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# Open Areas and Open Education Re-Examined: A Research Study

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## Abstract

In March of 1975, we sent a 192 item, ten-Dimension self-report questionnaire to 550 educators in British Columbia, Canada, who had attended at least one of two conferences on implementing Open Education. The purpose was to determine via multiple discriminant analysis what variables affect the type of program (Open vs. Traditional) being implemented in two types of facilities (Open Area vs. Self-Contained Classrooms) in a 2 x 2 design. A statistically significant discriminant function was found for certain variables on eight Dimensions: Adequacy of Facility, Adequacy of Support, Teaming, Job Satisfaction, Teacher Attitudes, Adequacy of Preservice Training, Types and Adequacy of Inservice Training, and Pupil Variables. From these findings, eight recommendations were made to support both the open area and the Open Education concepts so that they might attain the potential claimed for them.

## Introduction

During the 1960's two educational innovations were introduced into North America on a wide-scale basis: (a) the trend in school construction became one of building open area schools and open area classroom additions to existing facilities (cf. *Open-Space Schools Bulletin No. 1*, 1969; Canadian Educational Association, 1973), and (b) Joseph Featherstone's articles (1967, 1968a, 1968b) on the British Infant School triggered the birth of what came to be called Open Education in North America.

There were only a few cautions in the literature (Hapgood, 1971; Anderson, 1970, 1971) about the fundamental importance of first acquiring a full understanding of the principles upon which each innovation is based and about making a commitment to provide adequate support and teacher preparation required for implementing them — before hopping on these latest educational bandwagons.

Instead, the literature was saturated with imaginative open area designs and with a plethora of philosophical platitudes (given as reasons) for adapting these innovations rather than providing concrete guidelines on *how* to implement Open Education properly and on *how* to teach and provide learning experiences that would utilize the spatial openness of open areas properly (cf. White, 1972).

There were also few research studies reported during the 1960's, and these were usually so *poorly conceptualized* and/or so *poorly designed* that their findings were inconclusive and thus useless in providing empirical guidelines for developing the open area and Open Education concepts properly. For example, open area studies often simply compared open areas to self-contained classrooms as though the type of facility was the important independent variable producing obtained pupil effects (rather than other independent variables such as the type of program or the style of teaching taking place within the facility).

Studies of Open Education were just as conceptually weak, for they assumed a program was "open" just because it was labelled as such (rather than obtaining a quantitative measurement of the degree of program openness or traditionalism against which to attribute obtained pupil effects).

Both open area and Open Education studies were usually *poorly designed* in obtaining results during or after the first year of operation (rather than over a period of longitudinal development), and the findings were often obtained from small samples (i.e., single classrooms or single schools).

The poor conceptualization and/or poor design of open area and Open Education studies continued into the 1970's, when a virtual explosion of research was undertaken in order to gather data on the efficacy of these two educational innovations in the face of numerous intuitive observations that neither innovation was proving to be the educational panacea which so many people had naively expected would improve education.

Recent reviews of research on open areas and Open Education (Hearn, Burdin, and Katz, 1973; Educational Research Service, 1974; Armstrong, 1975; Study of Educational Facilities, 1975; Martin and Pavan, 1976; Martin, 1976; Lukasevich, 1976) indicate that the research findings are *still inconclusive*, neither confirming the unequivocal efficacy of either innovation nor showing either to be detrimental to pupils or teachers.

Because of the overall inconclusiveness of the research findings, it is not yet possible to identify inherent deficiencies in either innovation. The most accurate pronouncement derivable from the research findings is that both innovations have the potential for becoming valid alternatives to more traditional modes of education — but only if they become better understood, better supported, and more properly applied in practice.

This is the reason for undertaking the study to be reported in this article. The authors believe that both the open area concept and the Open Education concept are at a crossroads: they can continue to struggle along as misunderstood, misapplied fads causing educators and the public much dissatisfaction, or the concepts and the variables affecting them can become better understood and supported so that the potential of these two innovations can be better realized to the satisfaction of educators and the public alike.

Thus, the purpose of this study was twofold: firstly, to identify the variables affecting Openness of Program, both in open area (OA) and in self-contained classroom (SCC) facilities, and, second, to make data-based recommendations for facilitating the implementation of more open programs and open practices in both types of facilities. To achieve these purposes, four hypotheses were tested:

1. That an Open Program (OP) can be differentiated from a Traditional Program (TP) on the basis of variables affecting it, regardless of the type of facility in which it occurs.
2. That an Open Program (OP) can be differentiated from a Traditional Program (TP) in Open Area facilities on the basis of variables affecting it.
3. That an Open Program (OP) can be differentiated from a Traditional Program (TP) in Self-Contained Classroom facilities on the basis of variables affecting it.
4. That an Open Program (OP) in Open Area facilities cannot be differentiated from an Open Program (OP) in Self-Contained Classroom facilities on the basis of variables affecting it.

#### Method

#### SUBJECTS

The final sample consisted of 35 open area (OA) teachers (23 operating an [OP] and 12 operating a [TP]), and 35 self-contained class-room (SCC) teachers (14 operating an [OP] and 21 operating a [TP]) in British Columbia. This final four-group sample was obtained by (1) mailing the ten-Dimension survey described below to 550 educators in British Columbia, who had attended at least one of two conferences aimed at helping them learn how to implement more open educational programs and practices, (2) by eliminating from the 184 surveys returned all of those not completed by elementary school teachers, (3) by classifying the remaining respondents into either OA or SCC teacher groups, and (4) by further classifying these two groups into (OP) or (TP) groups on the basis of whether they scored in the top or bottom 27% (cf. Kelley, 1939) on a self-report measurement of Openness of Program.

