RELATIONSHIPS BETWEEN SCHOOL-ORGANIZATION FACTORS AND READING INSTRUCTION AMONG TEACHERS OF FOUR- TO SEVEN-YEAR-OLDS

Peter Archer and Bernard O'Rourke
Educational Research Centre
St Patrick's College, Dublin

Findings of a national survey of teachers in the early primary school grades in the Republic of Ireland suggest that such teachers pursue an approach to the teaching of reading which is not only more formal than that required by the prescribed curriculum but more formal than they themselves would like Using the same survey dataset an attempt is made in the present study to explain the apparent discrepancy between teachers preferred and actual teaching practices by examining the relationship between school organization factors and various aspects of the teaching of reading The rationale for the approach is based on the premise that school organization factors may act to constrain directly or indirectly the instructional options available to teachers (e g how many and what kind of books to cover in a year or how much freedom to give pupils to move around the classroom) The specific aspects of school organization considered are type of school (i e a school with all grades or one with junior grades only) size of school (as indicated by number of teachers) class size and class mix (i e single grade or mixed grade) The results of a series of stepwise regression analyses indicate that the school organization variables account for statistically significant but relatively small proportions of variance in eight out of ten of the aspects of teaching of reading which were examined

Findings of a national survey of teachers in the early primary-school grades in the Republic of Ireland suggest that such teachers pursue an approach to the teaching of reading which is not only more formal than that required by the prescribed curriculum (9), but more formal than they themselves would like When asked a series of questions on their attitudes to early education, a majority of teachers expressed support for an approach to teaching which emphasized social, emotional, and general cognitive and linguistic goals in contrast to objectives related to preparation for later academic work (16) Nevertheless, teachers' reports of their own practices indicate that the formal teaching of reading occupied a very prominent place in classrooms for children beginning primary school For example teachers reported that the teaching of reading was allocated approximately three hours per week (about one third of the total time

devoted to language teaching) Furthermore, the survey results show that most teachers introduced their pupils to a reading scheme during the pupils' first two terms in school and that they expected them to progress fairly rapidly through the stages or levels of the scheme Characterization of the method of teaching reading as formal and traditional is also supported by the more general finding that whole-class teaching was allocated about 45% of the total teaching time in all classrooms (see also 2, 6)

In seeking an explanation for the apparent discrepancy between teachers' preferred and actual teaching practices, we suspected that some external pressures might be operating on teachers to cause them to adopt an approach to teaching which was more formal than would be expected on the basis of their reported attitudes and preferences For example, we noted that some schools operated a policy which required particular books from a reading scheme to be covered in the early grades Similarly, we suspected that class size might place constraints on the adoption of particular kinds of preferred practices in the teaching of reading (16)

Using the same dataset as in previous reports (1, 16), we attempt in the study described in this paper to explain the apparent discrepancy between teachers' preferred and actual teaching practices by examining the relationships between school-organization factors and various aspects of the teaching of reading The rationale for this approach is based on the premise that school-organization factors may act to constrain directly and/or indirectly the instructional options available to teachers (e g , how many and what kind of books to cover in a year or how much time can be devoted to individual and group teaching) The specific aspects of school organization considered are type of school (i e , a school with all grades or one with junior grades only), size of school (as indicated by number of teachers), class size, and class mix (i e , single grade or mixed grade)

Constraints of the kind discussed above are hypothesized to be more pronounced in large schools and in schools which cater for all grade levels on the assumption that such schools are more likely to have school policies on reading which are based on the perceived needs of older pupils Regardless of the existence of a formal school policy on reading, the practices of teachers at senior grades might influence those of teachers in junior grades For a variety of reasons, therefore, there may be pressure (actual or perceived) on junior-class teachers to cover certain parts of a reading programme or reading scheme

Although average class size in Ireland has been estimated to be larger than those in other countries (e g , 7), considerable variation still exists (10, Section II, Table 5) The suggestion that class size might influence the adoption of particular kinds of preferred practices in the teaching of reading seems to parallel teachers' own beliefs For example, the results of a number of previous surveys of teaching at the primary level in Ireland indicate that teachers regard large classes as being a major obstacle to the implementation of the prescribed curriculum handbook's recommended practices (Ireland Department of Education, 1971) These recommended practices are characteristically informal in approach and especially so at the junior level (e g , 5, 11)

