparison schools. Pupils in comparison schools reported more involvement in a range of out-of-school activities including computing/ICT, reading/writing and arts activities.

In Year 11, pupils in PLC schools reported more involvement in out-of-school activities than those in comparison schools.

Year 9 pupils in PLC schools tended to show a more positive attitude to school work than those in comparison schools; the reverse was true for pupils in Year 11.

Year 9 pupils in comparison schools tended to agree with the statement 'I often feel lonely at school' more than pupils in PLC schools.

Year 11 pupils in PLC schools tended to agree with the statement 'I ask the teacher if I don't understand something' more than pupils in comparison schools.

Pupils in PLC schools reported less bullying than pupils in comparison schools in both Year 9 and Year 11.

Introduction

This section presents survey findings (see Braun *et al*., 2005 for full details) from 3538 Year 9 pupils (from 14 PLC schools and 15 comparison schools[14]) and 3522 Year 11 pupils (from 23 PLC schools and nine comparison schools[15]). A comparison of the characteristics of the PLC survey schools and all PLC schools is given in **Annex B**. The surveys were carried out in Spring 2003, in the second year of the two-year PLC pilot scheme. The survey data may be seen as characterising the cohorts of pupils included in the attainment analysis presented later in this report. However, the comparison group for the survey data was not all other pupils in England but rather pupils in the survey comparison schools.

Pupils' answers to questions of particular relevance to the PLC pilot scheme are summarised below. That is, items relating to participation in additional educational activities that may enrich and add depth to pupils' learning are presented. As was stated earlier, the pilot scheme was intended to promote inclusion and to provide pupils with the means to improve their levels of attainment through, for example, raising self-confidence and self-esteem and improving attitudes to learning. Responses of pupils in PLC schools to items relating to these objectives are therefore compared with those of pupils in comparison schools. This form of comparison was

[14] 1793 Year 9 pupils from 14 PLC schools and 1745 Year 9 pupils from 15 comparison schools.
[15] 2348 Year 11 pupils from 23 PLC schools and 1174 Year 11 pupils from 9 comparison schools.

not only intended to assess whether pupils in schools receiving PLC funds reported participating in more enrichment activities but also to provide insight into possible mechanisms through which any improvement in attainment (identified through the quantitative analysis presented later) might be being delivered.

In the following sections, background characteristics of the samples are presented, before focusing on responses of pupils in PLC and comparison schools to a range of questions relating to their out-of-school activities; their assessments of their school experiences and behaviour; their perceptions of themselves as learners and as individuals; and their aspirations for the future. It is important to point out that in the context of this analysis it is not possible to establish causation; thus differences between PLC and comparison schools should not be ascribed to the PLC pilot scheme as such but rather serve to illustrate a range of similarities and differences.

Using pupil level data (available via PLASC), we find that in Year 9 and in Year 11, more pupils in PLC than comparison schools were eligible for Free School Meals in January 2003 (43 per cent versus 34 per cent and 50 per cent versus 43 per cent respectively).[16] Given that there were differences between pupils in PLC and comparison schools in terms of their known eligibility for Free School Meals, the analyses in the following sections, which focus on differences between pupils in PLC and comparison schools, take account of this by using multiple regression. The key predictor variable was whether pupils were in PLC or non-PLC schools; known Free School Meals eligibility and sex were included as control variables. Regression findings are significant at the 0.05 level or beyond. It should however be noted that the clustering of pupils within schools has not been taken into account in the analysis.

Characteristics of pupils

In Year 9 in both PLC and comparison schools, 50 per cent of pupils were female and 50 per cent were male. In the Year 11 sample there were more female than male pupils (55 per cent versus 45 per cent in PLC schools and 59 per cent versus 41 per cent in comparison schools).[17]

Pupils came from a diverse range of ethnic backgrounds, with pupils from a White British background making up the largest single ethnic group in both year groups.[18] Pupils in PLC schools in both Year 9 and Year 11 reported more frequent use of English at home than pupils in comparison schools.

A key factor in relation to educational outcomes is socio-economic status (Desforges with Abouchaar, 2003; West and Pennell, 2003). One of the proxy-measures frequently used in educational research to gauge a household's socio-economic standing is to ask pupils how many books there are in their home (or where they live) not counting newspapers, magazines or school books (e.g., Keys *et al*., 1999; Kerr *et*

[16] Sample sizes are 1793 and 1745 for pupils in PLC and comparison schools in Year 9; and 2348 and 1174 for pupils in PLC and comparison schools in Year 11.

[17] Sample sizes are 1793 and 1745 for pupils in PLC and comparison schools in Year 9; and 2348 and 1174 for pupils in PLC and comparison schools in Year 11.

[18] 74 per cent and 75 per cent in PLC and comparison schools in Year 9 and 47 per cent and 48 per cent respectively in Year 11. In Year 11, pupils from a Pakistani or Bangladeshi background represented another substantial group (24 per cent and 26 per cent in PLC and comparison schools respectively).

al., 2002). Around three out of ten pupils surveyed reported living in homes with less than ten books (29 per cent in PLC and comparison schools in Year 9; and 25 per cent and 28 per cent respectively in Year 11).[19] In Year 11, pupils in PLC schools reported more books at home than pupils in comparison schools.

Out-of-school activities

Pupils were asked to indicate whether they had undertaken various pre-defined out-of-school activities 'often', 'sometimes', 'once' or 'never'. The results for pupils who had participated in activities at least once are given in Table 1.

Table 1. Percentage of pupils participating in out-of-school activities at least once

	Year 9 % of pupils		Year 11 % of pupils	
Activity	PLC schools (N=1609-1748)	Comparison schools (N=1576-1705)	PLC schools (N=2051-2290)	Comparison schools (N=1035-1148)
Sports activities	79	79	72	72
Using computers/ICT	71	75	82	78
Residential activities	62	54	n/a	n/a
Reading or writing	58	65	62	63
Visitors giving talks	60	58	66	66
Arts activities	58	64	55	53
Visits to museums, art galleries, theatre	52	47	53	47
Outdoor or adventure activities	48	45	n/a	n/a
Summer schools/ holiday programmes	45	40	39	43
Homework clubs	37	37	59	54
Subject not done in normal lesson time	36	40	34	36
Visits to a university	16	21	37	35
Any other activities	56	58	51	56

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively in Year 11 as not all respondents answered all questions.

As can be seen from Table 1, pupils were involved in a wide range of out-of-school activities. Sports and ICT activities were particularly widespread.

