

Ten Years of Open Plan



First issued in set 1986, no. 1

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P.O. Box 3237, Wellington, New Zealand.

Printed by Lithoprint (NZ) Ltd., Wellington.

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Open plan education began in New Zealand primary schools about 1970 when keen groups of teachers who wished to work in teams helped get conventional classroom blocks modified. Also the new minimum code of buildings permitted architects to design 'open planned' units. The majority of New Zealand open plan units set up before 1973 were modified existing classrooms; after this date, most were architecturally designed. By 1975 there were 200 units working, 113 were designed and 87 were modified classrooms.

In 1983-4 an estimated 550-600 open plan units or 'pods' were being used, some in what are now termed 'variable space schools.' Three-quarters of these are architecturally designed, and one quarter are remodelled existing blocks. With the downturn in primary school rolls and reduced building activity, this proportion is likely to remain stable for some years.

Not all so-called open plan units or variable space schools operate open plan programmes. 72 out of 600 schools questioned in June 1983 (i.e., 12%) replied that former open plan classrooms were operating as if divided into single classrooms.

Four hundred and eighty four of the 600 questionnaires were returned, representing an estimated 80-90% of the open plan units. This leads to estimated totals: 550-600 open plan units operating open plan programmes; 1600-1800 teachers in open plan units; 44,000-50,000 pupils in open plan units. Open plan thus encompasses about 10% of the primary school population, compared with about 3.5% when surveyed in 1975.

Part 1

Teachers and pupils in open plan units

The exact figures for teachers and pupils in the 484 responses to our survey are as follows:

Table 1
*Numbers of pupils and percentages, by class levels in 484 open plan units
operating in 1983*

No. of pupils	Class level	Percentage
6,789	Year 1	17.15
6,793	Year 2	17.16
1,449	Year 3	3.66
5,009	Standard 1	12.65
4,796	Standard 2	12.11
4,758	Standard 3	12.02
5,206	Standard 4	13.15
2,449	Form 1	6.2
2,343	Form 2	5.9
Total 39,592		100

Compared with the 1975 figures, the proportion of children in the junior school (Years 1 to 3 and S.1) has dropped from 62.2% to 50.6%.

The numbers of pupils in open plan classrooms have trebled in the last ten years, however it is more significant that the proportion in the senior school (S.2 to Form 2) has increased (from 37.8% to 49.4%), and the proportion of intermediate pupils in open plan classrooms has more than doubled.

Size of open plan units

The number of teachers per unit averaged 3.04. The most popular was a two-teacher unit, followed in order by three, four and five teachers per unit, as shown in table 2.

Table 2
Number of teachers per open plan unit

No. of teachers	No. of units	Percentage
1	1	0.2*
2	181	37
3	156	32
4	111	23
5	24	5
6	7	1
7	1	0.2
8	2	0.4
9	1	0.2
	484	

* One full time teacher with part time assistance. At the upper end of the range, a staff of 9 full time teachers is likely to refer to the staff in a variable space school co-operating as a unit.

Education Board policies

In 1982 seven of the ten Education Boards in New Zealand, including the largest ones, strongly favoured the inclusion of flexible variable space in the rebuilding of schools. The opinions of the remaining three Boards, though in favour of flexibility of space, ranged from (i) advocating variable space or open plan classrooms in parts of rebuilt schools, (ii) considering every case on its merits (consulting locally), and (iii) not requiring a formal building policy in no-growth areas.

These current policies of the Education Boards reflect two shifts in building design over the past ten years. There is an increased awareness of the value of providing for greater variety or flexibility in types, sizes and uses of spaces in school buildings; and this includes the need for withdrawal areas, resource areas and storage. Secondly, there is a move away from 'wide open' units (or the extreme 'schools without walls' concept) towards variable space, sometimes including 'conventional' rooms or areas. Imaginative new classroom environments are now being created.