Of the teachers who responded to the survey, approximately 41% taught classes which were made up of pupils from more than a single grade (or standard), such classes are referred to as mixed-grade classes The incidence of mixed-grade classes in the sample is broadly similar to the incidence of such classes in the system as a whole for the year in which the survey was carried out (10, Section II, Table 10) It might be expected that constraints on day-to-day management of instruction imposed by having to deal simultaneously with pupils at different ages and different levels of achievement would be reflected in ways teachers approach the teaching of reading

<div align="center">METHOD</div>

Sample
The target population for the study was the population of teachers in infant (junior and senior) and first classes in primary schools in the Republic of Ireland during the school year 1980-81 It was estimated that this population numbered approximately 6,809 teachers (16)

A sample of 345 primary schools was drawn in order to achieve a sampling fraction of approximately 0 1 Sampling incorporated three stratification factors, yielding 24 cells school type (i e , junior-primary cycle only, complete primary cycle), pupil gender served (i e , boys, girls, mixed), and school size (i e , 2/3, 4-7, 8-12, 13+ teachers) While the sampling fraction used was constant over all cells, additional schools were selected whenever the sampling fraction yielded less than seven schools per cell When population cells actually included fewer than seven schools, all the schools in the population cell were selected

The survey sample was selected using a stratified simple one-stage cluster-sampling design (8) Schools (i e , clusters) were chosen with equal probability and all infant and first-class teachers within selected schools were invited to participate This procedure effectively made the sample self-weighting (see 17), although the topping up of stratification cells disturbed the self-weighting feature of the design to a small extent

Altogether, 581 teachers from 245 schools returned completed questionnaires This means that about nine percent of teachers in infant and first classes in Irish primary schools actually responded to the questionnaire The response rate of 0 55 was slightly less than anticipated

Procedure
Questionnaires were posted to the principals of selected schools Formal approval for the study was sought from each principal using a cover letter which also requested the principal to distribute the questionnaires to all infant and first-class teachers who were willing to participate Each participating teacher received a cover-letter, a questionnaire, and a stamped-addressed envelope Not all the teachers who accepted questionnaires from their principals actually returned them

Questionnaire Data
The questionnaire from which the data used in the study were obtained contained about 140 questions and covered six broad content areas An initial section sought information about the teachers' training and experience and the size and ability composition of their classes The substantive areas were covered by sections on classroom organization, language and mathematics teaching, use of instructional aids and materials, and attitudes to issues and topics in early childhood education The study reported in this paper draws mainly on response data from the sections on language teaching and classroom organization The particular variables used are described below

Dependent and Independent Variables
All analyses reported relate to the relationships between ten dependent variables concerned with the teaching of reading and five independent variables concerned with features of school organization A sixth school organization variable (grade taught) is controlled for in all analyses

The ten dependent variables are described in Table 1 The first allows a direct test of the hypothesis that schools differ in the extent to which they require teachers of infants and first class to cover specific parts of a reading programme The variable consists of a dichotomy indicating whether or not the teacher's school has a policy on the particular books to be used from the scheme at each class level

TABLE 1

LABELS EXPLANATIONS AND CODING SCHEMES FOR DEPENDENT VARIABLES

Variable	Explanation	Coding Scheme
Bookpol	Existence in school of policy on use of reading schemes	0 = No Policy 1 = Policy
Hrread	Hours per week teaching reading	Count of hours teaching reading
Pread	Proportion of weekly language teaching time to reading	Hours teaching reading divided by total language time
Schmtime	Proportion of reading teaching time devoted to use of reading scheme	1 = 0 20% 2 = 21 40% 3 = 41 60% 4 = 61 80% 5 = 81 - 100%
Intraver	Time of introduction to a reading scheme Average pupils	Month of school year
Levaver	Reading scheme level reached Average pupils	From 1 (Primer) to 7 (Level 6
Wholecl	Proportion of total teaching time devoted to whole class teaching	Time spent as proportion of total time
Seat	Teacher's practice on letting pupils choose their own seats	0 = No choice 1 = Some choice 2 = Free choice
Move	Teacher's practice on letting pupils move around classroom	0 = Never 1 = Sometimes 2 = Usually
Talking	Teacher s practice on letting pupils talk quietly during class	0 = Not permitted 1 = Permitted