In order to establish if any of the differences noted in the table above between pupils in PLC and comparison schools were statistically significant, a series of multiple regressions were carried out.[20] It was found that in Year 9:

[19] Sample sizes are 1793 and 1745 for pupils in PLC and comparison schools in Year 9; and 2348 and 1174 for pupils in PLC and comparison schools in Year 11.

[20] The multiple regression technique used simultaneously controls for the effects of all the independent variables entered (PLC, FSM and sex).

- pupils in PLC schools reported more visits to museums, art galleries and the theatre than those in comparison schools; and
- pupils in comparison schools reported more involvement than pupils in PLC schools in the following out-of-school activities: ICT, reading/writing, arts and subjects not done in normal lesson time; they also reported more visits to a university.

In addition, pupils known to be eligible for Free School Meals reported more involvement in reading/writing activities and homework clubs than those not eligible; girls reported more involvement in arts activities than boys; and boys reported more involvement than girls in ICT activities and in subjects not done in normal lesson time.

In Year 11, the following statistically significant associations were found:

- pupils in PLC schools reported greater participation in ICT activities, homework clubs, and visits to museums, art galleries and the theatre, than those in comparison schools; and
- pupils in comparison schools reported a greater frequency of talks by visitors than pupils in PLC schools.[21]

In addition, pupils known to be eligible for Free School Meals reported greater involvement (than those not eligible) in ICT activities. Girls also reported more involvement in ICT activities, homework clubs and visits to museums, art galleries and the theatre than boys.

Thus, where statistically significant differences were identified, whilst in the Year 9 cohort, pupils in PLC schools reported less involvement in out-of-school activities, in the Year 11 cohort the reverse was true, with PLC pupils reporting greater involvement.

Pupils who had taken part in these activities were then asked whether they had 'liked', were 'unsure' or 'didn't like' the activities. Table 2 presents the findings for those pupils who reported liking the activities.

[21] Although 66 per cent of pupils in both PLC schools and comparison schools reported visitors giving talks, the multiple regression dependent variable comprised a scale (often, sometimes, once or never) and, controlling for sex and eligibility for FSM, the analysis indicated a significant difference between the responses of pupils in PLC schools and those in comparison schools.

Table 2. Percentage of pupils who enjoyed out-of-school activities

	Year 9 % of pupils		Year 11 % of pupils	
Liked this activity	PLC schools (N=246-1336)	Comparison schools (N=321-1268)	PLC schools (N=691-1763)	Comparison schools (N=375-826)
Sports activities	82	80	80	77
Outdoor or adventure activities	78	76	n/a	n/a
Using computers/ICT	77	75	79	75
Residential activities	76	71	n/a	n/a
Arts activities	64	65	69	72
Visits to museums, art galleries, theatre	56	56	63	64
Summer schools/ holiday programmes	55	50	59	59
Visits to a university	46	53	67	70
Subject not done in normal lesson time	41	44	47	49
Reading or writing	39	45	52	49
Visitors giving Talks	33	35	48	47
Homework clubs	33	34	49	50
Any other activities	58	59	55	50

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively in Year 11 as only those who participated in activities were asked if they liked these. In addition, not all respondents answered all questions. Two items were not asked of Year 11 pupils.

As can be seen from Table 2, some out-of-school activities were generally well liked by pupils. In particular sports activities were liked by around eight out of ten pupils; outdoor/adventure activities, residential activities and using computers/ICT were popular with at least seven out of ten pupils who had been involved in them. Arts activities, visits to a university, and visits to museums, art galleries and the theatre were reported as enjoyable by around six out of ten pupils.

In order to establish whether there were any statistically significant associations between attending a PLC school and enjoyment, a series of multiple regressions were carried out. It was found that in Year 9, pupils in PLC schools held more positive views in relation to residential activities than did pupils in comparison schools. In addition to this finding there were also two independent associations, with pupils who were not eligible for Free School Meals (compared with those not eligible) and girls (compared with boys) tending to hold more positive views about residential activities.

School experience and behaviour

One of the central ideas of the PLC pilot scheme is the notion that learning and education are not just about what takes place in a classroom environment. The kind of learning that the scheme tried to facilitate was however expected to 'feed back' into young people's experience and behaviour at school. In addition, one of the policy objectives was to promote inclusion and to break down barriers which prevent pupils from taking part in activities; thus, the experience or perception of being bullied or badly treated by other pupils may be regarded as one indicator of a lack of pupil inclusion. This section presents pupils' views about school and lessons, whether pupils reported that they were bullied, and self-reported levels of truancy.

Pupils were asked whether they agreed, were unsure or disagreed with the statements 'School work is worth doing' and 'Most of the time I like being at school'. Around seven out of ten pupils surveyed agreed that school work was worth doing (71 per cent and 65 per cent of pupils in PLC and comparison schools in Year 9; and 75 per cent and 73 per cent respectively in Year 11).[22] In Year 9, pupils in PLC schools more often agreed with this statement than those in comparison schools.

Agreeing that school is generally useful does not automatically imply that pupils enjoy school. However, over half the pupils surveyed reported that they liked being at school most of the time (55 per cent and 52 per cent of pupils in PLC and comparison schools in Year 9 and 57 per cent and 61 per cent respectively in Year 11).[23] In Year 11, there was a statistically significant association between attending a PLC school and liking to be at school – pupils in PLC schools showed less positive attitudes towards being at school than pupils in comparison schools; in addition, there was an independent association between attitudes and gender, with girls expressing more positive attitudes to being at school than boys.

Table 3 presents a more detailed picture of pupils' views about their lessons. Pupils were asked whether each statement applied to 'all lessons', 'most lessons, 'some lessons', 'hardly any lessons' or 'no lessons'; the table gives the percentage of pupils reporting that statements applied in all or most lessons.

[22] Sample sizes are 1735 and 1689 for pupils in PLC and comparison schools in Year 9 and 2255 and 1137 respectively in Year 11.

[23] Sample sizes are 1741and 1693 for pupils in PLC and comparison schools in Year 9; and 2254 and 1137 respectively for Year 11.

Table 3. Pupils' feelings about their lessons

	Year 9 % of pupils		Year 11 % of pupils	
In all or most lessons…	PLC schools (N=1708-1723)	Comparison schools (N=1656-1670)	PLC schools (N=2218-2250)	Comparison schools (N=1121-1127)
I work as hard as I can in school	81	80	77	79
I often count the minutes till a lesson ends	46	45	36	38
The work I do in lessons is interesting	41	39	40	43
I am bored in lessons	31	31	25	24
The work I do in lessons is a waste of time	11	14	9	8

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively for Year 11 as not all respondents answered all questions.

