Teachers' Attitudes in Open and Traditional Schools

Sar B. Khan and Ross E. Traub
ontario institute for studies in education

Scales measuring attitudes toward education, teaching, pupils, and innovations were administered to 87 teachers who staffed six of the schools of a southern Ontario board of education. These schools differed systematically in openness of educational program and openness of architecture. Multivariate and univariate analyses of variance were used to study the differences among the schools in teachers' attitudes toward education in general, teaching as a profession, pupils, and educational innovations. Significant effects, multivariate and univariate alike, were found for program level and architecture type. It was concluded that those teachers who conducted a more open program and/or who taught in an architecturally open school had significantly more positive attitudes than those teachers who conducted a less open program and/or who taught in a school which is either architecturally closed or a mixture of open and closed architectures.

Des échelles ayant pour objectif de mesurer les attitudes à l'égard de l'éducation en général, de l'enseignement comme profession, des élèves et des innovations en éducation ont été construites à partir de tests administrés à 87 enseignants de six écoles d'un conseil scolaire du sud de l'Ontario. Ces écoles différaient systématiquement par leurs programmes (plus ou moins ouverts) et par leur conception architecturale (traditionnelle ou à aire ouverte). Les différences d'attitudes entre les six écoles ont été étudiées au moyen d'analyses de variance multivariées et univariés. L'une et l'autre forme d'analyse ont permis de dégager des différences appréciables selon le type de programme et la conception architecturale. Il a été conclu que les enseignants dont le programme était plus ouvert et/ou qui travaillaient dans une école à aire ouverte avaient des attitudes sensiblement plus positives que ceux dont le programme était moins ouvert et/ou qui travaillaient dans une école de conception architecturale traditionnelle ou mixte.

This is the report of a comparative study (Bock, 1975) in which our purpose was to compare some of the attitudes held by the teachers who staff open and traditional schools.

Openness is an ambiguous concept when used to describe a school. It can refer to either architecture or program. Of these two characteristics, architectural openness is much the easier to define. In this study we made only a crude architectural differentiation among schools; they were classed as open or closed (traditional) or mixed (a part of the school open, the remainder closed).

Programmatic openness is very difficult to describe and measure. One way to attempt a description is to concentrate on the teacher's role in an open, as opposed to a traditional, program. Unlike the stereotype of the traditional teacher, the open teacher is not the principal actor in the daily

classroom drama, the one who presents a series of planned lessons to the whole class or to distinct and sizeable fractions of it. Instead, the spotlight is on the student, with the teacher serving as resource person, guide, and counsellor. The open teacher works closely with students both to define the goals of learning and to choose or design appropriate instructional materials and activities. In this process, the open teacher respects the feelings and expressed wishes of students, believing them capable of making valid decisions about the content, method, and pace of learning. The teacher in an open program is relatively unconcerned about formal structure: The transition from one activity to another is not controlled by the clock, but by the interests and attention spans of the students; classroom furnishings are not placed into neat, orderly arrangements which are rigidly maintained through the course of the school day, but instead are arranged and rearranged as required to accommodate the demands of different activities, and to facilitate the grouping and regrouping of students. The open teacher is open both to criticisms of his teaching and to experimentation with novel ideas and practices. (For other descriptions of programmatic openness in education, see, for example, Bussis & Chittenden, 1970; Hill, 1975; Traub, Weiss, Fisher, & Musella, 1972; Walberg & Thomas, 1974.)

We have not been able to develop a compelling logical basis for predicting that teachers who work in architecturally open schools or who operate open programs will hold different attitudes from teachers who work in architecturally closed schools or who operate traditional programs. But, as described in the preceding paragraph, the personal qualities and instructional strategies that characterize the teachers who conduct open programs differ from the qualities and strategies of teachers who conduct traditional programs, and these differences lead us to expect the members of the former group to hold somewhat more progressive attitudes than the members of the latter group. Specifically, we expect the teachers who conduct open programs to be more progressive in their views of the educational process, to have more positive attitudes toward their jobs, to be more accepting of their pupils, and to be more favorably disposed to educational innovations than those teachers who conduct traditional programs.