#### INSTRUMENT

A 192-item survey, consisting of ten-Dimensions, was put together by the authors from a collection of items having a high discriminant function in instruments used in previous studies:

- I. Teacher Background Characteristics (8 items)
- II. Adequacy of Facility (21 items; based on the Study of Educational Facilities, 1975)
- III. Adequacy of Support for Teacher and Program (13 items)
- IV. Teaming (22 items; based on Meyer, Cohen, Brunetti, Molnar, and Lueders-Salmon, 1971; and Allen, 1972)
- V. Teacher's Job Satisfaction (9 items; based on Meyer, Cohen, Brunetti, Molnar, and Lueders-Salmon, 1971)
- VI. Teacher Attitudes (4 items)
- VII. Adequacy of Preservice Training (23 items; based on *Open-Space Schools Project Bulletin No. 1*, 1969; and Allen, 1972)
- VIII. Types and Adequacy of Inservice Training (37 items)
- IX. Pupil Variables (15 items)
- X. Openness of Program (50 items; from Walberg and Thomas, 1972; and Evans, 1971).

Variables in the first nine Dimensions served as possible predictor variables for separating Open (OP) and Traditional Programs (TP) as measured on the last Dimension (Openness of Program), which served as the criterion or dependent variable in this study. Openness of Program was measured by respondent's total score on a 50-item instrument developed by Walberg and Thomas (1972); and by Evans, (1971). It was selected for use in this study because it had been developed from a carefully examined conceptual base, had been validated as a teacher self-rating scale against the observations of trained observers (Evans, 1971), and had demonstrated its usefulness in discriminating between open and traditional programs on the basis of the teacher's total score (cf. Evans 1971; Walberg and Thomas, 1971, 1972; Kohler, 1973). Moreover, teachers can quickly rate 50 characteristics on this instrument, which are related to Openness of Program, using the 1-4 point rating scale, and these responses can be conveniently computer scored, with a high score indicating an Open Program (OP) and a low score a Traditional Program (TP).

The Walberg and Thomas (1972) scale was modified slightly for this study in that two items having compound statements (each of which might be rated differently) were changed to single-statement items and two other items having an ambiguous meaning were rewritten more clearly. The resulting 50-item scale still retained the original eight dimensions and the original number of items for each dimension, as described below:

1. *Provisioning for Learning:* Flexibility in the organization of instruction and materials (25 items)
2. *Diagnosis:* Less attention to goals, such as examination scores, and more attention to the child's thinking process. (4 items)
3. *Instruction:* Much individual attention rather than solely total class instruction, encouragement of children's initiative and choice, interdisciplinary emphases. (5 items)
4. *Evaluation:* Individual standards or goals preferred to comparing the child to standardized achievement norms. Record-keeping often done in order to evaluate growth rather than correctness. (5 items)
5. *Humaneness:* Teachers have characteristics such as respect for children, openness, and warmth. (4 items)
6. *Seeking opportunities to promote growth:* Extensive use of community, colleagues, advisors. (2 items)
7. *Assumptions:* Ideas about children and the process of learning; many ideas are stressed, such as children's innate curiosity, trust in children's ability to make decisions, and so on. (4 items)
8. *Self-perception of the teacher:* A sensitive, adaptable, continual learner who sees himself as a resource for helping children reach their own potential rather than seeing himself as a disseminator of a given body of knowledge. (1 item)

#### ANALYSIS<sup>1</sup>

The responses to the ten-Dimension survey were analyzed by an item-analysis program called LERTAP (Laboratory of Educational Research Test Analysis Package). This type of analysis of the criterion variable — Openness of Program — identified the 27% highest scoring and the 27% lowest scoring OA and SCC teachers on this scale to yield the four sample groups previously mentioned in a 2 x 2 design:

TYPE OF FACILITY				
		SCC	OA	
TYPE OF PROGRAM	OP	N=14	N=23	=37
	TP	N=21	N=12	=33
		35	35	

Then, 36 separate, Stepwise multiple discriminant analyses (cf. Dixon, 1970) were performed on the data. To test Hypothesis 1, nine such analyses were performed utilizing Openness of Program (i.e., [OP] vs. [TP] regardless of type of facility) as the criterion variable, with all items in each of the other nine Dimensions being examined as possible predictor variables. Similarly, to test Hypothesis 2, another nine analyses were performed on the OA teacher's responses in order to differentiate whether they were operating an (OP) or (TP). To test Hypothesis 3, another nine

analyses were performed on the SCC teacher's responses in order to differentiate whether they were operating an (OP) or a (TP). Finally, to test Hypothesis 4, nine separate discriminant analyses were performed on the responses of OA and SCC teachers operating an (OP) in order to determine if their responses on all nine Dimensions could differentiate the OA and SCC teachers from each other.

#### Results

Before reporting the findings for each hypothesis obtained from performing the various discriminant analyses, mention should be made about the means and standard deviations for each of the four sample groups on the criterion variable of Openness of Program and how these means and standard deviations compare with those obtained in the Evans (1971) study reported by Walberg and Thomas (1972).

On the Openness of Program teacher's questionnaire used in the Evans study, 20 British teachers operating an (OP) obtained a group mean of 170.55, a standard deviation of 11.99, and a standard error measurement of 4.857; 21 United States teachers operating an (OP) obtained a group mean of 175.10, a standard deviation of 12.24, and a standard error measurement of 4.770; and, 21 United States teachers operating a (TP) obtained a group mean of 145.52, a standard deviation of 13.73, and a standard error of measurement of 5.245. In the present study, the group means for (OP) are actually higher and the group means for (TP) are actually lower, as indicated in Table 1, because only the highest or lowest scoring 27% were included in the present study, unlike in the Walberg and Thomas study.

TABLE 1

Means and standard deviations on "Openness of Program" for 37 teachers operating an Open Program and for 33 teachers operating a Traditional Program without regard to type of facility (Open Area or Self-Contained Classroom) in which the program is being implemented.