As can be seen from Table 3, around eight out of ten pupils reported that they worked as hard as they could in all or most of their lessons. It is noteworthy that whilst over three out of ten Year 9 pupils indicated that they were bored in the majority of their lessons, only around a quarter of Year 11 pupils felt that way. Statistically significant differences between pupils in PLC and comparison schools were absent for almost all of the items. However, in Year 11, there was a statistically significant association between attendance at a PLC school and finding lessons interesting, with pupils in comparison schools expressing more positive views.

Pupils were presented with a series of statements relating to their assessments of their behaviour and school experience; they were asked whether they 'often', 'sometimes' or 'never' behaved well at school; did their homework on time; or were bullied.

Just over half of the Year 9 pupils in both PLC and comparison schools described themselves as 'often' well behaved in school (53 per cent and 54 per cent respectively).[24] In Year 11, around seven out of ten pupils surveyed described themselves as 'often' well behaved (68 per cent in PLC and 72 per cent in comparison schools).[25] In Year 11, pupils in PLC schools described themselves as well behaved less frequently than those in comparison schools. There were also two independent associations, with pupils known to be eligible for Free School Meals (compared with those not eligible) and boys (compared with girls) less often reporting that they were well behaved.

[24] Sample sizes are 1764 and 1708 for pupils in PLC and comparison schools.
[25] Sample sizes are 2295 and 1155 for pupils in PLC and comparison schools.

Around four out of ten pupils reported that they 'often' did their homework on time (39 per cent and 46 per cent of pupils in PLC and comparison schools in Year 9; and 38 per cent and 43 per cent respectively in Year 11).[26] In both year groups there was a statistically significant association between attendance at a PLC school and whether pupils 'often', 'sometimes' or 'never' did their homework on time, with pupils in PLC schools less frequently completing their homework on time. Independent associations were also found with boys less often than girls completing their homework on time. In Year 9, pupils known to be eligible for Free School Meals also less often completed their homework on time than pupils not eligible.

Around one in five Year 9 pupils revealed having 'often' or 'sometimes' been bullied at school (23 per cent of pupils in PLC and 28 per cent of pupils in comparison schools).[27] In Year 11, this proportion was smaller, with 14 per cent of pupils in PLC and 16 per cent of pupils in comparison schools reporting that they had experienced bullying.[28] In both year groups there was a statistically significant association between attendance at a PLC school and bullying, with fewer pupils in these schools indicating that they had experienced bullying. Also, in terms of independent associations, girls in Year 11 reported less bullying than did boys. Whilst this may be regarded as one indicator of pupils inclusion, taken in isolation it would not be justified to suggest that differences in reported levels of bullying were related to the PLC pilot scheme.

Pupils were asked whether they had ever played truant. They were presented with a series of options ('never', 'for the odd day or lesson', 'for particular days or lessons', 'for several days at a time' and 'for weeks at a time'). In Year 9, around eight out of ten pupils reported that they had not played truant from school in the current year (81 per cent of pupils in PLC and 78 per cent of pupils in comparison schools), whilst in Year 11 around seven out of ten pupils reported that they had not played truant from school in the current year (72 per cent and 74 per cent in PLC and comparison schools respectively).[29] There was a statistically significant association between attending a PLC school and truancy in Year 9, with pupils in PLC schools reporting less truancy than those in comparison schools. In relation to this finding there was also an independent association with Free School Meals eligibility, with pupils known to be eligible for Free School Meals having higher self-reported truancy rates than those not eligible.

In summary, compared with pupils in comparison schools and controlling for sex and known eligibility for Free School Meals, pupils in PLC schools reported less bullying and less truancy. In Year 9 they tended to express more positive attitudes towards school than did pupils in comparison schools, whilst the reverse was true for pupils in Year 11. It is important to stress, however, that the analyses identify statistically significant associations, they do not establish causal links.

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[26] Sample sizes are 1735 and 1679 for pupils in PLC and comparison schools in Year 9 and 2242 and 1131 respectively for Year 11.

[27] Sample sizes are 1704 and 1664 for pupils in PLC and comparison schools.

[28] Sample sizes are 2226 and 1123 for pupils in PLC and comparison schools.

[29] Sample sizes are 1570 and 1481 for pupils in PLC and comparison schools in Year 9; and 2006 and 987 respectively for Year 11.

Pupils' views of themselves

Pupils were asked a number of questions relating to their self-concept. They were asked whether they agreed, were unsure or disagreed with a series of statements about themselves as learners, Table 4 below presents percentages of pupils who agreed with each statement.

Table 4. Percentage of pupils who agreed with statements about their learning

	Year 9 % pupils		Year 11 % pupils	
Statement	PLC schools (N=1755-1769)	Comparison schools (N=1701-1714)	PLC schools (N=2266-2286)	Comparison schools (N=1146-1155)
I enjoy working in a team	81	80	77	80
I would like to do more practical work at school	77	80	73	68
I am good at using computers to look for information	76	71	79	77
I am good at working on my own	72	66	78	77
I am good at organising my own work	55	54	57	54
I am good at using books to look for information	55	55	68	68
I am confident when telling someone else about my ideas	53	53	63	60
I am good at solving problems	51	49	57	56
I find it easy to set targets for myself	38	38	40	38
I would like more help with my homework	28	27	42	38

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively in Year 11 as not all respondents answered all questions.

As can be seen from Table 4, pupils were in general positive and confident about their skills as learners. Over seven out of ten indicated that they enjoyed working in a team; would like to do more practical work at school; were good at using computers to look for information; and at working on their own. In Year 11, over two-thirds of pupils also reported being good at using books to look for information.

We examined whether there were statistically significant associations between being in a PLC school and learner confidence. In Year 9, pupils in PLC schools tended to agree more than those in comparison schools that they were 'good at using computers to look for information' and that they were 'good at working on their own'; there were also two independent associations: pupils not eligible for Free School Meals showed more agreement with these two statements than those eligible; boys also tended to express more agreement with both statements than girls.

In Year 11, pupils in PLC schools expressed a greater preference for doing more practical work at school, whilst pupils in comparison schools expressed more positive views about working in a team. In terms of independent associations, boys were more positive than girls in relation to wanting more practical work.

