

INFORMAL TEACHING IN THE PRIMARY SCHOOL EFFECTS ON PUPIL ACHIEVEMENT

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A sample of 4th class teachers (n=37) in Dublin city and county schools answered a questionnaire on teaching methods and were classified as either formal or informal teachers. Their pupils (n=961) were tested in English and Irish at the end of 3rd class and again at the end of 4th class. A difference in achievement was found in favour of formal methods. In English the difference was marginal. In Irish it was substantial amounting to a 10% advantage in favour of the formal classroom.

In the first part of this study (9) it was shown for a sample of primary-school teachers throughout the country that an informal approach to teaching can be identified in the current practices and attitudes of teachers. Such an approach includes relaxed classroom discipline, more use of group work, a greater emphasis on the arts and humanities, more use of materials from the mass media, a greater emphasis on the happiness of the pupils, and acceptance of the principles underlying the new curriculum. The informal approach was interpreted as a set of curricular priorities and attitudes towards teaching. It was not identified with any particular 'technique' of teaching, all the evidence being that a highly didactic or directive technique is almost universally used by teachers both here and in Britain. My data showed that the informal approach was more common in lower grades, and in girls' schools. Informality was also found to be associated with a lessening of emphasis on reading and writing skills, more so in Irish than in English. But this difference, which was slight, was confined to the lower grades (up to second class) and was not reflected, in any grade, in the amount of time and homework allocated to these skills. In this paper, I will examine the effects of the informal approach on pupil achievement for a sample of schools in the Dublin area.

We may recall that when the informal approach was first introduced in a systematic way in the late 1960s and early 1970s, it was often claimed

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that research had shown it to be a superior method of teaching. However, the research referred to in the early literature was generally experimental psychology with 'educational implications' loosely attached, as exemplified by authors such as Vygotsky, Piaget, and Bruner. Contemporary educational research, working with curricular materials, and often using survey techniques, has found it difficult to demonstrate any difference in effects between the new and the traditional approaches. While a few studies reporting differences have received high publicity, notably Bennet's negative findings on the informal approach (2), all in all the evidence is inconclusive. Research sometimes shows an advantage for the informal approach, sometimes an advantage for the formal approach and, more often than not, no difference between the two (18). Some maintain, however, that a consensus is beginning to emerge that informal methods are less successful in teaching the basic skills of literacy and numeracy (3).

Shortly after the new curriculum for primary schools was introduced in this country, teachers expressed dissatisfaction with the Irish and mathematics sections. They also claimed that standards were falling in these areas, presumably as a result of the new programme (6, 12, 20). On the other hand, teachers were very satisfied with the English curriculum and felt that standards of English were improving, with the possible exception of spelling and grammatical accuracy. Survey research on the test performance of pupils can be interpreted as bearing out these judgments. Falling standards have been reported in Irish (17), low standards in certain areas of mathematics (4), and rising standards in English (26, 27). This research, however, does not establish a direct connection between the informal approach and pupil achievement. At the time when the informal approach was first advocated on a large scale, many other changes were taking place in primary education and in the country generally. It is possible therefore that reported changes in achievement level are due to factors other than teaching approaches which were operating both inside and outside the school (cf. 21) at the time the new curriculum was introduced. In the study reported here, I attempt to establish a direct link between the informal approach to teaching and pupil achievement in Irish and English.

METHOD

Sample

The sample was a 20% random sample of primary schools in Dublin city and county. Only schools with four teachers or more were considered. The population was stratified by gender of pupils attending school (boys, girls, mixed) and size of school (4-7, 8-12, 13 or more teachers). All 4th

TABLE 1

NUMBER (n) OF SCHOOLS, TEACHERS, AND PUPILS
 IN THE FINAL SAMPLE FOR ENGLISH READING,
 WITH ACHIEVED SAMPLING FRACTION (f) PER STRATUM
 $(f = n/N)$