	Open Program Teachers	Traditional Program Teachers
Mean	185.41	151.42
Standard Deviation	6.86	5.43
Standard Error of Measurement	5.80	6.44
Highest Score	200.00	159.00
Lowest Score	176.00	141.00

It should be pointed out that in the present study scores could range from 50–250 because a 5-point rating scale was used, in which “no response” received a “1”. The Walberg and Thomas study used a 4-point rating scale to score the 50 items in their instrument so that scores could range from 50–200, with “no response” not being scored at all.

In spite of this minor difference, the results obtained for the (OP) and (TP) groups in both studies compare favourably. This indicates the validity of the Walberg and Thomas instrument in identifying (OP) and (TP) teachers in the present study where they served as the criterion variable against which to test the four hypotheses discussed below.

The findings pertaining to Hypothesis 1 reveal that certain variables in all Dimensions (except Teacher Background Characteristics) significantly differentiate Open Programs (OP) and Traditional Programs (TP) when the type of facility (Open Area or Self-Contained Classroom) in which the program was being implemented was not identified as an independent variable (see Table 2).

**TABLE 2**

Means and standard deviations for the variables in eight Dimensions, which significantly differentiate Open and Traditional Programs (OP vs TP) operating in Open Area and in Self-Contained facilities.

Dimensions and Variables	Open Program		Traditional Program	
	(OP) Teachers X	SD	(TP) Teachers X	SD
II ADEQUACY OF FACILITY				
1. Electrical Outlets	2.135	0.855	1.727	0.839
III ADEQUACY OF SUPPORT				
1. From Colleagues in self-contained classrooms	1.892	0.842	1.061	0.966
2. Parents help plan program	1.108	0.906	0.455	0.711
IV TEAMING				
1. Time spent team planning the year before teaching	2.378	2.618	1.061	1.936
V JOB SATISFACTION				
1. Being a member of your present teaching team	1.973	1.142	1.0303	1.015
2. Respect from parents for the job you are doing	2.270	0.652	1.901	0.631
VI TEACHER ATTITUDES				
1. Progressiveness of overall teaching style	2.351	0.484	1.939	0.348

Dimensions and Variables	Open Program		Traditional Program	
	(OP) Teachers X	SD	(TP) Teachers X	SD
2. Progressiveness of approach to discipline	2.162	0.501	1.788	0.415
VII ADEQUACY OF PRESERVICE TRAINING				
1. In using humanistic discipline techniques	1.351	1.060	0.727	0.761
2. In building parent-teacher relationships	0.730	0.871	0.670	0.684
VIII TYPES OF INSERVICE TRAINING				
1. Had training in flexible grouping techniques	1.189	0.660	1.485	0.712
2. Had training in classroom management	1.351	0.588	1.242	0.663
3. Want training in building team relationships	1.432	0.647	1.242	0.663
4. Does systematic reading on own	2.081	0.795	1.333	0.924
5. Willing to participate in Diploma or Masters level program related to Open Education	1.487	0.768	1.909	0.947
IX PUPIL VARIABLES				
1. Desirableness of grade range in your teaching area	1.946	0.700	1.576	0.867

As regards the Adequacy of the Facility Dimensions, only three of 21 variables were rated as “adequate” or above by (OP) teachers — namely, Electrical Outlets, Acoustics, and Amount of Floor Space — with only this last variable being rated as “adequate” by (TP) teachers. However, (OP) teachers were significantly differentiated from (TP) teachers only in having more adequate Electrical Outlets in their facility ( $F=4.04$ ,  $p<.046$ ,  $d.f.=1, 67$ ,  $R^2=0.06$ ).

Only two of the 13 variables related to the Adequacy of Support Dimension significantly differentiated the (OP) and (TP) groups of teachers: (1) (OP) teachers rated their colleagues teaching in self-contained classrooms as more adequately supportive of their open program than did (TP) teachers of their traditional program, and (2) (OP) teachers more frequently invited parents to participate in planning their program ( $F=9.93$ ,  $p<.001$ ,  $d.f.=2, 67$ ,  $R^2=0.09$ ). It is noteworthy that (OP) teachers rated only two variables as “adequate” or above (namely, the support for their program provided by parents and by their principal) while (TP) teachers rated none of the support variables as “adequate.” Moreover, both groups

of teachers identified two areas of virtual non-support, namely, (1) the extent to which the secondary school builds on the work done with students by elementary school teachers, and (2) the availability of special consultants to help teachers develop their program.

Only one of 23 variables related to the Teaming Dimension significantly differentiated (OP) and (TP) teachers: (OP) teachers spent approximately 10 – 12 hours team planning their program the year before actually implementing it, as compared with 1 – 2 hours spent by (TP) teachers ( $F=5.62$ ,  $p<.02$ ,  $d.f.=1,68$ ,  $R^2 0.08$ ). This finding is due to the fact that most (OA) teachers team plan their (OP) before implementing it and so do some (SCC) teachers, with these combined totals being greater than the combined totals of (OA) and (SCC) teachers implementing a (TP).

With regard to the Teacher's Job Satisfaction Dimension, two of the nine variables significantly differentiated (OP) and (TP) teachers: (1) (OP) teachers were more satisfied Being a Member of a Teaching Team, and (2) they were more satisfied with the Respect They Get from Parents for the job they are doing ( $F=9.52$ ,  $p<.000$ ,  $d.f.=2, 67$ ,  $R^2=0.22$ ). Several insignificant findings are noteworthy nevertheless: Both (OP) and (TP) teachers were most satisfied with (a) Being a Teacher and with (b) the Autonomy They have to Develop the Kind of Program They Prefer; and they were least satisfied with their salary in relation to the amount of time they spent planning and preparing for teaching, with the (TP) teachers being slightly more dissatisfied.