Staying with the theme of confidence, Table 5 presents a series of statements often used as more general indicators of self-esteem (Reid, 1982; Francis, 1998; Davies and Brember, 1999). Pupils were asked whether they agreed, were unsure or disagreed with each statement.

Table 5. Percentage of pupils who agreed with statements about themselves

	Year 9 % of pupils		**Year 11 % of pupils**	
Statement	PLC schools (N=1743-1760)	Comparison schools (N=1691-1700)	PLC schools (N=2249-2263)	Comparison schools (N=1136-1144)
I have a good time at home	80	79	77	74
I ask the teacher if I don't understand something	73	68	74	70
If I have something to say, I usually say it	60	59	64	63
I am popular with people my own age	54	55	65	63
There are lots of things about myself I would change	42	42	39	43
I find it very hard to talk to the class	24	25	21	22
Things are all mixed up in my life	22	24	28	28
I often feel lonely at school	7	9	7	7

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively for Year 11 as not all respondents answered all questions.

As can be seen from Table 5, around seven out of ten of the pupils reported that they had a good time at home and that they asked the teacher if they did not understand something. At the other end of the spectrum, around four out of ten pupils agreed

with the statement ‘There are lots of things about myself I would change’ and around a quarter of pupils reported that they found it ‘hard to talk to the class’ and felt that things were ‘all mixed up’ in their lives.

In order to examine whether or not there were any statistically significant associations between these views and attending a PLC school, a series of multiple regressions were carried out. It was found that Year 9 pupils in comparison schools tended to agree with the statement ‘I often feel lonely at school’ more than pupils in PLC schools; there was also an independent association with eligibility for Free School Meals, with pupils who were known to be eligible for Free School Meals showing a greater tendency to agree with this statement than those not eligible.

Year 11 pupils in PLC schools tended to agree with the statement ‘I ask the teacher if I don’t understand something’ more than pupils in comparison schools. There were also two independent statistically significant associations in relation to this aspect of pupils’ learning: girls showed a greater tendency to agree with this statement than boys, and those known to be eligible for Free School Meals showed a greater tendency to agree than those not eligible.

In summary, several questionnaire items related to self-esteem and self-confidence as learners. For most items there were no statistically significant differences between the responses of pupils in PLC schools and comparison schools. However, where differences were identified, they tended to indicate more positive responses from pupils in PLC schools.

Aspirations for the future

Pupils were asked when they thought they might leave full-time education; their responses are presented in Table 6.

Table 6. Education and pupils' future plans

	Year 9 % pupils		Year 11 % pupils	
I expect to leave full-time education…	PLC schools (N=1650)	Comparison schools (N=1597)	PLC schools (N=2152)	Comparison schools (N=1087)
At the end of Year 11	16	17	12	12
At age 17, after one year in college or in the 6th form	8	7	5	5
At age 18, after two years in college or in 6th form	13	14	22	20
In my early 20s after taking a university or other higher education course	31	29	38	41
Not sure yet	33	34	23	22

Sample sizes are less than 1793 and 1745 for pupils in PLC schools and pupils in comparison schools in Year 9 and 2348 and 1174 respectively in Year 11 as not all respondents answered the question. Percentages do not always equal 100 because of rounding.

As can be seen from Table 6, in both year groups small minorities of pupils expected to be leaving full-time education at the end of Year 11. At the other end of the spectrum, just under a third of Year 9 pupils and around four out of ten Year 11 pupils surveyed anticipated progressing into some form of higher education. In terms of plans for their future education, there were no statistically significant differences between pupils in PLC and comparison schools.

When asked about their parents' views on education, over three-quarters of pupils surveyed agreed with the statement that their parents wanted them to stay in education 'as long as possible' (78 per cent and 75 per cent of pupils in PLC and comparison schools in Year 9 and 81 per cent and 76 per cent respectively in Year 11).[30] Year 11 pupils in PLC schools tended to agree with this statement more than pupils in comparison schools.

[30] Sample sizes are 1720 and 1669 for pupils in PLC and comparison schools in Year 9, and 2235 and 1123 respectively for Year 11.

3.3 Statistical analyses of national pupil-level data

Two sets of quantitative analyses were carried out and these are reported in the two sections that follow.[31] The two methods used differ in a variety of ways and also differ in some of their findings. Some of the main characteristics of the two approaches are therefore summarised below.

The first set of analyses use multi-level modelling. This technique is a form of multiple regression designed to take account of the fact that pupils are clustered within schools and within LEAs. In this instance the analysis examines whether, controlling for other factors (including, for example, pupils' prior attainment), pupils attending schools receiving PLC funds achieved significantly different test scores from pupils in other schools.

Test results for 2001, 2002 and 2003 are examined for the analysis of progress to KS3 and results for 2002 and 2003 only for progress to GCSE. For both sets of analyses the models include a rich set of control variables derived from PLASC data for those years. Owing to the rich set of control variables the final model reported for most of the outcome variables accounts for more than 85 per cent of the variation between schools. All schools in England are included in this analysis.

The second set of analyses use a 'difference-in-differences' approach. The technique is again a form of multiple regression but addresses whether the difference between attainment in schools receiving PLC funds and attainment in other schools is greater in 2003 than it was in 2001. The analysis reported focuses only on attainment at KS3. The analysis uses a slightly less rich array of control variables than the multi-level modelling. However, in addition, the analysis includes a separate variable for each individual school included in the analysis which, in effect, takes account of any differences between schools that may affect attainment and that persisted from 2001 to 2003 but that are not taken into account by the control variables (school ethos might be such an example).

For this analysis the comparison group is schools in Phase 1 or Phase 2 Excellence in Cities areas but not in receipt of PLC funding. Thus, whereas the multi-level modelling analysis compares PLC schools with all schools in England, the difference-in-differences analysis compares performance in PLC schools with that in other urban schools.

[31] See also Kendall *et al*. (2005) for statistical analyses relating to the evaluation of Excellence in Cities.

Multi-level modelling

Summary

The multi-level modelling analysis examined the attainment of pupils nationally, controlling for a wide range of characteristics including prior attainment.

Some statistically significant and *negative* relationships were identified between attending a PLC school and Key Stage 3 test results.

Key Stage 2 test scores improved more rapidly from 2001 to 2003 than did Key Stage 3 test scores. Thus against this backdrop of relative lack of improvement, the decline in pupils' progress from 2001 to 2003 was more marked in PLC schools than in non-PLC schools (0.7 of a month less progress than expected in Mathematics in 2002, and in 2003 0.5 of a month less progress than expected in KS3 average score and 1.1 of a month less in Science).

