

The Effect of Pupil Absenteeism on Literacy and Numeracy in the Primary School

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ABSTRACT Although school psychologists are involved in dealing with the problem of pupil absenteeism at both the individual child and whole school level, one of the possible reasons for their involvement, namely the belief that significant absence from school has an effect on attainments, is actually founded on weak evidence. The literature review presented in this article revealed that, in order to determine the effect of absence on attainments, no satisfactory study had hitherto been conducted in which attainments had been measured before and after a period of absence. However, the results of longitudinal research partially conducted by the present author, reported in this article, do show that absence from school has a significant effect on primary school attainments. In particular, it was found that an absence of half a year between the ages of 7- and 11-years-of-age resulted in a reduction of 0.7 of a year and 1 year in reading and mathematics test scores respectively. The article ends with a consideration of the kind of research which still needs to be conducted in order to provide school psychologists with the information they need to deal successfully with pupil absenteeism problems.

KEY WORDS: attainments; primary school; pupil absenteeism; school psychologists

Introduction

Pupil absenteeism refers here to absence from school for both justified and unjustified reasons. It therefore covers all forms of absence and not just truancy and school phobia/refusal on which there is already a considerable body of confusing literature. It is confusing because, as revealed to varying extents in valuable reviews by Berg (1992), Elliott (1999), Kearney (2003), King and Bernstein (2001), Lauchlan (2003) and Lyon and Cotler (2007), for both truancy and school phobia/refusal there is limited agreement about terminology, identification, prevalence, effects, causes and intervention. The advantage of the term pupil

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absenteeism is that it does not carry with it various additional connotations, e.g. that the 'problem' lies with the child, as implied by the labels truancy and school phobia, or with the parents in the case of the label parentally condoned absence.

From the number of articles on pupil absenteeism written during the last 20 plus years by school/educational psychologists (subsequently to be referred to as SPs), e.g. Blagg (1987), Grandison (2008), Lauchlan (2003), Lewis (1995), Moore et al. (1993) and Pellegrini (2007), it is clear that SPs do indeed play a part in dealing with pupil absenteeism at both the individual child and school level. This is not surprising given that, as long ago as 1978 and 1985 respectively, it was reported that: (i) of the various categories of problems dealt with by SPs in England and Wales, those to do with pupil absenteeism were the fourth most frequently occurring type of problem (Division of Educational and Child Psychology, 1978); and (ii) in one outer London borough referrals between 1980 and 1983 to the school psychological service for reasons of non-school attendance comprised 7 percent of the sample (Campion, 1985). More recently a survey conducted in the USA revealed that 8 percent of SPs' referrals were for truancy (Bramlett et al., 2002).

Traditionally, SPs have not been required to state reasons for their acceptance of referrals relating to pupil absenteeism. However, it seems likely that one of the reasons that they do relates to the commonly held view that prolonged absence from school has a detrimental effect on the child's educational progress, e.g. 'School refusal and truancy are serious problems that interfere significantly in the young person's social and educational development' (Lauchlan, 2003: 134); and 'Overall, "extended school non-attendance" ... has been linked to poor academic outcomes ...' (Pellegrini, 2007: 64). Although the references cited by these two SPs to some extent support their respective statements, the closer examination of the research literature which will be presented here reveals that the evidence on the true effects of significant absence from school on children's attainments, particularly at the elementary/primary (subsequently to be referred to as primary) level is both contradictory and weak. That being so, one of the assumed main reasons for SPs accepting pupil absenteeism referrals is undermined. The purpose of this article, therefore, is to investigate the effect of pupil absenteeism on primary school attainments in the hope that the findings will remove the current uncertainty and will provide SPs with acceptable evidence on the issue.

The focus of this article is on literacy and numeracy in the primary school because the primary school years constitute a critical period for the development of these crucial attainments. Although the article is about the effect of pupil absenteeism on just these two attainments, it is the author's view that, at the level of both the group and the individual

child, the effects and causes of pupil absenteeism are multiple and interactive. Consequently, by focusing on just two attainments without taking account of other possible effects and also possible causes, there is an inevitable oversimplification of the relationship between pupil absenteeism and attainments.