Three dependent variables deal with the amount of emphasis given to formal reading, both in absolute terms and in relation to other language-teaching activities

Two variables relate to the time of introduction and progress through graded-reading schemes These variables were derived from two questions asking teachers to indicate (i) the month in which their pupils were first introduced to a scheme and (ii) the highest level or stage in the scheme which was reached by pupils during the school year For both questions, teachers were asked to differentiate between 'weak', 'average', and 'good' pupils In the present study, we use only the responses relating to average pupils

The remaining four dependent variables refer to the organization of teaching and not specifically to the teaching of reading The variables measure the proportion of total teaching time devoted to whole-class teaching and the amount of freedom afforded to pupils to choose where they sit, to move about the classroom, and to talk to each other

TABLE 2

LABELS EXPLANATIONS, CODING SCHEMES AND DESCRIPTIVE STATISTICS FOR INDEPENDENT VARIABLES

Variable	Coding Scheme	N	%	M	SD	Range
Grade	1 = Junior Infants	202	34 9	—	—	—
	2 = Senior Infants	175	30 3	—	—	—
	3 = First Class	201	34 8	—	—	—
Class mix	0 = Mixed grade	239	41 1	—	—	—
	1 = Single grade	342	58 9	—	—	—
Class size	Reported average daily attendance	563	—	30 4	5 5	12 43
Attendance rate	Average attendance divided by total class enrolment	563	—	0 9	0 1	5 1
Type of school	0 = Junior grades	204	35 1	—	—	—
	1 = All grades	377	64 9	—	—	—
School size	Number of teachers	581	—	9 0	6 2	2 24

Note For teachers of mixed grade classes grade indicates the grade of the largest constituent group of pupils

The six independent variables, including grade taught, are described in Table 2, which also includes descriptive statistics on each variable In the case of categorical variables, the number and percentage of teachers in each category is given For continuous variables, the number of respondents, mean, standard deviation, and range are presented Intercorrelations for the six independent variables are presented in Table 3

TABLE 3

CORRELATIONS AMONG INDEPENDENT VARIABLES

		Class mix	Class mix	Attendance rate	Type of school	School size
Grade	r	16	08	17	0	09
	n	578	560	560	578	578
	p	***	*	***		*
Class mix	r		30	10	53	64
	n		563	563	581	581
	p		***	**	***	***
Attendance	r				13	0
rate	n				563	563
	p				**	
Type of	r					29
school	n					581
	p					***

Note Zeroes indicate non significant correlations
*p< 05 **p< 01 ***p< 001

The grade taught by teachers was coded in a straightforward manner for teachers working with classes constituted of pupils of a single grade However, approximately 41% of the teachers surveyed taught classes made up of pupils from more than one grade In the analyses, teachers of mixed-grade classes were classified according to the majority grade in the class In order to retain the information on the grade composition of the class (i e , single grade or mixed grade), an additional dichotomous variable was created (class mix)

The measure of school size used was simply the number of teachers employed in the school according to Department of Education records Two options were available to describe class size (i) the total number on the roll for the class, and (ii) a teacher's estimate of the average daily class attendance We decided to use

the latter, combining it with an additional variable to measure attendance rate
The attendance-rate variable indicates the average rate of class attendance and
is computed by dividing the average daily class attendance by the total number
enrolled in the class   Use of this variable allows us to retain the information on
total class size while focusing attention on a measure of class size (average daily
attendance) which reflects the actual number of pupils being taught daily

RESULTS

The amount of variance in ten dependent variables explained by each of our
five independent (or predictor) variables, based on the results of a series of
stepwise multiple-regression analyses, is displayed in Table 4   Stepwise
regression selects variables for inclusion in the regression equation in the order
of their importance in predicting the dependent variable Therefore, the entries
in Table 4 represent increments in variance explained by a predictor after other
predictors found to be more important than itself have been entered in the
equation (see 3)

TABLE 4

VARIANCE ACCOUNTED FOR IN DEPENDENT VARIABLES BY INDEPENDENT
VARIABLES INDIVIDUALLY AND COLLECTIVELY CONTROLLING FOR GRADE
TAUGHT