	SIZE OF SCHOOL						SEX OF SCHOOL
	4-7 teachers		8-12 teachers		13+ teachers		
	n	f	n	f	n	f	
Schools	2	10	1	05	7	16	BOYS
Teachers	2	10	2	05	12	10	
Pupils	33	06	48	04	309	08	
Schools	0	00	1	04	7	14	GIRLS
Teachers	0	00	2	04	12	10	
Pupils	0	00	47	04	312	08	
Schools	2	06	1	03	2	07	MIXED
Teachers	2	06	1	02	4	06	
Pupils	44	06	26	02	132	05	
			n	f			
Total			Schools	23	08		
			Teachers	7	08		
			Pupils	961	06		

class teachers and pupils during the 1979/80 school year were included. The final sample, after various exclusions to be described shortly, is shown in Table 1. It included a total of 961 pupils and 37 teachers, drawn from 23 schools.

Instruments

The instruments used were a questionnaire on teaching methods, the Drumcondra English Test, Level II, Form A (7), and the Drumcondra Irish Test, Level II, Form A (8). The questionnaire was described in an earlier paper (9), it was a comprehensive inventory of teaching practices and priorities containing some 200 questions.

The English and Irish tests were administered to the pupils at the end of 3rd class, during May and June of 1979. The same tests were administered again one year later in May and June, 1980. Six scores were calculated on the basis of performance on the English test vocabulary, comprehension, total reading (vocabulary and comprehension), capitalization/punctuation, usage/grammar, and total language (capitalization/punctuation and usage/

grammar) The Irish test yielded five scores vocabulary, comprehension, total reading (vocabulary and comprehension), usage, and spelling

Only pupils for whom pre and post-measures were available were retained in the sample. Pupils who lost more than 10 points or gained more than 25 points on the total reading score for either test were removed from the sample. Class-groups which had fewer than 15 remaining members after these exclusions were also excluded. Finally, class-groups for which no completed teacher questionnaire was returned were excluded. The final numbers of pupils and teachers are those reported in Table 1. One stratum (47 teacher girls' schools) was lost entirely. However, only 3% of the teachers in the population, and 2% of the pupils, fall into it.

RESULTS

Classification of teachers In order to maintain continuity between the two parts of this study, teachers in the present sample were classified by being included in the national sample, which was classified by a cluster analysis (9). Thus, the characteristics of formality and informality are precisely the same in this paper as in the last one though the samples of teachers differ. Twenty-three teachers (62%) were classified as formal and 14 (38%) as informal.

Pupil achievement To quantify achievement gains during 4th class, residual scores were computed for all pupils on all subtests. These scores were the differences between their actual scores at the end of 4th class and the scores predicted for them on the basis of their scores at the end of third class (5, Ch 10). Residual scores were analysed at pupil level and also at class level, partly because of the high design effects (Table 2) and partly because it is arguable that teaching effects lack credibility unless they are demonstrable as class level phenomena (14, p. 60, 16). In pupil-level analysis, significance tests were adjusted for design effects (23, p. 259).

Significant differences are reported in Table 2. In the pupil-level analysis there is a difference in favour of the formal approach on all subtests of the Irish test, and on two subtests of the English test, capitalization/punctuation and spelling. The differences in Irish are moderate to large in size. There is a 10% advantage in favour of pupils taught formally and membership in this group accounts for 7% of the total variance. Differences in English are marginal, though they are consistently in favour of the formal approach. The higher design effects in Irish indicate a stronger school effect for this subject than for English, a finding that has been reported in several other studies (13, 22, 24, 25).

TABLE 2
ANALYSIS OF RESIDUAL ACHIEVEMENT SCORES
PUPIL LEVEL

	Predicted Score	Residuals		p	% var	N of Pupils		Design Effect
		Formal	Informal			Formal	Informal	
IRISH								
Vocabulary	29.7	1.1	-1.5	<.001	4.5	542	325	6.26
Comprehension	16.2	9	-1.3	<.001	5.4	539	324	4.99
Subtotal	45.9	2.1	-2.9	<.001	7.0	530	320	5.98
Usage	17.6	4	-7	<.001	2.8	514	320	4.35
Spelling	21.8	7	-1.1	<.001	5.1	517	324	4.33
ENGLISH								
Vocabulary	25.2	0.0	-3	NS	0.0	607	354	2.47
Comprehension	32.2	-1	-3	NS	0.1	607	354	2.13
Subtotal	57.3	-2	-4	NS	0.1	607	354	2.04
Cap./Punc.	23.8	0.0	-8	<.01	0.8	588	343	3.77
Usage/Grammar	16.8	0.0	-1	NS	0.0	599	349	3.68
Subtotal	40.6	1	-8	<.01	0.6	584	342	4.08
Spelling	34.8	2	-9	<.001	1.2	604	348	3.61