The provision of flexibility and variety in classroom spaces also typifies much school building overseas. According to a British inspector of schools:

Flexibility means providing opportunity for co-operation between teachers, and for individuals to work alone; and providing different types of spaces for particular activities and sizes of group. This does mean that certain spaces 'flow' together. Interspersed with these are a variety of closed spaces and special facilities.

The Canadian Education Association's 1973 report stated:

No longer will open-area schools be constructed without some back-up, closed-in classrooms and seminar rooms. Open spaces, most respondents said, are not the best environments for all teachers, or all students, or all subjects.

The New Zealand Department of Education's 1977 *Report on Open Plan Education* in New Zealand primary schools noted teachers' views that not all children may be suited to work in open plan units, and the preference of some teachers for conventional spaces indicates that there may be a need to provide a mixture of open plan units and more conventional teaching spaces in a school.

Teaching experience and assistance by adults in open plan units

The average teaching experience of teachers in open plan units was 7.5 years, with a range from 0 to 39 years (in 1975, the average was 12.5 years).

The average experience of open plan teaching was 2.3 years with a range from 0 to 16 years (in 1975, the average was 1.25 years).

The amount of adult assistance given in open plan units averaged 7.63 hours per week; according to the senior teachers of the units. This assistance ranged from 0 to 48 hours per week, and the percentage of units receiving various kinds of adult assistance is shown in table 3. (The large differences between both sets of estimates clearly reflect a difference in perspective between teachers and principals).

Table 3
Adult Assistance in Open Plan Units, 1983

Category of Adult	Percentage of Units, 1983 (assessed by senior teacher)	Percentage, 1975 (assessed by principal)
(i) parents	52.5	38
(ii) teaching aides	45	78
(iii) part time teachers, relievers, other staff, and PEP workers	32.5	36
(iv) reading and other specialists	12	(no similar category in 1975)
(v) librarians	11	31
(vi) the principal	8	41
(vii) clerical assistance	2.5	56

Part 2

Patterns of operation of open plan and variable space classrooms depend on the way the teachers and the curriculum are organised, and the way the room or rooms are used. Our questions were directed at discovering the practice in each of these areas, and the respondents' ideal pattern of operation.

Our approach followed that of Bennett in his study of open plan schools in Britain, with some changes in wording to suit the New Zealand situation. We constructed our own set of descriptions of use of rooms as there was no comparable list in the British study.

Teaching organisation

We sought to find out the extent to which teachers were working co-operatively rather than independently, offering these definitions for guidance:

Operating independently means that each teacher has his/her own home-group or class within the open plan unit, and plans for, and teaches, this group or class himself/herself.

Co-operating means that teachers may have part of the total number of children as a home-group but they are working with the other teachers to plan for and teach all children in the open plan unit for most of the day.

Teachers were then asked what the ideal situation should be; their opinions are listed on the right hand side of table 4.

The teacher organisation most frequently used is clear, as is the difference between actual operation and what is considered ideal. These results are made more distinct by combining categories as in table 5.

When comparing 'actual' and 'ideal', independent teaching is much practiced but thought less ideal. Co-operative teaching is quite the reverse, less practiced but seen as ideal. Overall the actual pattern of the majority (51.4%) contains a large amount of independence but the ideal of co-operative teaching as part of open education is recognised by 45.5% and practised by 27.0%.

Curriculum organisation

This heading included questions on pupil choice, teacher or pupil directed learning, and time of day when different subjects were taught. A wide range of patterns of organisation was noted, and there were many additions and qualifying