Dependent Variables		Independent Variables					
	Grade	Type of school	School size	Class size	Attendance rate	Class mix	Total variance
Bookpol	(0)	0	10 5	1 6	0	2 4	14 6
Hrread	(2 4)	0	0 7	0	0	3 4	4 1
Preead	(7 5)	0	0	0	0	0	0
Schmtime	(2 3)	1 3	0	0	0	0	1 3
Intraver	(52 8)	0	0	0	0	0	0
Levaver	(50 0)	0	0	0	0	2 0	2 0
Wholecl	(0)	0	1 8	0	0	0	1 8
Seat	(0 7)	0 7	0	0	0	3 8	4 5
Move	(0)	1 2	0	0	0	0	1 2
Talking	(0)	0 9	0	0	0	0	0 9

Note A zero indicates a statistically non significant value The values for grade are presented in
parentheses to indicate the amount of variance this variable accounts for before any of the other
independent variables are entered

In each regression analysis, the relationship between grade taught and the dependent variable was controlled for (or partialled out) as the initial step The variance associated with grade taught is given in parentheses in Table 4, but is not included in the calculation of the totals presented

With the exception of the variable concerned with the existence of a school policy regarding reading schemes, the amounts of variance in the dependent variables explained by our set of independent variables are relatively small While the variable relating to the school-book policy had 14 5% of its variance accounted for, the next largest amount of variance accounted for was 4 5% (pupils' freedom to choose seats), with the lowest amount of significant variance accounted for being 0 9% (pupils' freedom to talk) The set of five predictor variables accounted for significant amounts of variance in all but two cases of the ten dependent variables proportion of language-teaching time devoted to reading and time of introduction to a reading scheme

The large number of zero-cell entries in Table 4 indicates that, even for those dependent variables with significant overall relationships with the set of independent variables, only one (five cases), two (two cases), or three (one case) independent variables actually contribute to prediction

Grade taught accounts for a very large proportion of variance for two of the dependent variables time of introduction to a reading scheme and level of reading scheme reached with average pupils For these variables, only one of the five independent variables (class mix) makes any additional contribution to variance explained, and then only for one of the two dependent variables (scheme level reached) Of the ten dependent variables, grade is significantly related to six

The situation with respect to the relationship between independent and dependent variables is less clear when one examines the direction of significant relationships (Table 5) For example, although type of school is related to the three variables which refer to the amount of freedom afforded to pupils (i e , to choose where they sit, to move around the classroom, and to talk to each other), the direction of the relationship is not consistent over all three variables In one case (i e , talking), more freedom is afforded to children in all-grade schools while the reverse is true of the other two variables Similarly, with respect to class mix, while teachers of mixed-grade classes devote a smaller proportion

TABLE 5

CORRELATIONS BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

Dependent Variables		Grade	Class mix	Class size	Attendance rate	Type of school	School size
Bookpol	r	0	31	24	0	19	32
	n	545	548	530	530	548	548
	p		***	***		***	***
Hrread	r	0	0	0	0	0	0
	n	559	526	544	544	562	562
	p						
Pread	r	09	17	09	0	15	18
	n	513	516	500	500	516	516
	p	*	***	*		***	***
Intraver	r	73	13	0	18	0	0
	n	525	527	511	511	527	527
	p	***	**		***		
Schmume	r	15	0	0	0	11	0
	n	536	538	521	521	538	538
	p	***				**	
Levaver	r	71	24	09	12	14	14
	n	529	532	517	517	532	532
	p	***	***	*	**	***	***
Wholecl	r	0	13	13	0	0	13
	n	549	552	535	535	552	552
	p		**	**			**
Seat	r	09	17	11	0	15	15
	n	575	578	560	560	578	578
	p	*	***	**		***	***
Move	r	0	0	0	0	10	09
	n	574	577	559	559	577	577
	p					*	*
Talking	r	0	0	0	0	09	0
	n	578	581	563	563	581	581
	p					*	

Note Zeroes indicate non significant correlations
*p< 05 **P< 01 ***p< 001

of language-teaching time to reading than do teachers of single-grade classes, mixed-grade teachers actually expect their pupils to reach a slightly higher level in the reading scheme than single-grade teachers