TABLE 3
ANALYSIS OF RESIDUAL ACHIEVEMENT SCORES
TEACHER-LEVEL

	Predicted Score	Residuals		p	% var	N of Pupils		Design Effect
		Formal	Informal			Formal	Informal	
IRISH								
Vocabulary	29.4	9	-1.7	<.05	13.9	22	13	1.13
Comprehension	16.1	8	-1.4	<.01	22.5	22	13	1.06
Subtotal	45.4	2.0	-3.2	<.01	22.7	22	13	1.07
Usage	17.5	1	- .8	NS	3.7	22	13	.87
Spelling	21.5	7	-1.2	<.01	17.4	22	13	.79
ENGLISH								
Vocabulary	25.0	-1	-2	NS	0.0	23	14	1.07
Comprehension	32.0	-1	-4	NS	0.0	23	14	1.06
Subtotal	56.8	-2	-5	NS	0.0	23	14	1.15
Cap./Punc.	23.6	-1	-9	NS	3.3	23	14	.69
Usage/Grammar	16.7	0	0	NS	0.0	23	14	1.01
Subtotal	40.3	1	-8	NS	1.3	23	14	.74
Spelling	34.6	1	-9	NS	7.2	23	14	1.06

In the teacher-level analysis (Table 3), differences in Irish continue to be significant, with the exception of the usage subtest. At this level, the variance explained by group membership is much larger on account of homogeneity within classes, reaching 22.7% for Total Reading. Differences in English are no longer significant.

DISCUSSION

My data show that informal teachers are less effective than more formal ones in teaching Irish and certain areas of English. Negative findings on informal teaching have been reported elsewhere previously (1, 2, 13, 28). Recent research generally uses a more complex classification of teachers, which makes it difficult to compare their results with mine. It is noteworthy nonetheless that an ongoing British study reports higher achievement in mathematics and certain language skills for teachers who spend a lot of time teaching to the class as a unit – a practice which was more common among male teachers (14, 15). These findings too are consistent with mine.

In the continuing debate on teaching methods, some authors argue that a gross distinction between formal and informal teachers captures very little of the realities of classroom teaching (11), while others claim that any classification of teachers which is based solely on self-report has an unknown relationship with teaching practice and is therefore of very limited use in the study of teaching (15). Yet the fact remains that studies such as the present one, which is open to both criticisms, continue to uncover empirical relationships between teacher characteristics and pupil achievement which are much larger, on the whole, than those uncovered by observational research.

In an attempt to explain this, I suggest earlier that a distinction be made between *approaches* to teaching and *techniques* of teaching (9). Approaches are sets of priorities and general strategies, techniques are the methods used to put them into practice, e.g., discovery methods versus didactic methods. In the mid 70s this distinction was not made to any degree. For example, the Lancaster study (2) was presented from the outset as an indictment of discovery techniques, though it contained only data relating to approaches acquired through self-report. (The fact that the study used classroom observation to validate its concepts of formality and informality merely underlines its identification of approach with technique.) Unfortunately, there are no grounds, empirical or theoretical, for thinking that an informal approach will be implemented by means of informal techniques. A 'formal' teacher, as teachers themselves under

stand this description, namely a teacher who keeps an 'orderly' classroom, may well use open-ended questions or unstructured lessons, just as an informal teacher may adopt formal techniques in interactions with individual pupils (10). This is not merely a theoretical possibility. In a recent study it was found that teachers who taught mostly to the class as a unit were more likely to use questioning or enquiry methods than teachers who favoured grouping (14, 15). Ironically, therefore, it is possible that formal teachers in the Lancaster study were more effective because they made more use of informal methods (14, p. 10).