Table 4
Teaching Organisation

* 5 respondents did not answer

	ACTUAL			IDEAL		
	Frequency of Mention	Percentage	Percentage in Bennett's Study	Frequency of Mention	Percentage	Percentage in Bennett's Study
a. Teachers operating independently	11	2.3	28.9	8	1.7	13.9
b. Teachers mainly operating independently, but co-operating a little with other teachers e.g. reading a story to two groups	21	4.3	38.3	5	1.0	22.7
c. Teachers mainly operating independently but planning co-operatively, e.g., deciding who teaches what, where and when	35	7.2	21.0	26	5.4	13.0
d. Teachers operating independently for basic subjects but co-operating in subjects such as social studies, science, physical education, art and crafts, music	215	44.4	20.1	183	37.8	20.4
e. Teachers co-operating for basic subjects, but operating independently for subjects such as social studies, science, physical education, art and crafts, music	34	7.0	4.5	29	6.0	3.7
f. Cooperative teaching planned on a day to day basis	11	2.3	2.4	23	4.8	1.5
g. Cooperative teaching with each teacher specialising in certain areas of the curriculum	67	13.8	10.5	136	28.1	12.4
h. Cooperative teaching with no teacher specialisation	32	6.6	9.3	46	9.5	9.3
i. Combinations of co-operative teaching, co-operative planning and specialisation	21	4.3		15	3.1	
j. Different mixes of d and e and with some co-operative planning and re-grouping of children	21	4.3		3	0.6	
k. Combinations of d and g, i.e., independent for basic subjects but co-operation and some specialisation in other areas of the curriculum	16	3.3		5	1.0	
	484	100		479	99*	

Table 5
Teaching Organisation, Summary

	ACTUAL %	IDEAL %
Mainly operating independently (a,b,c)	13.8	8.1
Independence for one part of the curriculum with co-operation for the others (d and e)	51.4	43.8
Co-operative teaching with various degrees of subject specialisation (f,g,h,i)	27.0	45.5
Other (j,k)	7.6	1.6

comments. These variations have been consolidated into nine categories (table 6).

Again, a clear result. The most frequent response is the pattern that is also the most common in primary school classrooms of conventional design, suggesting that a majority of teachers are trying to continue an old pattern of teaching in the new environment. Including (2), which expands (1) by adding a traditional teacher-dominated process, strengthens the suggestion, and including (3), which eighty respondents gave as their actual practice, again emphasises teacher domination over pupil choice. Summing categories (1), (2), and (3) brings the total practising the traditional, 'non-open education' to 79.5%.

Pupil choice and independence may be part of four out of five open plan units but it is only specifically referred to in Categories 4 to 8, and so appears to be firmly a part of only 19.6%.

When we consider the difference between 'actual' and 'ideal' (summing the 'ideal' responses in Categories 1, 2 and 3), a majority (54.3%) still favours the traditional pattern.

The percentage of teachers who think the curricula which include pupil choice and independence as ideal (Categories 4 to 8) is more than double (at 43.2%) the number carrying these ideals out. So, teachers obviously recognise the value of these basic characteristics of open education yet for some reason most do not make them part of their organisation.

Use of rooms

Here we wanted to know the extent to which the open plan unit was used as a single teaching space for one class (organised in various ways depending on the programme), or used for separate classes in their own areas with some shared space and facilities (table 7).

Table 6
Curriculum Organisation

Rank	Category	ACTUAL Frequency of mention as a percentage	IDEAL Frequency of mention as a percentage
1	Basics usually covered in the morning and creative activities and social studies, science, physical education, music, mainly in the afternoon.	39.9	35.1
2	As for (1) but also curriculum mainly taught by the teacher to the class or group rather than pupils being given a choice of activities covering all areas of the curriculum.	23.1	6.4
3	Curriculum mainly taught by the teacher to the class or groups rather than pupils being given a choice of activities covering all areas of the curriculum.	16.5	12.8
4	Major emphasis on pupil choice of activities related to the various subjects of the curriculum including basics. The range of possible activities and topics usually set out by the teacher, sometimes restricted to only some areas of the curriculum and sometimes pupils given free choice as to the order in which they carry out the activities.	6.5	23.5
5	Pupils given tasks at beginning of day or week and have free choice as to order in which they carry out the tasks. However, for half of this group timetabling means that basics will be in the mornings and other subjects in the afternoon.	5.8	8.8
6	As for (1) but major emphasis on pupil choice of activities related to the curriculum. This choice is for most within a range of possible topics and activities set out by the teachers but for some the activities and topics come from pupils own suggestions.	5.1	0.8
7	Pupils given tasks at beginning of day or week to be carried out in order set by teachers, or some subject areas open to pupil choice as to when they will be done.	1.8	2.9
8	Major emphasis on pupil choice of activities related to the curriculum and the range of possible activities and topics comes mainly from the pupils own suggestions.	0.4	7.2
9	Other. Methods of grouping children, sharing children, streaming for different subjects, topic work.	0.6	0.4