The value-added analysis of GCSE examinations found some positive associations between attending a PLC school and some of the outcome measures examined.

Focusing on progress made from the end of KS3 to GCSE (which coincides with the timing of the PLC pilot scheme), the odds of pupils achieving five or more GCSE passes at grades A* to C in 2003 were significantly improved for those attending schools participating in the pilot scheme (by 21 per cent when considering only the 2003 GCSE results dataset and by 17 per cent when examining the combined 2002 and 2003 dataset).

Introduction

In this section, key findings from an analysis of the national pupil-level (or value-added) dataset are presented using multi-level modelling (MLM). Pupils' academic progress at the end of Year 9 and Year 11 are examined.

Pupil-level analysis from KS2 to KS3

The following analysis is based on the Key Stage 2 to Key Stage 3 national value-added results for pupils who took Key Stage 3 national tests in 2001, 2002 and 2003.

The analysis involved two datasets:

- 2003 KS3 outcomes only; and
- 2001, 2002 and 2003 KS3 outcomes.

For both datasets, full prior attainment and PLASC data were available. The inclusion of PLASC data allowed the model to control for a range of pupil background factors (such as ethnicity, known eligibility for Free School Meals and special educational needs status). In addition, the second dataset allowed for the investigation of changes between 2001, 2002 and 2003. Analysis was carried out using multilevel modelling with the following outcome measures as dependent variables, measured in TGAT[32] months of progress:

[32] The TGAT (Task Group on Assessment and Testing) months of progress measure is based on the notion that an average pupil makes half a level progress each year and is computed using the following relationship: 1 level = 6 points = 24 months.

- KS3 average point score;
- KS3 Mathematics point score;
- KS3 English point score; and
- KS3 Science point score.

Results for the first analysis that considered 2003 outcomes showed no significant differences in relation to schools that were and were not part of the PLC pilot scheme. Analyses using the combined 2001, 2002 and 2003 dataset, however, showed a statistically significant and *negative* relationship between participation in the pilot scheme and pupil progress in Mathematics in 2002. In addition, it showed a statistically significant negative relationship between being at a PLC school and KS3 average results and also Science results for 2003. Overall, pupils who took their KS3 national tests in 2002 and 2003 made less progress during KS3 than pupils who completed the Key Stage in 2001. This applied to the three individual subject scores (Mathematics, English and Science) as well as to the average point score. This decline in value-added terms is explained by a rise in KS2 results for the later cohort without a corresponding rise in KS3 scores. Against this backdrop of a relative lack of improvement from 2001 to 2002 and to 2003, pupils in schools that were part of the PLC pilot scheme in addition made progress that was 0.7 of a month *less* than expected in Mathematics in 2002 and in 2003 0.5 of a month less progress than would be expected in pupils KS3 average score and 1.1 months less progress in Science. In short, with average point score at KS3 as the dependent variable, where statistically significant associations[33] were identified, the decline in pupil progress from 2001 to 2003 was more marked in PLC schools than in non-PLC schools.

Value-added analysis of GCSE examinations

The following presents findings from an analysis of the GCSE national value-added dataset for pupils who took GCSE examinations in 2002 and 2003. Two datasets were examined relating to progress from KS2 to GCSE:

- 2003 GCSE outcomes only; and
- 2002 and 2003 outcomes.

Analysis was carried out using multilevel modelling with the following outcome measures as dependent variables, measured in GCSE equivalent point scores:

- 'best 8' GCSE total score;
- total GCSE score;
- average GCSE score;
- Mathematics GCSE score;
- English GCSE score;
- average GCSE Science score; and
- achieving five or more GCSE passes at grades A* to C.

[33] At the 0.05 level or beyond.

Pupils' progress from KS2 to GCSE

Results for the 2003 outcomes showed statistically significant and positive relationships between participation in the PLC pilot scheme and pupil progress on six of the seven outcomes of interest. The coefficients for five of the outcome measures, expressed in terms of additional GCSE points gained, are shown in Table 7.

Table 7. Additional GCSE points associated with attending a PLC school

Best 8 GCSE total score	Total GCSE score	Average GCSE score	Maths GCSE score	English GCSE score	Average Science score
1.0	1.3	0.1	0.2	NS	0.04

NS is not significant

For the sixth outcome measure, achieving five or more GCSE passes at grades A* to C, pupils either achieve five such passes or do not. Consequently the gain associated with attending a school participating in the PLC pilot scheme cannot be expressed in terms of GCSE points. Controlling for other factors, it is estimated that the odds of achieving five GCSEs at grades A* to C were 28 per cent greater at schools receiving PLC funds.

When considering the combined 2002 and 2003 dataset, two statistically significant results were found for participation in the PLC pilot scheme:

- for Mathematics GCSE results in 2003 (an additional 0.1 of a GCSE point); and
- for the likelihood of achieving five or more GCSE passes at grades A* to C (an improvement of 12 per cent in the odds of achieving this in 2003).

Thus, when examining progress from Key Stage 2 to GCSE we see a relatively positive picture for pupils attending schools receiving PLC funds. However, it must be remembered that pupils taking their GCSE examinations in 2002 and 2003 completed KS3 *before* their schools began to participate in the PLC pilot scheme. It is therefore important to examine whether they made greater progress than would be expected during KS4 – that is, during the years of the PLC pilot scheme.

Pupils' progress from KS3 to GCSE

For the 2003 GCSE results dataset, unlike the 2003 results for value-added from KS2 to GCSE, far fewer statistically significant relationships were detected between participation in the PLC pilot scheme and value added from KS3 to GCSE. Thus the coefficients for best 8 GCSEs points score, total GCSE points score, average GCSE point score, Mathematics GCSE and average Science GCSE point score all fail to reach the level for statistical significance. However, a significant positive coefficient was identified for achieving five or more GCSE passes at grades A* to C. That is, controlling for other factors, the odds of pupils achieving five such passes were 21 per cent greater for pupils attending schools receiving PLC funding.

When considering the combined 2002 and 2003 dataset, statistically significant coefficients were once again only found for participation in the PLC pilot scheme for

the likelihood of achieving five or more GCSE passes at grades A* to C (an improvement of 17 per cent in the odds of achieving this in 2003).