The theoretical basis for this article is to be found in the model of school learning proposed by Carroll (1963), which suggests that degree of school learning is a function of the time actually spent learning and that needed for learning. Concerning the quantification of time in Carroll's model, Frederick and Walberg (1980) proposed four categories, one of which, namely 'days of instruction', is of particular relevance here. From Carroll's model it therefore follows that, if the development of literacy and numeracy is primarily determined by instruction received in school, a pupil's attainments will be partly dependent on the number of days spent at school.

Although school attendance became compulsory in the Western World in the second half of the 19th century, as revealed by *BEI*, *ERIC* and *PsycINFO* database searches up to March 2009, it was not until the 1920s that studies of the effect on attainments of elementary school attendance and, by implication, school absence, were carried out. These studies, particularly those which controlled for the effects of intelligence, revealed either no meaningful correlation between elementary school attendance and attainment (Denworth, 1928; Heilman, 1928; O'Brian, 1928) or only very small ones (Odell, 1923; Ziegler, 1928). Fifty years later the research findings were slightly more optimistic in that Frederick and Walberg (1980) identified four articles, including one by Wiley and Harnischfeger (1974), which revealed significant correlations between days of instruction and elementary school pupil achievement. However, three further articles reviewed by Frederick and Walberg, including one by Karweit (1976), reported either low or no correlations. The article by Karweit is of particular importance because it contains reports on three separate, large scale, elementary school pupil based studies, one of which was an extension of Wiley and Harnischfeger's research. One of the key improvements was that of taking as the unit of analysis each student ($n > 20,000$) and not each school, the unit employed in most of the other studies. Evidence for this being an improvement is provided by Summers and Wolfe (1977) and Lamdin (1996). Contrary to the findings of Wiley and Harnischfeger, and in keeping with those of other researchers, Karweit found the effects of quantity of schooling to be small. However, she pointed out that, for pupils with the lowest attendances: (i) there was no information about the relationship between attendance and achievement; and (ii) repeated periods of absence may have a cumulative/severe effect on achievement.

Surprisingly, Karweit made no reference to the UK cohort based studies of Douglas and Ross (1965) and Fogelman and Richardson (1974) which had produced findings relating to her points. Douglas and Ross attempted, using a longitudinal design, to quantify the effect of different patterns of absence on the test scores of primary school pupils. Fogelman and Richardson presented data on the school attendance and general ability, reading and arithmetic/mathematics test scores of Year 6 pupils. Unfortunately, it is not possible to use the findings of either study to provide an acceptable quantification of the effect of pupil absenteeism on literacy and numeracy per se. In Douglas and Ross's research the dependent variable was a composite score based on intelligence and attainment scores; there was no control for other relevant variables; and the method of statistical analysis was unspecified. In the case of Fogelman and Richardson's article, no statistical analyses relating to the findings on attendance and various test scores were presented.

Of the more recent studies, all but one have produced findings which appear to show that primary/elementary schools are effective. Caldwell et al. (1982) concluded, on the basis of a literature review, that the time spent learning in elementary school was moderately related to pupil achievement. Ferguson et al. (1986) found, using data from a New Zealand cohort study, that 8-year-olds with absentee rates greater than 10 percent, compared to those with lesser rates, had significantly lower word recognition test scores and poorer teacher ratings for five aspects of the curriculum. Lamdin (1996) conducted regression analyses on the reading and mathematics attainments of 97 elementary schools which revealed that, after controlling for four student/school variables, attainments were significantly affected by school attendance. However, Borland and Howsen (1998) criticized Lamdin's research because it took no account of pupil innate ability and education market competition. As a consequence of adding these independent variables to those included by Lamdin they found, using regression analysis on data for 170 school districts in Kentucky, that school attendance did not make a significant contribution to pupil attainment. The contradictory findings of Lamdin (1996) and Borland and Howsen (1998) thus reflect the results of earlier research. However, in two more recent investigations involving very large numbers of primary school pupils, low absence rates were found by the Department for Education and Skills (2001) and Schagen et al. (2004) to be strongly related to high levels of attainment. Finally, in two elementary school studies conducted in the USA, one reported significant correlations between attendance and scores on the Ohio Proficiency Test of 0.57 and 0.54 for 4th and 6th grade pupils respectively (Roby, 2004) and the other study, conducted in Georgia, 'found a positive relationship between chronic absenteeism and low educational achievement ... in the early grades' (Jacobson, 2008: 1).