Table 7
*Use of rooms**

* 8 did not respond

	ACTUAL percentage		IDEAL percentage	
a. Unit is divided into clearly defined areas, one for each teacher and his/her 'home group' or 'class'. Teacher and group spend most of the time in that area.	37.8		12.6	
a + c. As for (a) but including movement of children from one teaching area to another for particular subjects or activities.	4.1		1.4	
a + d. As for (a) but including specialised equipment areas permanently set up.	2.9		0.6	
a + f. As for (a) but variations such as (a) in mornings and all combine in afternoons or for special programmes.	1.4		0.8	
sub-total		46.2	15.4	
b. Unit has built in dividers (e.g. sliding doors) which are closed more than half but less than $\frac{3}{4}$ of the time.	6.4		10.7	
c. For almost all of the time the whole open plan unit is treated as one teaching space with activities set up and groups of children working as and where appropriate for the particular programme of the day or week. These are also 'home group' areas designated for administration and personal care activities.	19.0		32.6	
d. While most of the time the whole plan unit is treated as one teaching space (as in c), there are specialised equipment areas permanently set up e.g. wet area, science corner, library corner, etc.	27.2		37.8	
e. Unit operates as a completely open space with no designated areas for activities or children.	1.0		1.7	
sub-total		47.2	72.1	

Category (a), and its variations is the least 'open' in its organisation; about half the units run this way, but it is not thought ideal; (b) is a 'half way' or compromise practice; (c), (d) and (e) are most open, about half the units run this way and 70% of the teachers see it as the ideal.

Part 3

Physical Features of Open Plan Units

Teachers were asked to rate the physical features of their units as good, satisfactory or poor, and to give reasons. Their ratings are shown in table 8.

Table 8
Teachers' Ratings of Physical Features of Designed and Modified Units, 1983

	Good %	Satisfactory %	Good + Satisfactory %	Poor %
The open area	35	47	82	18
designed units	39	45	84	16
modified units	23	51	74	26
Withdrawal areas	23	30	53	47
designed units	22	33	55	45
modified units	23	22	45	55
Resource areas	20	37	57	43
designed units	20	37	57	43
modified units	19	35	54	40
Teacher planning area	21	34	55	45
designed units	21	37	58	42
modified units	20	25	45	55
Storage areas	14	37	51	49
designed units	13	35	48	52
modified units	19	42	60	40
Acoustics	33	42	75	25
designed units	32	43	75	25
modified units	35	40	75	25
Floor coverings	55	34	89	11
designed units	54	36	90	10
modified units	60	26	86	14
Services	47	38	85	15
designed units	27	51	78	22
modified units	19	43	62	38
The open plan unit as a whole	25	49	74	26
designed units	27	51	78	22
modified units	19	43	63	37

These results can be compared with those obtained in 1975:

Open plan units as a whole are considered more satisfactory than in 1975, when more than 1/3 were not considered satisfactory. Three-quarters of the designed units are now considered good or satisfactory; but 37% of the 'modified' units are considered poor.

Open areas in the units were satisfactory in 82% of cases, with 16% of designed units, and 26% of modified units considered poor.

Withdrawal areas were considered good or satisfactory in only half the open plan units (53%). This is an improvement over 1975 when teachers found only a quarter (26%) of the withdrawal areas satisfactory.

Resource and teachers' planning areas fared a little better, with 57% of resource areas and 55% of planning areas rated as good or satisfactory.

Storage areas were still not good; 52% were rated as poor in designed units and 40% in modified units.

Acoustics were rated much better; only a quarter were rated as poor in 1982, compared with 44% in 1975.