DISCUSSION

The fact that our book-policy variable was found to be reasonably well predicted by our independent variables provides some limited support for our suggestion that school-organization factors might influence the kind of policy with regard to reading which is pursued in individual classes However, since other dependent variables are not well predicted, we cannot conclude that policy differences are reflected to any great extent in the teaching practices of teachers as measured in our study

The finding that class size was not significantly related to any of our dependent variables, apart from that concerned with the school policy on reading schemes, might be regarded as surprising It might have been expected that teachers in smaller classes would have devoted more time to group teaching and individual instruction and that therefore the amount of time given to whole-class teaching would have been lower than in large classes It would also seem reasonable to suggest that pupils in small classes might be afforded more freedom than their counterparts in larger classes

The findings of our study are similar to the findings of other research designed to examine the impact of school-organization factors on achievement in reading and in other school subjects, which typically report weak and unstable relationships Thus, studies in the so-called school-effectiveness literature (e g , 4, 12, 13, 14, 15) have found school influences to be considerably less important predictors of achievement than factors such as general measures of scholastic ability or home background In addition, while most studies in this area have found some school factors to be related to achievement, there is little consistency across studies on which precise factors are important

That very few large relationships were observed in the present study, or indeed in other studies, does not entitle us to conclude that teaching is generally unaffected by features of school organization All we can say is that the specified set of measured school-organization factors used in studies does not covary with selected aspects of teacher behaviour (as reported in response to questionnaires) Finally, it is important to note that our study, like so many others, was

correlational and not experimental in nature Thus, we cannot infer that changes in school organization deliberately brought about would not result in changes in teaching practice

REFERENCES

1 Archer, P , & O'Rourke, B   *The development and evaluation of a structured programme for infant classrooms in mathematics, reading, and oral language* Dublin Educational Research Centre, St Patrick's College, 1985

2 Burke, A , & Fontes, P Educational beliefs and practices of sixth-class teachers in Irish primary schools *Irish Journal of Education*, 1986, *20*, 51-77

3 Cohen, J , & Cohen, P *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed) Hillsdale, NJ Lawrence Erlbaum Associates, 1983

4 Coleman, J S , Campbell, E Q , Hobson, C F , McPartland, J , Mood, A M , Weinfeld, F D , & York, R L *Equality of educational opportunity* Washington, DC Office of Education, US Department of Health, Education, and Welfare, 1966

5 Conference of Convent Primary Schools in Ireland *Evaluation of the new curriculum for primary schools* Dublin Author, 1975

6 Egan, O Informal teaching in the primary school Characteristics and correlates *Irish Journal of Education*, 1981, *15* 5-22

7 European Communities Commission Student numbers in primary and secondary schools Reply to written question No 1503/84 by Eileen Lemass, MEP, 27 June, 1985

8 Hansen, M H , Hurwitz, W N , & Madow, W G *Sample survey methods and theory Volume 1 Method and application* New York Wiley, 1953

9 Ireland Department of Education *Primary school curriculum Teacher's handbook (Parts 1 and 2)* Dublin Stationery Office, 1971

10 Ireland Department of Education *Tuarascail staitistiuil (Statistical report) 1980-81* Dublin Stationery Office, 1983

11 Irish National Teachers Organisation Education Committee *Primary school curriculum Curriculum questionnaire analysis* Dublin Author, 1976

12 Jencks, C S , Smith, M , Acland, H , Bane, M J , Cohen, D , Gintis, H , Heyns, B , & Michelson, S *Inequality A reassessment of the effect of family and schooling in America* New York Basic Books, 1972

13 Madaus, G F , Kellaghan, T , Rakow, E A , & King D The sensitivity of measures of school effectiveness *Harvard Educational Review,* 1979, *49,* 207-230

14 Martin, M O , & Archer, P   A longitudinal study of differential school effectiveness on public examinations in Ireland Paper presented at Annual Conference of the Educational Studies Association of Ireland, Carysfort College of Education, Dublin, 1984

15 Martin, M O , & Kellaghan, T   Factors affecting reading attainment in Irish primary schools In V Greaney (Ed), *Studies in reading* Dublin Educational Company, 1977

16 O'Rourke, B , & Archer, P   A survey of teaching practices in the junior grades of Irish primary schools *Irish Journal of Education,* 1987, *21,* 53-79

17 Sudman, S *Applied sampling* New York Academic Press, 1976