Two out of four variables related to the Teacher Attitudes Dimension significantly differentiated (OP) and (TP) teachers: (1) (OP) teachers rated their overall Teaching Style, compared with other teachers they know, as slightly more than moderate or progressive, whereas (TP) teachers rated their overall Teaching Style as less than moderate or progressive, and (2) (OP) teachers rated their Approach to Discipline as more moderate or progressive than did (TP) teachers ( $F=10.93$ ,  $p<.000$ ,  $d.f.=2, 67$ ,  $R^2=0.25$ ).

The assessment of Adequacy of Preservice Training revealed that two items pertaining to the *specific content* of preservice training significantly differentiated (OP) and (TP) teachers: (OP) teachers received more adequate preservice training in (1) Humanistic Discipline Techniques and in (2) Building Parent-Teacher Relationships ( $F=6.88$ ,  $p<.002$ ,  $d.f.=2, 67$ ,  $R^2=0.17$ ). Most noteworthy, however, is the fact that so few (OP) or (TP) teachers rated any of the 17 content-related aspects of their *preservice training* as "more than adequate" (see Table 3) and that over half of both groups combined reported receiving no preservice training for six content areas:

(1) Building Team Relationships, (2) Utilizing Volunteers and Community Resources, (3) Utilizing Teacher Aides, (4) Understanding How to Implement Open Education Practices, (5) Practice Teaching in an Open Program and (6) Utilizing Space Flexibility in the Open Classroom.

TABLE 3

Frequency of ratings given by (OP) and (TP) teachers for 17 content-related aspects of their preservice training.

Content-Related Aspects of Preservice Training	Number of Open Program (OP) Teachers giving Each Rating				Number of Traditional Program (TP) Teachers giving Each Rating			
	No Preservice Training	Less Than Adequate	Adequate	More Than Adequate	No Preservice Training	Less Than Adequate	Adequate	More Than Adequate
1. Curriculum Development	18	9	10	0	13	9	10	1
2. Individualized Learning	13	13	8	3	15	12	4	2
3. Flexible Grouping Techniques	14	10	10	3	12	10	10	1
4. Small Group Instructional Techniques	10	8	15	4	10	9	13	1
5. Classroom Management	6	10	17	4	8	11	13	1
6. Utilizing Planning Time	10	10	13	4	9	11	12	1
7. Building Team Relationships	26	6	2	3	23	6	4	0
8. Humanistic Discipline Techniques	9	13	8	7	15	12	6	0
9. Recording Pupil Progress	12	7	17	1	10	8	13	2
10. Reporting Pupil Progress	11	10	15	1	10	12	10	1
11. Utilizing Volunteers & Community Resources	23	6	8	0	17	13	2	1
12. Utilizing Teacher Aides	24	6	6	1	18	13	2	0
13. Building Parent-Teacher Relationships	19	10	7	1	14	15	4	0
14. Understanding How to Implement Open Education	19	8	7	3	23	8	2	0
15. Practice Teaching in Open Classrooms	22	2	6	7	25	3	4	1
16. Audio-Visual techniques	15	12	7	3	12	10	10	1
17. Utilizing Space Flexibly	21	6	7	3	22	9	1	1

Table 4 indicates that respondents believe they would have been better prepared for teaching in a more open way if they had participated in a *specialty designed preservice program* of 15 to 18 units of coursework that focused on teaching in an open way, accompanied by 8 to 11 weeks of student teaching in an open program. Respondents believed that less adequate preparation would have resulted from either a special preservice course of 1 to 3 units, without an accompanying practicum, or from 4 to 12 weeks of student teaching in an open program, without any accompanying or related coursework.

TABLE 4

The frequency of all four groups of teachers' responses for the type of preservice training desired to prepare them to teach in a more open way.

**Teacher Responses to Type of Preservice Training Desired**

Sample Groups	Special Program (Coursework & Practicum)			Special Course Only			Special Practicum Only		
	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know	Yes
(OP) in OA	4	5	14	9	8	6	5	5	13
(TP) in OA	1	5	6	3	3	6	4	5	3
(OP) in SCC	1	3	11	6	5	3	6	4	4
(TP) in SCC	1	3	17	11	7	3	7	7	7
TOTALS	7	16	48	29	23	18	22	21	27

The Dimension of Type and Adequacy of Inservice Training consisted of three parts: (1) 13 variables allowed teachers to report (Yes or No) on whether they had received inservice training in 13 content areas, (2) another 13 variables let teachers indicate (Yes or No) on whether they had received inservice training in 13 content areas, (2) another 13 variables let teachers indicate (Yes or No) if they wanted inservice training in these same 13 content areas, and (3) 11 variables dealt with the adequacy of 11 inservice activities.

Five of these 37 Inservice Training variables significantly differentiated (OP) and (TP) teachers ( $F=7.91$ ,  $p=.000$ ,  $d.f.=5, 64$ ,  $F^2=0.38$ ). On the first set of 13 variables, more (OP) teachers had received inservice training in Flexible Grouping Techniques and in Classroom Management. On the second set of 13 variables, more (TP) teachers wanted inservice training in Building Team Relationships. In contrast to (TP) teachers, (OP) teach-

ers reported doing a more adequate amount of Systematic Reading on their own and a greater willingness to participate in a Diploma or Masters' level program which focuses on learning how to teach in a more open way.

TABLE 5

Means and standard deviations for the variables in six dimensions, which significantly differentiate Open and Traditional Programs (OP vs TP) operating in open area facilities.