Floor coverings, surprisingly, were rated good in more of the modified units, 60%, than in the designed units, 54%.

Services were rated as poor in 38% of 'modified' units, which included some remodelled older buildings; only 15% of 'designed' units had services rated as poor.

Part 4

Teachers were asked about topics for in-service and pre-service training and space was provided for 'further comments'. We expected problems to show up, places where help could be given.

a. Inservice training

Although the examples we gave seem to have strongly influenced the answers we got, the list is still a helpful indication of concerns which could be dealt with in training courses. Thirty-two questionnaires contained no response to this question.

b. Pre-service training

Pre-service training suggestions were fewer in number and more respondents (69)

gave no answer. Some commented strongly on the total lack of preparation before taking up positions in open plan units.

Tables 9 and 10 outline the scope of training that teachers think would be helpful. Two or three people suggested that it wasn't until they were in an open plan unit that they understood what was involved, so emphasis should be placed on in-service training.

Table 9
*Suggestions for Inservice Training**

	Percent
1. Organisation	65.93
2. Planning	63.94
3. Teachers working co-operatively	57.52
4. Evaluation, including record keeping and monitoring pupil progress	42.04
5. Timetabling	33.85
6. Curriculum subjects including reading, updating and application to o.p.u.; subject planning	20.57
7. Visits to other o.p.u. to observe their programme and discuss with other teachers	14.39
8. Teaching strategies; programmes for learning centres; sharing and preparing teaching materials; developmental sessions; integrated day; new methods	13.26
9. Interpersonal relationships including skills training, coping with stress, communication	9.96
10. Use of buildings and space	7.08
11. Children working co-operatively, working on contracts, self assessed	6.19
12. Individual learning, including extending brighter children	5.75
13= Authority, discipline, control methods, maintaining noise levels	4.87
13= Working with composite class, handling children en masse, grouping	4.87
13= Supervision and management of staff, management training	4.87
16. Organisation of materials, equipment and furniture	4.65
17. Using strengths of each teacher	4.20
18. Philosophy and theory of open education	3.98
19. Need for more in-service training	3.10
20. Other: Public relations, school-community relationships (5); role of teacher (4); experience before being appointed to an o.p.u. (4); helping young teachers (3); psychological effects on children including stress (3); parental involvement (1)	4.42

* Topics 1 to 6 were a list of examples given in the Questionnaire.

Table 10
Suggestions for Preservice Training

	Percent
1. Teachers working co-operatively	49.4
2. Organisation	49.2
3. Planning	48.2
4. Visits to open plan units to observe their programme and discuss with teachers	38.1
5. Experience in an open plan unit	33.7
6= Evaluation including record keeping and monitoring pupil progress	22.9
6= Timetabling	22.9
8. Curriculum subjects including reading and mathematics – applying in open plan units; subject planning	12.6
9. Teaching strategies; programmes for learning centres; developmental sessions; integrated day; teaching materials; new methods; ideas	10.4
10. Interpersonal relations including skills training, coping with stress, communication	9.6
11= Grouping of pupils, handling large numbers, working with composite classes	7.7
11= Use of buildings and space	7.7
13. Authority, discipline, control methods	6.5
14. Philosophy and theory of open education	6.3
15. Children working co-operatively	5.3
16= Leadership of staff, management of staff	4.3
16= Organisation of materials, furniture and equipment	4.3
18. Using strengths of each teacher	3.6
19. Individual learning	2.2
20. Role of the teacher	1.9
21. Other: helping young teachers (3); school and community relationships (3); parent involvement (3); psychological effects on children (2)	2.7
Thirteen respondents used the space to push the need for 'more inservice training'	3.1

c. Further comments

While many (23.4%) did not take the opportunity, others provided extensive material including copies of school schemes, unit schemes, evaluation studies, timetables, discussion of staffing problems, descriptions of successful coping with difficult buildings, expressions of enthusiasm, frustration, disillusionment, lists of advantages and disadvantages.