When no distinction is made between approach and technique it is natural to explain negative findings on informal teaching in terms of inefficient technique. Such explanations were freely offered by Bennett (2). Informal teachers were less successful, he suggested, because they teach in a manner which lacks clarity and structure and, as a result, there is a lot of time-wasting (2, Ch. 10). Similar explanations were enshrined in popular stereotypes of the informal teacher. In the light of the distinction I have made, however, it is not possible to explain differences between formal and informal teachers in terms of the techniques they most likely used, since we do not have any idea what these might be.

I would suggest that the informal approach, as measured in this study, refers to a complex of attitudinal and motivational variables which cannot be equated with any particular technique but which is nonetheless strongly related to pupil achievement — by means of one technique or another. When the informal approach is considered from this point of view it is not difficult to find in it elements which would explain its present relationship with pupil achievement. With regard to the Irish results, I have already noted that informal teachers in the lower grades report a lesser emphasis on basic reading and writing skills in Irish than their formal counterparts (9). This was explained by the value which the informal approach puts on learning which is continuous with the child's own experience in its natural environment outside the school. Obviously Irish, and indeed any second language, will suffer under such an ideal of learning. In addition, the ideal of functional education, which is also an element in the informal approach, raises a further difficulty for second languages, which are rarely if ever 'necessary' or 'relevant' in the strong sense of these terms, especially if the first language in question is English.

With regard to the English results, neither the functionalism inherent in the informal approach nor its regard for the home environment will explain the marginal deficit observed in this study. Quite a different element of the informal approach, one which is not necessarily compatible

with those just mentioned, is probably involved here. This is the theme of the primacy of self-expression. In spite of repeated warnings about the importance of basic skills, spelling in particular, the handbooks for the new curriculum leave a clear impression that the goals of technical accuracy should not be allowed to interfere with those of fluency and individuality (19, vol. 1, p. 112). This is reflected in the lesser emphasis placed by informal teachers on spelling and grammar in the lower grades and in the slightly lower achievement scores on spelling, punctuation, and capitalization in the informal classes of the present study.

It is often pointed out that the benefits of informal teaching are not easily quantified, with the result that studies using only standardized tests have an inherent bias in favour of formal methods (11). This is a relevant criticism in the case of the English results of the present study. It is possible that the losses recorded may be offset by gains in areas that were not tested, besides, we know that English reading standards continue to rise in Dublin city schools (26, 27). The same cannot be said for Irish. Here the deficit attributable to the informal approach is considerable in size, it extends to all the skills tested, and the trend in standards in the population as a whole seems downwards (17).

While the informal approach is not to be identified with any particular technique of teaching, it is nonetheless important to know that it exists as an integrated view point, that certain factors favour its adoption, and that it has a negative effect on pupil achievement. However much the dichotomy between formal and informal approaches is decried by researchers who are interested primarily in teaching technique, it continues to be a central contrast in the discussion of primary education, including the important discussion which takes place in colleges of education. To be sure, the contrast between formality and informality includes many themes and sub-themes. But it is perhaps this very fact which gives it its intuitive appeal and its usefulness in discussion. My study has verified the existence of formality and informality as coherent ideals in teachers' perceptions of their own teaching practices, it has linked them with the grade level and the gender of both teachers and pupils, and it has shown that informality is associated with a lowering of standards in Irish and certain areas of English. While teachers and inspectors, unlike researchers, have never doubted that informality is a coherent ideal, affecting all aspects of teaching, nothing in the handbooks for the new curriculum suggests that it would be more prevalent in girls' schools than in boys' schools, or that it would have a negative effect on pupil achievement. These are findings which will have to be borne in mind in future discussions of the primary school curriculum.