As revealed by these database searches, since the 1920s research has been conducted on the relationship between school attendance/absence (subsequently to be referred to as school attendance) and attainments in primary/elementary school. Most of the research took place in the USA, some in the UK and New Zealand but none, for example, in Germany or Sweden (Carroll, 1995). Although many of the research findings proved to be contradictory, all but one of the more recent studies showed that elementary/primary school attendance does appear to have an effect on attainments. However, aside from the problematic study of Douglas and Ross (1965), all the past studies have been cross-sectional in design and have therefore been unable to quantify in an acceptable manner the effect of primary school absence on attainments. What is required, therefore, is a longitudinal study in which each attainment is measured before and after a specified period of absence.

Access was made available to National Child Development Study (NCDS) cohort data which included measures of attendance and attainments for children in Great Britain when they were in Years 2 and 6, i.e. when they were aged 7- and 11-years-old in 1965 and 1969 respectively. Because the NCDS lacked the attendance data for Years 3 to 5 which were required for a longitudinal study on the effect of absence on those attainments, it was necessary to collect the missing attendance data. The author therefore added longitudinal attendance data previously collected in one local education authority in Wales during a period whilst he was the school psychologist member of the authority's research committee established to investigate various aspects of school non-attendance. The data were for pupils when they were in Years 2 to 6 during the years 1975/6 to 1979/80. In the method and results sections which follow, further information about the NCDS and Welsh Study will be presented.

Methods

Participants

The participants comprised a representative sample ($n = 7,513$) taken from the National Child Development Study (NCDS) cohort ($n = 18,285$) and a Welsh Study sample ($n = 273$). All the children in the NCDS cohort were born in England, Scotland and Wales during one week in March, 1958 and were followed up at ages 7, 11 and beyond (Fogelman, 1976). The main reason for the sample being much smaller than the original cohort was that the attendance data for the majority of the children were either missing, incomplete or unreliable. For the purposes of this study the sample was divided into a Poor Attender group (NPA: $n = 140$) and a Better Attender group (NBA: $n = 7,373$). All those

in the NPA group had school attendance records of 80 percent or less for the first half of both Years 2 and 6, i.e. when the pupils were aged 7 and 11 years respectively. The 80 percent figure was chosen to represent pupil absenteeism because a pupil with an attendance record of 80 percent for each of Years 2 to 6 would have missed one whole year's schooling during the last five years of primary school.

It is the Welsh Study which provides the missing attendance data for Years 3 to 5, together with data for Years 2 and 6. By sheer chance the number of pupils with attendance records of 80 percent or less in both Years 2 and 6, and who formed the Poor Attender group (WPA), turned out to be the same as the NPA figure, namely 140. Those in the WPA group were taken from all the Year 6 pupils ($n = 5,429$) in an LEA in Wales and comprised all the pupils with such attendance records. Using information provided by class teachers, all but seven of the WPA group were each matched in pairs with a Better Attender for gender, season of birth and school class (and therefore school). These 133 pupils therefore constituted the Better Attender group (WBA). Matches for gender and season of birth were made because, at the time of the study, it was thought that these variables could have an effect on attendance, e.g. (i) Fogelman and Richardson (1974) found that, at age 11, boys had significantly better attendance records than girls; and (ii) because in Wales the school year begins in September, summer born children, compared to older children in the same school class, have the least experience of school and may therefore be the least socially mature and possibly most at risk of having attendance problems. By matching for school and school class, it was possible to control to some extent for the effects on attendance of neighbourhood/school and teacher factors respectively. In analyses not presented here, but which can be made available to the interested reader, the NBA and WBA groups proved, on various key variables, to be representative of the original NCDS cohort and all Year 6 pupils in the Welsh LEA respectively. The Better Attender groups in both the NCDS and the Welsh Study may therefore be considered to constitute 'control' groups containing children who were typical of Year 6 pupils at the time of the respective studies.