Conclusions

In ten years, open plan education in New Zealand primary schools experienced a tenfold increase: from 52 units, 150 teachers and 4000 pupils in 1974, to at least 550 units, 1650 teachers and 44 000 pupils in 1984. About one primary school pupil in ten is in an open plan unit or variable space school.

The working conditions and demands on open plan teachers remain much the same as they were in 1975, although the physical environment has improved in many architecturally designed or remodelled units. Teachers in open plan units today report problems and express needs similar to those of ten years ago. Many ask for adequate separate withdrawal rooms, planning and resource areas, and storage facilities. Open plan teaching is also very labour intensive; in many units, assistance is obtained from adults outside the regular school staff: parents, teacher aides, part-time relievers, reading and other specialists.

A typical pattern of organisation of open plan units looks something like this: in the architecturally designed open plan unit with 82 pupils three teachers operate independently for basic subjects and co-operate in subjects such as social studies, science, physical education, art and crafts, and music. Basic subjects are usually covered in the morning; others in the afternoons. The curriculum is taught mainly by the teacher to the class or groups though there is some opportunity for pupils to have a choice of activities in selected areas of the curriculum and within a range of possibilities set out by the teacher. The unit is divided into clearly defined areas, one for each teacher and his/her 'home group' or 'class.' Teacher and group will spend most of their time in that area but there will be some movement of children for particular subjects or activities and to work in specialised equipment areas.

Our impression is of a large number of teachers trained to work on their own in a single-cell classroom with their own class trying to use that skill and experience in buildings designed for a different pattern of organisation for teaching. While many of the buildings are certainly inadequate, it is likely that *some* of the dissatisfaction expressed is due to using an inappropriate pattern of organisation for teaching.

A second typical pattern of organisation comprises co-operative teaching, with various degrees of subject specialisation, in class programmes where there is major emphasis on pupil choice of activities, and with flexible use of the total space available depending on the needs of the programme. There are likely to be designated areas for 'home groups' to meet for administrative and personal care activities and probably specialised equipment areas permanently set up. This is a minority pattern in 'actual' practice but is the ideal towards which a majority of the teachers responding to our survey are looking.

In-service training in a wide range of topics is needed to support teachers as

they adapt to working in an open plan unit. In-service may be more important than pre-service training, but preparation before commencing work in an open plan unit is considered essential, either immediately before an appointment or as part of the basic teacher training programme.

While strong expressions of dissatisfaction and many negative comments were received about the open plan approach to primary school education, there is also strong support for the approach from experienced teachers.

Finally, the need for specific training for open plan teaching, both pre-service and in-service, has yet to be met. The last sentence of the 1977 Report is just as relevant today:

It is a major task for all involved in teacher education to prepare teachers adequately to interact in a compatible team, and to practise effectively the instructional skills needed for open plan teaching.

Notes

Professor Peter Cameron has very recently retired from the Department of Education, Otago University, Box 56, Dunedin.

Dr Graham Robinson has very recently retired from the position of Principal Lecturer, Dunedin Teachers' College, and may be contacted at Box 239, Whangaparaoa, Auckland.

For a full account of the survey, its methods and results, see
Cameron, Peter E. and Robinson, Graham H., *Current operation of New Zealand open plan classrooms over the last ten years*, May, 1984.

An earlier report giving, for example, the opinions of the ten Education Boards about including variable space in the rebuilding of schools is

Cameron, Peter E. and Robinson, Graham H., *Current operation of open plan classrooms in New Zealand*. A paper presented to the New Zealand Association for Research in Education, December 1982.

The British inspector of schools is quoted from correspondence from inspectors in England to P.E. Cameron, 1976.

The Canadian report is

Canadian Education Association: *Open-Area Schools*, Toronto, Canadian Education Association, 1973, p. 31.

Bennett's study can be found in

Bennett, N., Andreae, J., Hegarty, P. and Wade, B., *Open Plan Schools*, Windsor, England: NFER Publishing Company Limited for the Schools Council, 1980.

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