Thus, when examining progress from KS3 to GCSE we only see a statistically significant relationship between participation in the PLC pilot scheme and the odds of achieving five or more GCSEs. Set alongside the more positive findings relating to progress from KS2 to GCSE it is reasonable to conclude that at least some of the enhanced progress made by pupils in schools receiving PLC funds from KS2 to GCSE took place *before* the PLC pilot scheme was introduced. Nevertheless, it is worth restating that the KS3 to GCSE analysis indicates that the odds of pupils achieving five or more GCSE passes at grades A* to C were significantly improved for those attending schools participating in the pilot scheme.

Difference-in-differences and economic evaluation

Summary

The economic evaluation of the PLC pilot scheme involved an analysis of the scheme's impact on attainment in Mathematics and English at the end of KS3 and on a measure of attendance at school. A difference-in-differences analysis compared outcomes for pupils in PLC schools with those in a comparison group of schools before (2001) and after the pilot scheme (2003).

Two groups of comparison schools were used: non-PLC schools in EiC Phase 1 areas; and non-PLC schools in EiC Phase 1 and Phase 2 areas. Results were very similar for the two comparison groups.

The most detailed specification (with controls for prior attainment, some pupil characteristics and a broad range of school characteristics) shows that the proportion of pupils achieving level 5 or higher in Mathematics was 2.1 percentage points higher in PLC schools. There was also a (slightly smaller) impact on attaining level 4 or above. No statistically significant results were found in relation to attainment in English.

The effect of the PLC pilot scheme on the average level attained in Mathematics was also examined. It was found that involvement in the scheme increased the number of pupils moving up a level in PLC schools by 6.4 percentage points. There was no effect on the average level attained in English.

When examining school-level absences, some evidence of an effect of PLCs is found, with the pilot scheme reducing the percentage of half days missed by about half a percentage point.

A cost-benefit analysis which seeks to predict the impact of the effects described above on labour market outcomes in later life was carried out. The analysis necessitates a series of strong assumptions and thus the results have to be viewed with some care. It is suggested that the pilot scheme is potentially cost-effective, which in turn appears to be driven by the low cost of the scheme.

Introduction

The economic evaluation of Pupil Learning Credits pilot scheme involves an analysis of whether the scheme had any impact on attainment at the end of Key Stage 3 in English or Mathematics and on a measure of attendance at school (see McNally, 2005). The possible impact of any resulting increase in attainment on subsequent labour market earnings is also being considered. This cost-benefit analysis is necessarily crude as we do not know the relationship between attainment at Key Stage 3 (or school attendance) and outcomes in the labour market. Furthermore, even if such information were available, the children who benefit from PLCs (and related policies such as Excellence in Cities) are in relatively disadvantaged areas and hence may be affected differently by an increase in attainment at this time. Ideally, to find out whether any PLC effect on attainment has an enduring impact, which also affects labour market outcomes, one would want to follow these pupils over time.

However, the first part of the analysis, which is based on a difference-in-differences analysis, is built on a firm foundation. This involves comparing the outcomes of

pupils in PLC schools with those of pupils in a comparison group of schools before and after the PLC pilot scheme was introduced, while also controlling for prior pupil attainment, gender and a broad range of school characteristics.

Outcomes in 2003 are compared to outcomes in the pre-pilot year, 2001.[34] We use two comparison groups: non-PLC schools in areas designated as EiC Phase 1; and non-PLC schools in areas designated as EiC Phase 1 or Phase 2. Results are very similar using either of the two comparison groups.

The outcome variables of primary interest are as follows:

- whether the pupil attains level 5 or above at Key Stage 3 (in Mathematics and English respectively); [35]
- a measure of school attendance.

The attendance variable is only available at school-level and is taken from the DfES School and College Achievement and Attainment Tables (formerly performance tables). The attainment data used comes from the National Pupil Dataset.[36]

Pupil attainment and attendance

The results suggest that the PLC pilot scheme has had an effect on Mathematics, though not on English. The most detailed specification shows PLCs to increase the number of pupils attaining level 5 or above by 2.1 percentage points.[37] The pilot scheme has had about the same impact on boys and girls. The impact of the scheme is not confined to bringing marginal students above the government target of level 5. We can see this by considering whether the PLC pilot scheme had increased the probability of attaining level 4 or above. There is a similar (though slightly smaller) impact.

We also consider the effect of the PLC pilot scheme on the average level attained in Mathematics. This involves a strong assumption as it treats a move between each successive level as equivalent. However, using this approach, the estimated coefficient of 0.064 can be interpreted in the following way: the PLC pilot scheme increased the number of pupils moving up a level in PLC schools by 6.4 percentage points. One can also interpret this coefficient in terms of standard deviations (unlike

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[34] School years refer to the end of the academic year, when tests take place. For example, 2003 refers to the academic year 2002/03.

[35] Level 5 is the expected standard for pupils at the end of Key Stage 3 (age 14) and forms the basis of government targets.

[36] For further information about the data used in the analysis and the methodology, see McNally (2005).

[37] Specifications include gender, prior attainment at age 11, a year dummy, school fixed effects and a range of variables relevant to the pupil's secondary school and primary school: number of pupils; pupil-teacher ratio; percentage of pupils with special educational needs (with/without statement); percentage of pupils eligible for Free School Meals; percentage of non-white pupils; average performance of primary school (in terms of absences; attainment) at the time when it was attended by the pupil; average performance of secondary school in the pre-policy period (in terms of absences; attainment); dummies for the following: all boys school; all girls school; religious school; sixth form (secondary); grammar school (secondary); modern school (secondary); primary school type (infant; independent; special; other); missing value dummies.

when using the discrete measures). In this case, the effect of the PLC pilot scheme may be interpreted as generating an increase in attainment of 0.036 standard deviations.[38] There is no statistically significant effect of PLCs on the average level in English. We use these results for the cost-benefit analysis.

Schools are allocated a different amount of pupil expenditure depending on the percentage of children in the school known to be eligible for Free School Meals. There are two categories. Schools with over 50 per cent of pupils known to be eligible for Free School Meals obtain about £360 per Key Stage 3 pupil, whereas other PLC schools obtain about £240 per pupil. Hence, it is of interest to consider the effect of the PLC pilot scheme according to whether the school is receiving the larger or smaller per pupil expenditure. However, it is difficult to say whether heterogeneity in the effect of the pilot scheme is due to the effect of the higher expenditure or the effect of a given amount of expenditure on schools with different characteristics. On average, there is only a slightly larger impact of the PLC pilot scheme on schools within the high Free School Meals/high expenditure category. However, for girls, there is a statistically different impact with girls in the 'high Free School Meals/high expenditure' category being helped to a greater extent by the pilot scheme.