Measures

The dependent variables comprised the children's scores on various literacy and numeracy tests. Literacy was assessed in Years 2 and 6 by means of, respectively, the Southgate Group Reading Test 1C (Southgate, 1959) and a test constructed by the NFER (National Foundation for Educational Research) for use in the NCDS. Numeracy was assessed in Years 2 and 6 using respectively a problem arithmetic test and an arithmetic/mathematics test (subsequently to be referred to as a mathematics test), both of which had been constructed by the NFER for the

NCDS. Further details of the tests used are given in Davie et al. (1972) and National Children's Bureau (1972) for Years 2 and 6 respectively. In order to meet various statistical requirements the scores on the tests used in Year 2 were subject to transformations which had been employed by Davie et al. and Fogelman and Goldstein (1976). Concerning the scores on the Year 6 tests, because it had already been shown by National Children's Bureau that they met statistical requirements, similar transformations were unnecessary.

The independent variables took the form of three dichotomous variables: attendance group, paternal social class and parity. The number was limited to three because of the small size of the NPA group and the requirements of multivariate analysis of variance. The reason for choosing to control for social class and parity was that those variables had been shown by Davie et al. (1972) and National Children's Bureau (1972) to have the greatest effect on attainments in the first and second NCDS follow-ups respectively.

Procedure

In keeping with NCDS instructions to schools (Davie et al., 1972; National Children's Bureau, 1972), testing was carried out by each child's class teacher in a room in which were present only the child's teacher and the child (children in those schools having more than one cohort member).

Attendance data for the first half of Year 6 for both the NCDS and Welsh Study samples and for the first half of Year 2 for the NCDS sample were provided by the class teacher. In the Welsh Study attendance data for the whole of Years 2, 3, 4 and 5 were provided by the head-teacher. Percentage attendance data were determined in the standard way, namely from the number of half days of actual and possible attendance. In the NCDS information on each child's parity and father's social class was obtained by a health visitor directly from a parent.

Results

Attendance findings

As shown in Table 1, for each of the years for which data had been collected the NBA and WBA groups (the Better Attender groups in the NCDS and Welsh Study respectively) had attendance records which were very significantly better than those of the NPA and WPA groups (the Poor Attender groups in the NCDS and Welsh Study respectively). Furthermore, the attendance rates of the NPA and WPA groups for Years 2 and 6 and of the NBA and WBA groups for Year 2 were very similar.

Table 1 Comparisons of: (i) The NCDS Better and Poor Attender (NBA and NPA) groups; and (ii) The Welsh Study Better and Poor Attender (WBA and WPA) groups in terms of their percentage attendance rates for Years 2 and 6 and Years 2 to 6 respectively