Dimensions and Variables		Open Program		Traditional Program	
		X	SD	X	SD
III	ADEQUACY OF SUPPORT				
	1. Resources	1.913	0.515	1.500	0.798
	2. Parents involved in helping to plan program	1.609	1.158	0.167	0.577
	3. Support provided by colleagues in self-contained classrooms	1.957	0.825	0.750	0.754
	4. Secondary schools building on what elementary teachers did	0.696	0.635	1.083	0.900
IV	TEAMING				
	1. Been a member of another team	1.391	0.583	1.000	0.739
	2. Degree of coordination of program	1.087	0.668	1.500	0.905
	3. Hours spent team planning the year before implementing program.	3.391	1.518	0.917	1.240
	4. Success dependent on co-operative efforts of the team	1.000	0.302	1.333	0.779
V	JOB SATISFACTION				
	1. Respect from colleagues for the job you are doing	2.348	0.487	1.917	0.5.5
	2. Being a teacher in an open area	2.739	0.541	1.917	0.900
VI	TEACHER ATTITUDES				
	1. Progressiveness of overall teaching style	2.391	0.499	2.083	0.289
VIII	TYPES OF INSERVICE TRAINING				
	1. Doing systematic reading on own	2.000	0.798	1.167	0.835
XI	PUPIL VARIABLES				
	1. Amount of independent study time given to your students	1.174	0.778	2.167	0.919

Only one of the Pupil Variables significantly differentiated (OP) and (TP) teachers: the multiage grade range in the (OP) teachers' classrooms was rated by them as more desirable than was the typically single grade range in the (TP) classroom as rated by these teachers ( $F=8.43$ ,  $p<.005$ ,  $d.f.=1, 67$ ,  $R^2=0.25$ ).

With regard to the Hypothesis 2, that an (OP) can be differentiated from a (TP) operating in an open area (OA) facility, non-significant (non-discriminating differences) were found for variables related to three Dimensions: (1) Teacher Background Characteristics, (2) Adequacy of Facility, and (3) Adequacy of Preservice Training. The other six Dimensions contained variables that significantly discriminated (OP) and (TP) programs in an OA facility (see Table 5).

Four of the 13 variables related to the Adequacy of Support Dimension significantly differentiated the (OP) and (TP) groups in OA settings: (1) The (OP) group had more adequate resources for use in their program, (2) parents were hardly involved at all in helping (TP) teachers plan their program, but were involved in helping (OP) teachers plan their program, (3) (OP) teachers were more adequately satisfied with the support for their program provided by their teacher colleagues in self-contained classrooms, and (4) (OP) teachers were less satisfied with what the secondary school does to build on the work they have done with the students ( $F=15.00$ ,  $p<.000$ ,  $d.f.=4, 30$ ,  $R^2=0.67$ ). This last aspect of support was the only one the (OP) teachers rated below the "adequate" level, whereas (TP) teachers rated this and four other aspects of support below the "adequate" level, whereas (TP) teachers rated this and four other aspects of support below the "adequate" level (i.e., availability of special consultants, the involvement of parents in helping them to plan their program and to decide whether to place their children in it, and the adequacy of reassigning pupils unsuited to their program). Only one variable (i.e., principal's support for program) was rated above the "adequate" level by both (OP) and (TP) teachers working in OA settings.

Four of the 22 variables related to the Teaming Dimension significantly differentiated the (OP) and (TP) groups in OA settings: (1) (TP) teachers had more often been a member of another team while (OP) teachers typically were members only of their present team, (2) (OP) teachers believe they operate a "well-coordinated" program in contrast to (TP) teachers who believe they operate a "moderately coordinated" program, (3) (OP) teachers spent between 15-25 hours team planning their program the year before implementing it in contrast to (TP) teachers who typically spent less than 1-2 hours, and (4) (OP) teachers more strongly agreed that the success of their open area program is more dependent upon the cooperative efforts of the teaching team than it is upon large inputs of additional resources ( $F=8.18$ ,  $p<.001$ ,  $d.f.=4, 30$ ,  $R^2=0.52$ ).

Two aspects of the Teacher Job Satisfaction Dimension significantly differentiated (OP) and (TP) teachers: (1) (OP) teachers were more

satisfied with the respect they received from their colleagues for the job they are doing, and (2) they were more satisfied with being a teacher in an open area ( $F=8.44$ ,  $p<.001$ ,  $d.f.=2, 32$ ,  $R^2=0.35$ ). In fact, (OP) teachers rated this latter variable as the most satisfying (2.7 out of 3.0) of nine aspects of Job Satisfaction. Other Job Satisfaction variables rated at or above the "satisfied" level (i.e. 2.0) by the (OP) teachers were: Being a Teacher (2.6), Autonomy to Develop the Kind of Program Preferred (2.5), Respect from Colleagues (2.3), Being a Member of your Present Teaching Team (2.3), Opportunity to Assume Leadership in Your Program (2.3), Respect Received from Parents for the Job You're Doing (2.2), and Opportunity to Interact with Colleagues (2.0). Only one variable (Salary) was rated below the satisfactory level (at 1.8) by the (OP) teachers. In contrast, (TP) teachers rated only three variables above the "satisfactory" level: Being a Teacher (2.4), Autonomy to Develop Own Program (2.3), and Opportunity to Assume Leadership in Your Program (2.3).

On the Dimension of Teacher Attitudes, (OP) teachers rated their overall Teaching Style as more progressive while (TP) teachers rated their Teaching Style as moderately progressive ( $F=3.86$ ,  $p<.055$ ,  $d.f.=1, 33$ ,  $R^2=0.10$ ). On all four Teacher Attitude variables (Teaching Style, Approach to Discipline, Social Views, Views of Other Teachers in British Columbia), (OP) teachers rated themselves as more progressive than did (TP) teachers.

While none of the 23 variables related to the Preservice Training Dimension significantly differentiated (OP) and (TP) groups at the .05 level of significance, three variables approached this significance level: (OP) teachers reported more adequate preservice training in Humanistic Discipline Techniques ( $p<.09$ ) in Classroom Management ( $p<.09$ ), and in Practice Teaching in an Open Classroom ( $p<.09$ ) than did (TP) teachers. The most conceptually significant finding, however, is that neither (OP) nor (TP) teachers rated *any* of the content-related aspects of their preservice training as "adequate". On six of these variables, over half of the respondents reported receiving "no preservice training" (i.e., Building Team Relationships, Utilizing Volunteers and Community Resources, Utilizing Teacher Aides, Understanding How to Implement Open Education Practices, Practice Teaching in an Open Classroom, and Utilizing Space Flexibly).