It is also of interest to consider whether the pilot scheme had any impact on increasing pupil attendance at school. This is measured by data on school-level absences, which are collected in the DfES Achievement and Attainment Tables. We find some evidence of an effect of PLCs on absences, with the pilot scheme reducing the percentage of half days missed by about half a percentage point.

Thus, we have seen that the impact of PLCs was to raise attainment in Mathematics (though not in English) and to reduce absences (or equivalently, increase pupil attendance). However, one caveat is that PLC schools may have been in receipt of higher EiC funding compared to other EiC schools (because they are more disadvantaged). Hence it is possible that the effects which are apparently attributable to the PLC pilot scheme are also a result of higher expenditure which has been allocated under the EiC policy. Although the PLC pilot scheme was introduced after the EiC policy, it is possible for policies to have a different effect over time – and in this case, a higher effect as schools adapt to the policy. Thus, one might attribute the effects in this analysis to the PLC pilot scheme, or more conservatively, to some combination of the PLC and EiC policies.

Cost-benefit analysis

To do an accurate cost-benefit analysis, one would need to know how effects such as the ones described above translate to a range of later outcomes – for example, further education, wages and crime. Ideally, one would want to follow the pupils affected by these particular initiatives (and comparison groups) as they progress through school and into the labour market. There are many difficulties. For example, due to the fairly recent introduction of Key Stage tests, there is no direct estimate of the impact they have on future wages.

[38] This is computed by dividing the coefficient of .064 by the standard deviation of the outcome variable (1.77).

As a result of the limited information available at this time, it is only possible to do a very crude cost-benefit analysis under strong assumptions.[39] However, this gives a rough idea of whether we should think of this policy as potentially cost-effective. Hence, we adopt the following procedure:[40] to quantify the benefit of the estimated improvement in monetary terms, we take a one level improvement to correspond to two years of schooling (following the national curriculum). To make this calculation, we use the coefficients showing the effect of the PLC pilot scheme on the average level attained in Mathematics and English. Our results only suggest a positive effect of the pilot scheme in the former case.

Benefits are thus translated into corresponding years of schooling (zero for English and .064 x 2 for Mathematics). The overall benefit is then multiplied by the wage return to an additional year of schooling (assumed to be 8 per cent) and applied to a measure of wages from the age of 21 to 64. We use the Family Resources Survey to obtain a wage profile.[41] This enables an estimate of the total increase in wages due to the higher attainment observed in PLC schools.

The costs correspond to PLC spending per pupil for each of the two years in which pupils were exposed to the pilot scheme. We approximate this as £288 per pupil per year.[42] In order to estimate the rate of return to PLCs, we compare the total discounted costs and benefits from the start of the pilot scheme until retirement from the labour market. Comparing the discounted additional earnings to the discounted costs gives an estimated annual rate of return from investment in the pilot scheme of about 9 per cent.[43]

This estimate is based on very strong assumptions and hence should not be taken too seriously. However, it suggests the PLC pilot scheme is potentially cost-effective, which in turn appears to be driven by the low cost of the scheme. The important question for future research is whether the educational benefits identified in this research are meaningful and genuinely translate into higher educational attainment in the future and subsequently into higher returns in the labour market. Another important question is the consequences of higher pupil attendance at school in terms of current and future outcomes.

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39 Cost Benefit Analysis has been carried out on the basis only of the difference-in-differences results which relate to attainment Key Stage 3. Key Stage 3 was the focus of the PLC policy.

40 The method and data is identical to that used in the economic evaluation of the Excellence in Cities Primary Extension, described in Emmerson *et al.* (2004).

41 Our analysis assumes that wages increase by two per cent per year in real terms. Obviously, it is likely that wage profiles in the future will differ from those that currently exist. This may be particularly true for women if employment rates continue to increase.

42 This is based on the fact that funding per pupil is £360 in PLC schools where over 50 per cent of students are eligible for Free School Meals and £240 in other PLC schools. The latter schools constitute about 40 per cent of all PLC schools (360 x .4) + (240 x .6) = 288.

43 The rate of return of the policy (R) equalises the discounted total cost to the discounted total benefit. Denoting the cost per pupil in year t as Ct, the average increase in levels as λ, the return in terms of wages of an extra year's education as r and expected wages in a given year by wt, R solves:

$$\sum_{t=0}^{2} \frac{C_t}{(1+R)^t} = \sum_{12}^{55} \frac{2\lambda r w_t}{(1+R)^t}$$

For more details see Krueger and Whitmore (1999).

4. SUMMARY AND POLICY IMPLICATIONS

The evaluation of the Pupil Learning Credits pilot scheme involved a number of different strands, using both qualitative and quantitative methods. This report draws together findings from a telephone survey of headteachers; case studies of a small number of schools; surveys to pupils in PLC and comparison schools; and statistical and econometric analyses of national pupil-level data.

The PLC pilot scheme was popular with headteachers who were interviewed. They appreciated the flexibility and freedom the scheme afforded schools in making their own spending and targeting decisions. Consultation about what activities should be offered and to whom took place within the senior management team and, to a lesser extent, with other teachers. Consultation with parents was not widespread and indeed considered by some interviewees in the case study schools as neither practical nor particularly helpful. Targeting of individual pupils was not common, although schools targeted particular groups of pupils (such as those eligible for Free School Meals) for specific activities or subsidies. Schools in receipt of PLC funds had at least twice the national level of known Free School Meals eligibility and were thus by definition a group of particularly deprived schools. This may have contributed to a sense among school staff that the best way to deliver benefits to disadvantaged pupils was by focusing on school-wide activities. Headteachers interviewed by telephone and case study interviewees explained and justified their use of PLC resources in the context of their school's specific circumstances. This school-specific use of funds varied widely between schools and this presents problems of interpretation for the evaluation. Further, although the scheme's minimal administrative demands were welcomed by interviewees, it may have contributed to a lack of comprehensive planning for PLCs in some schools.

Pupil survey responses indicated that Year 11 pupils in PLC schools reported involvement in a wider set of activities than pupils in comparison schools; although this was not the case in Year 9, with pupils in comparison schools reporting participating in more activities. In terms of attitudes towards school, school experience and behaviour there were no systematic differences between pupils in PLC and comparison schools. However, in both year groups young people in PLC schools were less likely to report being bullied than pupils in comparison schools. In terms of parental attitudes towards education, pupils in PLC schools in Year 11 reported greater parental support of staying in full-time education than pupils in comparison schools. The survey findings also suggest that disadvantaged pupils made good use of the extra-curricular opportunities offered to them.