| Study | NCDS | | | | | | | | | | | |
|--------------------|-------------|-------|--------|-------|--------|-------|-------|-------|--------|--------|--------|-------|
| | 2 | | 3 | | 4 | | 5 | | 6 | | 6 | |
| Attender group | NBA | NPA | NBA | NPA | NBA | NPA | NBA | NPA | NBA | NPA | NBA | NPA |
| N | 7373 | 140 | | | | | | | | | 7373 | 140 |
| Percent attendance | | | | | | | | | | | | |
| Median | 93.4 | 71.8 | | | | | | | | | 95.7 | 72.4 |
| Range | 0-100 | 0-80 | | | | | | | | | 0-100 | 5-80 |
| z ^a | | 19*** | | | | | | | | | | 20*** |
| Study | Welsh Study | | | | | | | | | | | |
| Attender group | WBA | WPA | WBA | WPA | WBA | WPA | WBA | WPA | WBA | WPA | WBA | WPA |
| N | 128 | 140 | 120 | 134 | 129 | 136 | 133 | 138 | 133 | 133 | 133 | 140 |
| Percent attendance | | | | | | | | | | | | |
| Median | 93.4 | 72.0 | 93.3 | 75.4 | 92.9 | 77.2 | 91.8 | 74.4 | 94.2 | 94.2 | 94.2 | 73.0 |
| Range | 64-100 | 23-80 | 72-100 | 11-96 | 71-100 | 12-97 | 44-99 | 20-94 | 49-100 | 49-100 | 49-100 | 20-80 |
| z ^a | | 13*** | | 11*** | | 12*** | | 11*** | | | | 13*** |

^aDetermined using the Mann-Whitney U test
 Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ for two-tailed tests.

Findings from the longitudinal study data

In essence, absence can only meaningfully be related to change in attainment if the absence has occurred between the two points in time when the attainment was measured. In the NCD most of the testing had been completed by the end of May in both Years 2 and 6. On the assumption that, for Years 3 to 5, the NCDS attendance groups would have had attendance patterns similar to those for the Welsh Study attendance groups, it may be calculated from the Welsh Study attendance data given in Table 1 that the NPA and NBA groups would on average have been absent for a total of 3.0 and 0.8 terms respectively during the four-year period separating the occasions of testing. Consequently, the NPA group would have missed approximately two terms more schooling than the NBA group during those four years; 'approximately' because it cannot be assumed that the attendance rates in the NCDS and the Welsh Study would have been identical. Put another way, given that the duration of one school term was 0.25 of a year, the NPA group would have been absent for approximately half a year more than the NBA group during the four-year period. It was therefore hypothesized that, after controlling for the effects of social class and parity, any detrimental effect on the NCDS attainments in Year 6 relative to attainments in Year 2 would have been due to an absence from school of approximately half a year over the four-year period. The respective Year 2 attainment scores were therefore treated as the covariate in the analysis of variance of the respective Year 6 attainment scores, the results of which are presented in Table 2. The model employed in the analysis was a fixed effects one for a non-orthogonal design. The effects of the three independent, dichotomous variables, referred to in Table 2 as 'fitted constants', are therefore given in terms of the difference between the effects of the two levels for each of the independent variable. The significance level of each fitted constant was determined using the *t*-test. In essence, it is one of showing whether, for a given independent variable, the deviation from the overall constant is sufficiently large. In order to allow for the fact that the fitted constants had different scales of measurement, the fitted constants were converted to age scores (in years) using methods employed by Davie et al. (1972) and Fogelman and Goldstein (1976) for the Years 2 and 6 attainment scores respectively.

Because the analyses leading to Table 2 included covariate analysis, it was necessary to make checks on parallelism of regression lines. Unfortunately, the checks revealed that, although the requirement of parallelism of regression lines was met for reading scores, it was not met for the mathematics scores. Examination of the regression plots revealed that, for theoretical Year 2 scores from three years downwards, the Year 6 scores of the NPA group began to exceed those of the NBA group. Faced with a similar problem, though for social class and low