REFERENCES

1. BELL, A.E., ZIPURSKI, M.A., & SWITZER, F. Informal or open-area education in relation to achievement and personality. *British Journal of Educational Psychology*, 1975, 67, 683-691.
2. BENNETT, N. *Teaching styles and pupil progress*. London: Open Books, 1976.
3. BROUGH, J.E. Teacher behavior and its effects. *Journal of Educational Psychology*, 1979, 71, 733-750.
4. CLOSE, J.S., KELLAGHAN, T., MADAUS, G., & AIRASIAN, P.W. Growth in mathematical attainments of pupils. *Irish Journal of Education*, 1978, 12, 3-21.
5. COHEN, J., & COHEN, P. *Applied multiple regression/correlation analysis for the behavioral sciences*. New York: Wiley, 1975.
6. CONFERENCE OF CONVENT PRIMARY SCHOOLS IN IRELAND. *Evaluation of the new curriculum for primary school*. Dublin: Author, 1975.
7. EDUCATIONAL RESEARCH CENTRE. *Drumcondra English Test, Level II, Form A*. Dublin: Educational Research Centre, St Patrick's College, 1976.
8. EDUCATIONAL RESEARCH CENTRE. *Drumcondra Irish Test, Level II, Form A*. Dublin: Educational Research Centre, St Patrick's College, 1974.
9. EGAN, O. Informal teaching in the primary school: Characteristics and correlates. *Irish Journal of Education*, 1981, 15, 5-22.
10. ELLIOTT, J. *Developing hypotheses about classrooms from teachers' practical constructs*. Grand Forks, North Dakota: University of North Dakota, 1976.
11. ELLIOTT, J. Classroom accountability and the self-monitoring teacher. In W. Harlen, (Ed.), *Evaluation and the teacher's role*. London: Macmillan, 1978.
12. FONTES, P.J., & KELLAGHAN, T. *The new primary school curriculum: Its implementation and effects*. Dublin: Educational Research Centre, 1977.
13. FONTES, P.J., KELLAGHAN, T., & O'BRIEN, M. Relationships between time spent teaching, classroom organization, and reading achievement. *Irish Journal of Education*, 1981, 15, 79-91.
14. GALTON, M., & SIMON, S. (Eds.). *Progress and performance in the primary classroom*. London: Routledge & Kegan Paul, 1980.
15. GALTON, M., SIMON, S., & CROLL, P. *Inside the primary classroom*. London: Routledge & Kegan Paul, 1980.
16. GRAY, J., & SATTERLY, D. A chapter of errors: Teaching styles and pupil progress in retrospect. *Educational Research*, 1976, 19, 45-56.
17. GREANEY, V. Trends in attainment in Irish from 1973 to 1977. *Irish Journal of Education*, 1978, 12, 22-35.
18. HOROVITZ, R.A. Psychological effects of the 'open classroom'. *Review of Educational Research*, 1979, 49, 71-86.
19. IRELAND: DEPARTMENT OF EDUCATION. *Primary school curriculum. Teacher's handbook*. 2 vols. Dublin: Author, 1971.
20. IRISH NATIONAL TEACHERS ORGANISATION. *Primary school curriculum: Curriculum questionnaire analysis*. Dublin: Author, 1976.
21. KELLAGHAN, T., & MADAUS, G.F. Trends in educational standards in Great Britain and Ireland. In G.R. Austin & H. Garber (Eds.), *The rise and fall of national test scores*. New York: Academic Press, 1982.
22. KELLAGHAN, T., MADAUS, G.F., & RAKOW, E.A. Within-school variance in achievement: School effects or error? *Studies in Educational Evaluation*, 1979, 5, 101-107.
23. KISH, L. *Survey sampling*. New York: Wiley, 1965.

24 MADAUS, G F , KELLAGHAN, T , & RAKOW E A School and class differences in performance on the Leaving Certificate examination *Irish Journal of Education* 1976, 10 41 50

25 MARTIN, M & KELLAGHAN, T Factors affecting reading attainment in Irish primary schools In V Greaney (Ed) *Studies in reading* Dublin Educational Company of Ireland, 1977

26 McGET, P An examination of trends in reading achievement in Dublin over a ten year period In V Greaney (Ed), *Studies in reading* Dublin Educational Company of Ireland 1977

27 WARD, N A fourth survey of reading comprehension in Dublin city national schools *Irish Journal of Education* 1982, 16 56 61

28 WARD D , & BARCHER, P Reading achievement and creativity as related to open classroom experience *Journal of Educational Psychology* 1975, 67 683-691