Only one of 37 variables related to the Inservice Training Dimension significantly differentiated (OP) and (TP) teachers: (OP) teachers do more adequate Systematic Reading On Their Own ( $F=8.34$ ,  $p<.008$ ,  $d.f.=1, 33$ ,  $R^2=0.20$ ). This was the only inservice training *activity* of 11 described which received a "satisfactory" rating. Special courses, workshops, conferences and visits to other classrooms, and even regular staff meetings were all rated as less than satisfactory.

Only one of 15 Pupil Variables significantly differentiated (OP) and (TP) teachers: (OP) teachers give their pupils more independent study time to explore topics of interest to them ( $F=12.23$ ,  $p<.002$  d.f.=1, 33,  $R^2=0.27$ ).

Regarding Hypothesis 3, that an (OP) can be significantly differentiated from a (TP) in self-contained classroom facilities, none of the variables of four Dimensions (Teacher Background Characteristics, Adequacy of Facility, Teaming, Adequacy of Preservice Training) proved to be significant discriminators. Certain variables on the other six Dimensions were significant discriminators (see Table 6).

**TABLE 6**

Means and standard deviations for the variables in five Dimensions which significantly differentiate Open and Traditional Program (OP vs TP) operating in self-contained classrooms.

Dimensions and Variables	Open Program (OP) Teachers		Traditional Program (TP) Teachers	
	X	SD	X	SD
II ADEQUACY OF SUPPORT 1. Parents kept informed sufficiently to accept your program	2.143	0.802	1.381	0.680
V JOB SATISFACTION 1. Respect from parents for the job you are doing	2.357	0.633	1.857	0.573
2. Opportunity to assume leadership in your program	2.214	0.802	1.762	0.944
VI TEACHER ATTITUDES 1. Progressiveness of overall teaching style	2.286	0.469	1.857	.359
VIII TYPES OF INSERVICE TRAINING 1. Had training in flexible grouping techniques	1.000	0.785	1.571	0.598
2. Want training in building team relationships	1.357	0.750	1.191	0.680
3. Adequacy of doing systematic reading on own	2.214	0.802	1.429	0.978
IX PUPIL VARIABLES 1. Desirableness of grade range in your program	1.0714	0.829	1.4762	0.873
2. Increased opportunity for teacher to work with individual pupils	0.500	0.519	1.4762	1.167

On the Adequacy of Support Dimension, (TP) teachers in self-contained classrooms did not rate any aspect of support at the "adequate" level or above, and (OP) teachers in self-contained classrooms rated only three of the 13 variables as "adequate", (i.e., Principal's Support of Your Program, Parents Support of Your Program, and Parents Being Kept Informed Sufficiently to Accept Your Program). This latter variable was the only one which significantly differentiated (OP) and (TP) teachers, with (OP) teachers reporting this aspect of support to be more adequate than did (TP) teachers ( $F=6.03$ ,  $p<.02$ , d.f.=1, 33,  $R^2=0.15$ ).

Both (OP) and (TP) teachers rated as "less than adequate" the following aspects of support: (1) the Secondary School Teachers Building Upon the Work of the Elementary School (this was least adequate), (2) Availability of Special Consultants, (3) Parents Helping to Plan the Program, and (4) Parents Being Involved in the Placement of Their Children into the Program.

Two variables on the Teacher's Job Satisfaction Dimension significantly differentiated (OP) and (TP) teachers operating in self-contained classrooms: (OP) teachers reported higher satisfaction with (1) the Respect Received from Parents for the Job You Are Doing and with (2) Opportunity to Assume Leadership in Your Program ( $F=5.66$ ,  $p<.008$ , d.f.=2, 32,  $R^2=0.26$ ). The variable rated most satisfactory for both groups was Being a Teacher. The (OP) group rated six of the nine Job Satisfaction variables as "adequate" or above, whereas the (TP) group gave this rating to only three variables, thus indicating more overall job satisfaction on the part of the (OP) teachers.

The self-contained classroom teachers operating an (OP) can be significantly differentiated from their counterparts operating a (TP) on only one (of four) Teacher Attitude variables: (OP) teachers rate their overall Teaching Style as more progressive than (TP) teachers, who rate their teaching style as less than progressive ( $F=9.38$ ,  $p<.004$ , d.f.=1, 33,  $R^2=0.22$ ). On all four Teacher Attitude variables (Teaching Style, Approach to Discipline, Social Views, View of Other Teachers in British Columbia) the (OP) teachers rated themselves as more progressive than did (TP) teachers.

Three variables related to the Inservice Training Dimension significantly differentiated (OP) and (TP) teachers in self-contained classrooms, and two variables approached significance in doing this: (1) (OP) teachers have had more inservice training in Flexible Grouping Techniques, (2) they want more inservice training in Building Team Relationships, and (3) they do more adequate Systematic Reading On Their Own than do (TP) teachers ( $F=6.42$ ,  $p<.002$ , d.f.=3, 31,  $R^2=0.38$ ). In addition, (OP) teachers have more frequently Participated in Encounter Groups or Sensitivity Training Sessions ( $p<.07$ ) and want more inservice training in Small Group Instructional Techniques ( $p<.07$ ). Overall trends reveal that (OP) teachers have had more inservice training on every one of the 13 content variables (these are the same variables listed in Table 3), and yet they typically want

more inservice training in these same content areas than their (TP) counterparts in self-contained classrooms.