Table 2 For the Year 6 reading and mathematics scores, the fitted constants and analyses of variance results for the following independent variables: social class, parity, attendance group and Year 2 scores

| Values of the contrasting levels of the dichotomous ^a independent variables | Dependent variables: attainment scores (in years) | | | |
|--|---|---------|--------------------|---------|
| | Year 6 reading | | Year 6 mathematics | |
| | FC (years) | F | FC (years) | F |
| Overall constant | 11.30 | | 11.28 | |
| SCI-IVm; SCV,UF,NF | 0.88*** | 44*** | 0.53*** | 35*** |
| Parity<3; Parity>2 | 0.20 | 35*** | 0.70*** | 124*** |
| Better Attender; Poor Attender | 0.68** | 6* | 1.03*** | 79*** |
| Year 2 attainment score coefficient | 0.79*** | 3677*** | 0.71*** | 2591*** |
| Residual mean square | 4.76 years | | 3.16 years | |
| Total variance | 7.57 years | | 4.57 years | |
| Sample size | 6388 | | 6386 | |

Note: for both attainments a model which included interaction terms was also fitted. For neither attainment was the interaction term significant.

^aOther than the Year 2 attainment variable.

FC = difference between the fitted constants for the two levels of the dichotomous, independent variables.

NF = no father; SC = social class; UF = unemployed father.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ for two-tailed tests.

Year 2 reading scores, Fogelman and Goldstein (1976) argued that the lack of parallelism was likely to have been due to the scale of measurement of the Year 6 reading scores. They therefore felt that they could cautiously accept their findings. Although the same argument will be offered here, though for the Year 6 mathematics scores, it is also appropriate to determine whether similar results can be obtained by using a procedure which does not involve covariate analysis, namely analysis of variance involving just the two independent variables: attendance group; and Year 2 attainment reduced to ordinal categories. Only two variables could be included because, had one more been included, the application of ANOVA would have been compromised as a result of some of the cells in the cross-classifications having zero values. The results are presented in Table 3 which, for the purpose of comparison, includes those for reading, even though the findings for reading in Table 2 were acceptable.

Table 3 For the Year 6 reading and mathematics scores, the fitted constants and analyses of variance results for the following independent variables: (i) Year 2 attainment as an ordinal variable and (ii) attendance group

| IVs | Year 6 reading | | | IVs | Year 6 mathematics | | |
|---------------------------------|-------------------|-------------|------------------|------------------------------------|--------------------|-------------|-----------------|
| | Values of the IVs | FC in years | F | | Values of the IVs | FC in years | F |
| Overall constant | 11.24 | | | | 11.21 | | |
| Year 2 reading score (in years) | 0 | -3.85*** | 495*** (df = 10) | Year 2 arithmetic score (in years) | 3 | -2.46*** | 561*** (df = 6) |
| | 1 | -3.03*** | | | 5 | -1.71*** | |
| | 2 | -2.19*** | | | 6 | -0.68*** | |
| | 3 | -1.56*** | | | 7 | 0.08*** | |
| | 4 | -0.88*** | | | 8 | 0.78*** | |
| | 5 | -0.18*** | | | 9 | 1.71*** | |
| | 6 | 0.64*** | | | 11 | 2.28*** | |
| | 7 | 1.39*** | | | | | |
| | 8 | 2.52*** | | | | | |
| | 9 | 3.10*** | | | | | |
| | 10 | 4.04*** | | | | | |
| Attendance group | NBA -NPA | 0.66*** | 12*** (df = 1) | Attendance group | NBA -NPA | 1.15*** | 54*** (df = 1) |
| Residual mean square | | 4.78 years | | | | 3.22 years | |
| Total variance | | 7.97 years | | | | 4.70 years | |
| Sample size | | 7486 | | | | 7484 | |

Note: for both attainments a model which included interaction terms was also fitted. For neither attainment was the interaction significant
 IVs = independent variables.
 NBA and NPA = NCDS Better and Poor Attender groups respectively.
 Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ for two-tailed tests.

From Tables 2 and 3 it may be concluded that, after controlling for the effects of: (i) social class, parity and Year 2 attainment scores in Table 2; and (ii) only Year 2 attainment scores in Table 3:

- 1 the detrimental effect on attainment of being a Poor Attender relative to that of being a Better Attender is indeed significant for the scores on both Year 6 attainment tests; and
- 2 the detrimental effect of being a Poor Attender appears to be greater for mathematics (1.03 and 1.15 years in Tables 2 and 3 respectively) than for reading (0.68 and 0.66 of a year in Tables 2 and 3 respectively).