Two sets of quantitative analyses of attainment data were carried out. The multi-level modelling using data for all schools in England indicated that, including a rich set of control variables including prior attainment at KS2, pupils in PLC schools performed less well at KS3 than did pupils in non-PLC schools. This finding related to Mathematics attainment in 2002, Science attainment in 2003 and also the average KS3 score in 2003. However, taking KS2 prior attainment into account, GCSE scores were more impressive in PLC schools than non-PLC schools although most of the gain appears to have been made prior to the launch of the PLC policy. Nevertheless, restricting the analysis to progress from KS3 to GCSE in 2003 (that is, corresponding

with the years in which the PLC pilot was in operation) pupils in PLC schools were significantly more likely to achieve five or more GCSE passes at grades A* to C than pupils in non-PLC schools.

The difference-in-differences analysis, which was concerned with progress from KS2 to KS3, compared attainment in PLC schools with attainment in other urban schools before the policy was introduced with differences in performance after the policy had operated for two years. This analysis indicated that attainment in PLC schools prior to the launch of the policy, and controlling for a range of factors including prior attainment, fell short of that in non-PLC urban schools. However, the difference-in-differences analysis indicated that the gap in attainment between pupils in PLC and non-PLC schools narrowed from 2001 to 2003. This suggests that the PLC policy had a positive effect. An attempt to relate the costs of the pilot scheme to these benefits concluded that the scheme was cost effective although this was based on some strong assumptions.

The difference-in-differences analysis also suggested that the PLC policy led to a reduction in absences of about one half of a percentage point.

Findings relating to KS3 Mathematics attainment differ between the two methods. The multi-level modelling suggests that, in 2002, pupils in PLC schools performed less well in Mathematics KS3 tests than pupils in other schools. In contrast, the difference-in-differences analysis suggests that participation in the PLC policy was associated with *higher* levels of attainment in Mathematics in 2003. The difference-in-differences analysis also however indicates that pupils in PLC schools tended to achieve lower scores in the pre-policy period. Thus one might conclude that the analyses, taken together, suggest that pupils attending the most disadvantaged urban schools achieve lower Mathematics scores than their counterparts elsewhere but that during the period in which the PLC policy was in effect that gap was narrowed. In addition it is important to note that the different types of analysis reported in this report involved different comparison groups and different control variables.

The size of changes in outcome variables associated with the individual government policy being evaluated and also the sensitivity of those changes to the analytical methods used underline the need for very careful selection of evaluation methods. In addition, given the variation in how schools deployed their PLC funding there may be a case for, in future, setting out to evaluate specified *activities* as well as evaluating *policies* or *initiatives*. That is, while it is clearly important for government to assess the impact of the policies it initiates, for the purpose of policy *formulation* it would perhaps be valuable to evaluate the *activities* that may give rise to changes in outcomes. This may be particularly pertinent when schools are given even greater freedom over the deployment of their resources.

In terms of wider policy considerations emerging from the evaluation the delegation of spending decisions to school-level was welcomed by headteachers. They were confident that schools were best placed to decide how to use resources since they have the most knowledge and understanding of their pupils and of the particular contextual factors that encourage or inhibit their pupils' learning. However, some headteachers would have welcomed more guidance. Nevertheless, if the guidance given does not accord with a school's overall philosophy it may be not be adhered to.

In particular, the PLC pilot scheme was intended to target resources on individual pupils, much as vouchers do; however, schemes that are targeted at individual pupils can be seen as problematic at school-level where practitioners are often very concerned not to appear to single out particular pupils. Evidence from the telephone survey and the case studies suggests that many schools employed PLC resources in such a way as to benefit all pupils in some way. This school-level 'subversion' of targeted initiatives like the Pupil Learning Credits pilot scheme may have to be expected and indeed may be justified from a practitioner's perspective.

It is also likely that when there is a pressing need to respond to other government policies, schemes such as the PLC pilot scheme may be used in unintended ways to meet other objectives. Thus, the PLC pilot scheme was intended to focus on pupils in Key Stage 3. A significant number of schools however, chose also to focus on pupils in Key Stage 4. This is perhaps unsurprising as secondary schools currently operate in a competitive climate; by concentrating their effort on enhancing pupils' performance at Key Stage 4 they may well be seeking to improve their results in the highest profile performance indicator, five or more GCSE passes at grades A* to C.

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ANNEX A STATISTICAL MODELLING: BACKGROUND VARIABLES

Multilevel modelling analyses reported in Section 3.3 included the following pupil- and school-level variables:

Pupil-level:

Prior attainment at the end of Key Stage 2 or Key Stage 3
Pupils in the same school since Year 7
Sex
Age
Eligible for FSM
First language English
Special educational needs
Ethnic background

School-level:

Percentage of pupils eligible for FSM
School size
Boys only school
Girls only school
Religious school
School with sixth form
Grammar school
EiC Phase
PLC school
Specialist school
Beacon school
School in EiC Action Zone

ANNEX B CHARACTERISTICS OF PLC SURVEY AND OTHER SCHOOLS

Characteristics [mean (standard deviation)] of the Year 9 PLC survey schools compared with those of other PLC schools

	Number on roll	% eligible for FSM	% with Special Educational Needs (SEN)	% with SEN but without a statement	% achieving 5 or more A*-C grade GCSEs	% achieving 5 or more A*-G grade GCSEs	Authorised absence	Unauthorised absence
Survey schools (N=14)	892 (323)	46 (12)	3 (2)	28 (13)	33 (15)	85 (10)	9 (2)	2 (2)
Non-survey PLC schools (N=237 to 242)	908 (324)	46 (12)	3 (2)	26 (11)	31 (13)	84 (10)	9 (3)	2 (2)

Characteristics [mean (standard deviation)] of the Year 11 PLC survey schools compared with those of other PLC schools

	Number on roll	% eligible for FSM	% with Special Educational Needs (SEN)	% with SEN but without a statement	% achieving 5 or more A*-C grade GCSEs	% achieving 5 or more A*-G grade GCSEs	Authorised absence (% half days missed)	Unauthorised absence (% half days missed)
Year 11 Survey schools (N=23)	906 (325)	46 (11)	3 (1)	25 (12)	33 (11)	86 (7)	9 (3)	2 (1)
Non-survey PLC schools (N=233)	908 (324)	46 (12)	3 (2)	26 (11)	31 (13)	84 (10)	9 (2)	2 (2)

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