Two Pupil Variables significantly differentiated (OP) and (TP) teachers in self-contained classrooms: (1) there is a more desirable grade range in the (OP) situation, where multi-age grouping typically occurs, than in the (TP) situation, where a single grade level is common, and (2) (OP) teachers report their Opportunity for Interaction with Individual Pupils has increased as a result of working in an (OP) situation ( $F=11.28$ ,  $p<.000$ ,  $d.f.=2, 32$ ,  $R^2=0.41$ ).

With regard to Hypothesis 4, that an (OP) in an OA facility cannot be significantly differentiated from an (OP) in a SCC facility, none of the variables in the following six Dimensions were significant discriminators: Teacher Background Characteristics, Job Satisfaction, Teacher Attitudes, Adequacy of Preservice Training, Types and Adequacy of Inservice Training, and Pupil Variables. The significantly discriminating variables in the other three Dimensions are indicated in Table 7.

TABLE 7

Means and standard deviations for the variables in three Dimensions, which significantly differentiate Open Programs operating in open area (OA) and self-contained classroom (SCC) facilities.

Dimension and Variables	Open Program in (OA)		Open Program in (SCC)	
	X	SD	X	SD
II ADEQUACY OF FACILITY				
1. Lighting	2.304	0.470	1.643	1.842
III ADEQUACY OF SUPPORT				
1. Resources	1.913	0.515	1.571	1.756
2. Informing parents sufficiently to get them to accept your program	1.870	0.815	2.143	0.864
3. Parents involved in deciding an assignment of their children to your programs	1.609	1.158	0.786	1.122
IV TEAMING				
1. Time spent team planning program before implementing it	3.391	2.518	0.714	1.858
2. Time available for team planning	1.522	0.730	1.357	0.929
3. Time spent teaching with a teammate	2.348	1.465	1.143	1.027

One of the 21 variables related to the Adequacy of Facility Dimension significantly differentiated Open Programs in OA and SCC facilities, OAs had more adequate lighting ( $F=9.46$ ,  $p<.004$ ,  $d.f.=1, 35$ ,  $R^2=0.21$ ). Two other variables approached statistical significance: Acoustics in OAs were rated as more adequate ( $p<.07$ ) and so were Chalkboards ( $p<.08$ ). Perhaps the most conceptually significant finding is that none of the 21 variables related to Adequacy of Facility in a SCC facility and only 3 of these 21 variables in OA facilities were rated at an "adequate" level or above. The lowest rating for both types of facilities (OA) and SCC) was given to the availability of a back-up "Auxiliary Room" for special purposes.

Three variables related to the Adequacy of Support Dimension significantly differentiated Open Programs in OA and SCC facilities: the Open Program in an OA (1) had more adequate resources (supplies, books, equipment) for use in the program, (2) but it was less adequately described to parents so that they would understand and accept it, although (3) it more adequately got parents involved in making decisions about placing their children in it ( $F=7.26$ ,  $p<.001$ ,  $d.f.=3, 33$ ,  $R^2=0.40$ ). The most adequate support for the Open Program in either type of facility came from the principal while the least adequate came from the failure of the secondary school to build on the work done with students at the elementary school level.

Three variables related to the Teaming Dimensions significantly differentiated Open Programs in OA and SCC facilities: (1) OA teachers spent more time than SCC teachers team planning their program the year before actually implementing it (about 15–25 hours vs. 1–2 hours), (2) OA teachers reported less sufficient time available for team planning, and (3) OA teachers reported spending more time teaching with a teammate than did SCC teachers (0 to  $\frac{1}{4}$  time vs.  $\frac{1}{4}$  to  $\frac{3}{4}$  time) ( $F=8.33$ ,  $p<.001$ ,  $d.f.=3, 33$ ,  $R^2=0.43$ ). These results should be interpreted with caution, however, since most of the (OP) SCC teachers reported that they do not team teach, but rather teach on their own.

The discriminating variables all relate to Open Area teachers reporting a higher Job Satisfaction than Self-Contained Classroom teachers possibly because of the satisfaction the Open Area teachers received from being a member of a harmonious teaching team, because of more adequate resource support and principal support, and because of more parental involvement in planning the Open Area program and placing their children in it.

Further research should be undertaken to cross-validate the results of this study. A similar study should endeavour to use a larger number of respondents than was used in the present study. Cross-cultural studies would also provide a useful comparison for validation purposes.

In this section, discussion will focus on each of the nine Dimensions, in turn, as each relates to the four main hypotheses and the results presented above.

The Dimension of Teacher Background Characteristics was a non-significant discriminator for all four hypotheses. However, certain variables on each of the other eight Dimensions significantly differentiated Open from Traditional Programs under three different conditions: (1) in both area and self-contained classroom facilities combined, (2) in open area facilities only, and (3) in self-contained classroom facilities only, as predicted in Hypotheses 1, 2 and 3, respectively. (Hypothesis 4 will be treated separately later.)

As regards the Adequacy of Facility Dimensions, the most *conceptually* significant results obtained reveal (1) that few of the 21 aspects of facility were rated as "adequate," (2) that facilities accommodating an Open Program were generally rated as more adequate than facilities accommodating a Traditional Program, and (3) that the least adequate aspects of the educational facility were the availability of enclosed "auxiliary rooms" and audio-visual equipment.

The findings related to the Adequacy of Support Dimension indicate that Open Programs were found to be better accepted by parents, perhaps because the parents were involved in such things as planning the program and placing their children in it. Such active involvement may predispose these parents to assume a more positive attitude towards the Open Program.

For both Open and Traditional Programs in both Open Area and Self-Contained Classroom facilities, a number of aspects of support were rated as "less than adequate," namely, the extent to which the secondary schools build upon what the elementary schools have done and the availability of special consultants to help teachers develop their program. The support provided by the school principal was consistently given the highest rating. These findings together indicate that Open Programs are receiving more adequate support at the immediate school level (from teaching colleagues and from the principal) than from the district level.