Had only one method of analysis been conducted, caution would indeed have been required in accepting the findings. However, in so far as the two methods of analysis led to similar results relating to the detrimental effect of being a poor attender, the findings can be accepted with greater confidence.

Discussion

The literature review revealed that: (i) with respect to the research which had been conducted on the relationship between school attendance and the attainments of primary/elementary school children, earlier findings have been contradictory, while most of the more recent findings have revealed that school attendance did appear to have an effect on attainments; and (ii) aside from the problematic study of Douglas and Ross (1965), no research has been conducted in which comparisons have been made between attainments measured before and after a specified period of school attendance.

However, such a quantification was possible by combining the NCDS and Welsh Study longitudinal results and making the assumption that the NPA and NBA groups would have had patterns of attendance throughout Years 3 to 5, which would have been similar to those of the WPA and WBA groups respectively. Given the similarities of the NCDS and Welsh Study attendance figures for Years 2 and, to a lesser extent, Year 6 revealed in Table 1, it seems likely that the assumption was, in fact, a safe one. Two methods of multivariate analyses of the NCDS longitudinal data, one of which controlled for social class, parity and Year 2 attainment scores, and the other, just Year 2 attainment scores, revealed that a conservative estimate of the effect on reading and mathematics scores of being a poor attender amounted to 0.66 and 1.03 years respectively. Given that, over the four-year period separating the times when the attainment tests were administered, the NPA group would have been absent for approximately half a year more than the NBA group, it may be concluded that missing half a year of schooling would have reduced Year 6 reading and mathematics attainment scores by approximately 0.7 of a year and 1 year respectively.

The fact that the two studies are based on attainment test data gathered more than a generation ago in the United Kingdom raises the question of whether the findings warrant consideration today. Of the four tests used, the Year 2 reading test was chosen because it was considered to be an appropriate test in 1965 (Davie et al., 1972). The other three tests which were used had been constructed for the NCDS by the NFER, one of Britain's leading research establishments, and were designed to take account of the way in which reading and arithmetic/mathematics were taught at the time when the tests were constructed

(Davie et al., 1972; National Children's Bureau, 1972). That being so, the findings on the effect of absence on the Year 6 attainment scores related directly to the teaching methods in the 1960s, i.e. the changes in attainments resulting from missing half a year of schooling were measured using tests which were valid at the time of testing in 1965 and 1969. Whether missing half a year of schooling over a four-year period would have the same effect: (i) on attainments today as they had in the 1960s; or (ii) in a country other than the United Kingdom, can only be determined using tests which have been recently constructed for use in a particular country. However, as revealed in the literature review, to date no such research has been conducted. Consequently, until such time that similar research is carried out the findings reported in this article constitute the only available quantification of the effect of absence on attainments in the primary school. They therefore do merit consideration today and not just in the United Kingdom.

In so far as it was possible: (i) to quantify the effect of absence from school on attainments (something which had not been done successfully before); and (ii) to show that absence appeared to have a greater effect on numeracy, this article provides school psychologists (SPs) with a supportive rationale for dealing with pupil absenteeism. However, given: (i) the limitations, as described by Burden (1994), of process-product research of the kind presented here; and (ii) the uniqueness of each child or school, the findings from an empirical study such as this one can only be used as one of many potential starting points by the SP dealing with pupil absenteeism at the individual child or school level. Another starting point would be an understanding of how pupil absenteeism affects attainments. However, to acquire such an understanding it would be necessary to conduct what Burden (1994: 297) termed 'interpretive-meaning centred' research. The findings from such research would prove particularly helpful to the SP at an intervention level, particularly if they shed light on the complex, interactive relationships between the multiple causes and effects of pupil absenteeism.

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