The most significant finding for the Teaming Dimension was that Open Program teachers spent at least 15-25 hours planning their program *together the year before* actually implementing it. If this necessary minimum condition is not met, a Traditional Program is likely to result.

Harmonious and cooperative teaming is especially important for implementing an Open Program in an Open Area facility if there is to be a low "turn-over" rate among the teachers and if they are to implement a "well-coordinated" program. In fact, such successful teaming was rated as more

important to operating a successful Open Program than was large inputs of additional resources.

These findings regarding the importance of harmonious teaming support those obtained by Molnar (1972), which indicated that when teachers are on a team characterized by equal or balanced participation among its members, each member is more likely to feel they have an influence on team decision making while retaining a high level of personal autonomy within the team structure to develop their own teaching style.

The findings pertaining to the Dimension of Job Satisfaction clearly indicate that Open Program teachers are more satisfied than Traditional Program teachers because of the satisfaction they receive (1) from being a member of a teaching team (2) from the greater respect they get from parents and from their teaching colleagues for the job they are doing, and (3) from their opportunities to assume leadership within their program.

This last finding supports that obtained by Meyer et al. (1971) in that Open Area Teachers operating an Open Program have high Job Satisfaction because their "professional leadership" ambitions can be satisfactorily met within the harmonious teaming structure.

Both Open and Traditional Program teachers rated their salary as the least satisfactory item because it was viewed as insufficient in terms of the amount of time teachers spent planning and preparing for teaching. This indicates that both kinds of teachers view their job as being more than a "9.00 a.m. to 3.00 p.m." job.

With regard to the Teacher Attitude Dimension, the Open Program teachers rated their overall teaching style as more liberal or progressive, and they have a more liberal or progressive approach to discipline. Paradoxically, Open Program teachers do not rate other teachers in general as being more traditional (or less progressive) than they are. The present findings do not provide an answer to this paradox.

The findings pertaining to the Adequacy of Preservice Training Dimension reveal that both Open and Traditional Program teachers in both Open Area and Self-Contained Classroom facilities receive "less than adequate" or "no preservice training"; in all seventeen content-related areas investigated (see Table 3.) However, Open Program teachers received "more" adequate preservice training in Humanistic Discipline Techniques than did Traditional Program teachers, which indicates the importance of preservice training in this area if an Open Program is to be developed. (This emphasis is one of the fundamental characteristics of the Open Education and Humanistic Education movements, both of which emphasize humanistic teacher-student interactions.)

The results pertaining to the Types and Adequacy of Inservice Training reveal that Open Program teachers do more systematic reading on their

own than Traditional Program teachers. This was rated as the most satisfactory type of inservice training out of eleven inservice training *activities*. Both kinds of teachers reported receiving little inservice training in the thirteen content-related areas listed in Table 3. Open Program teachers were more willing to participate in a Diploma or Masters level program focusing on how to teach in a more open way.

The findings pertaining to Pupil Variables indicate that Open Program teachers perceive themselves as having more opportunity to work with individual students and they allow their students more independent study time. Moreover, the grade range in the Open Program is more satisfactory than in a Traditional Program. These findings reflect the characteristics of an Open Program, as defined by Walberg and Thomas, (1972), by Martin and Pavan (1976), and by Lukasevich (1976), and thus were expected to differentiate Open and Traditional Programs.

With regard to Hypothesis 4, no significant differences were predicted because an Open Program was expected to be similar whether it was being implemented in an Open Area or in a Self-Contained Classroom facility. In fact, only seven variables in three Dimensions significantly differentiated Open Area and Self-Contained Classroom teachers operating an Open Program (see Table 7).

### Conclusion

This study has identified certain variables in eight Dimensions which are instrumental in making an Open Program possible. The findings presented and discussed above strongly suggest specific recommendations which must be carried out if the Open Area and Open Education concepts are to succeed:

1. The overall "less than adequate" findings in regard to educational facilities suggest that architects should involve teachers in planning more functionally adequate facilities. Then, the adequacy of the facility should be evaluated so that inadequacies are not duplicated in the future.
2. Support for an Open Program and for Open Areas seems generally adequate within the school and from the parents, but not at the district level. Therefore school system wide attention should be given to providing consultative support for these innovations and to providing for better continuity between the elementary and secondary school programs.
3. Teachers — especially a team of teachers — should be provided with adequate time (i.e., 15 — 25 hours minimum) to plan an Open Program *before* actually implementing it. An Open Program is too complex to be implemented without sufficient early planning.

4. Teachers should be hired who have a moderate-to-progressive teaching style and who take a moderate-to-progressive approach towards discipline, according to their own admission. Teachers, who implement a Traditional Program, admit having a more traditional teaching style and a more traditional approach to discipline.
5. Being a member of a harmonious teaching team largely determines how well satisfied an open area teacher will be and how well-coordinated their program will be. Therefore, teachers who cannot work together harmoniously, should not be on the same team.
6. All content-related areas of preservice training should be modified so as to provide more adequate preparation to teach in more open ways both in open area and in self-contained facilities. A coordinated preservice program consisting of coursework related to student teaching in an open manner, was strongly recommended by respondents in this study.
7. Inservice training should be encouraged via systematic readings on one's own and via participation in a specially designed Diploma or Masters Program focusing on open ways and teaching and promoting learning. Other inservice activities (visiting other schools, conferences, special courses and consultants, staff meetings) were rated so inadequate that their usefulness is suspect unless they are modified drastically so as to become more purposeful.
8. To bring about an Open Program, teachers should arrange to interact more with *individual* students and arrange for them to have more independent study time. In other words, the teachers' role must change from "sage on the stage" to "guide at the side." Also multi-age grouping is more desirable for enabling students to "teach" one another.

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