In recent years, a research literature of considerable size has been amassed in which open and traditional schools have been compared. In most of this research, the focus of attention has been on measured characteristics of students (see the extensive review by Horwitz, 1979). Relatively little attention has been paid to teachers' attitudes; moreover, the results of those studies which have been published are not consistent and cannot be easily interpreted, perhaps because the distinction between programmatic and architectural openness has not always been made. For example, Paul (1975) reported that teachers in open schools see themselves as more autonomous, feel more satisfied with their jobs, and spend less time on routine activities than teachers in conventional schools. However, Allen, Hamlin, and Nixon (1976) found on the one hand that teachers in self-

contained classrooms were more satisfied with their jobs than teachers in open areas; on the other hand, they found that teachers conducting open programs experienced greater job satisfaction than teachers conducting closed programs. Sanders (1976) reported no significant differences between the scores of teachers from open and self-contained classrooms on the Minnesota Teacher Attitude Inventory. These reports alone provide evidence of the confusion that exists in the research literature over the definition of openness in education. Some investigators take it to mean openness of program while others interpret it as openness of physical space.

In this study, we considered both the programmatic and the architectural dimensions of schooling; we compared teachers from different schools, schools which varied in openness of program or architecture or both. The characteristics of teachers which were compared were the aforementioned attitudes toward education, toward teaching as a career, toward pupils, and toward innovative practices.

METHOD

Instrumentation

Scales were developed to measure teachers' attitudes toward education, toward teaching as a career, toward pupils, and toward innovations. Some items were adapted from previous scales (Shaw & Wright, 1967) and some were newly developed for use in this study. The four scales are briefly described below:

1. Attitude Toward Education. This scale consists of 39 items. They refer to physical arrangements in the classroom or learning area, methods of student assessment and promotion, freedom of choice for students, emphasis on discipline, and teaching methods.

2. Attitude Toward Teaching. This scale purports to measure teacher satisfaction in terms of work load, the teaching process, and the value of teaching as a career. This scale contains 27 items.

3. Attitude Toward Pupils. This scale consists of statements referring to teachers' acceptance of pupil behavior, dress, and maturity in presenting ideas, and making decisions. Twenty items are included in this scale.

4. Attitude Toward Innovations. This scale is composed of 22 items measuring the extent to which teachers are prepared to adopt novel teaching practices. It includes items specifically referring to change in approach to teaching and learning, the value of experimentation, and willingness to try out new ideas.

The format of this questionnaire given to teachers was that approximately half of the items in each scale were positively worded and half were negatively worded. The items from the different scales were arranged in a scrambled order and used to form only one questionnaire. The teach-

ers responded to each item indicating strength of agreement on a five-point scale from "Strongly Disagree" to "Strongly Agree" with a neutral middle point.

In scoring the questionnaire, the numbers from 1 to 5 were assigned to the successive response categories, the highest numerical value (5) always being associated with the most progressive and flexible/least traditional and staid response. Scores were summed over items in order to obtain a single score on each scale for each teacher.

Selection of Schools

The study was confined to a single Ontario school board containing 43 elementary schools. Of these 43 schools, 18 were chosen on the basis that more than 70% of their pupils came from homes where English was spoken as the first language. This criterion was applied because young children from these same schools were also involved as subjects in the large scale project of which the study reported here formed only a part.

The Dimensions of Schooling Questionnaire (Traub et al., 1972) was administered to all teachers in the 18 schools. The version of the questionnaire used in this study (DISC-II) contained 29 items on different facets of the schooling process. These facets can be sorted into several broad categories: setting instructional objectives, structure for decision making, time-scheduling, individualization of instruction, composition of classes, role of the teacher, student evaluation, and rule-making. Alternatives to each item were ordered along a continuum from most open to least open. The teachers were asked to rank order the alternatives, from the one that described the program for the greatest number of students for the greatest amount of time to the alternative that described the program for the smallest number of students for the least amount of time. Alternatives that described no part of the program for any student were not ranked. Teacher responses to the items of DISC were scored so as to preserve an order from most to least open practice. Item scores were summed to get a total score for each teacher. A program openness score for each school was obtained by averaging the DISC scores of teachers in that school. A relatively high average DISC score for a particular school was interpreted as indicating a relatively open program.

As regards architecture, schools were classified into open, mixed, and closed categories. Schools with relatively few permanent walls and having more than one group occupying each learning area in the building were designated as open schools, while those with self-contained classrooms were designated as closed schools. A school was placed in the mixed architecture category if some portion of its total area was open while the rest consisted of self-contained classrooms.

The 6 schools involved in this study were drawn from the large set of 18. Included in the 6 were 2 schools of each type of architecture. These were

the schools, of the subset having that type of architecture in the large set of 18, for which the associated mean DISC scores were extreme, one high and one low.

Analysis

The analysis proceeded as follows: The individual teacher within each school was used as the unit of analysis in a 2 (more open program, less open program) x 3 (open architecture, mixed architecture, closed architecture) design. Three single degree-of-freedom contrasts and their interactions were tested for significance. These contrasts were more open program vs. less open program, open architecture vs. closed architecture, and open architecture vs. mixed architecture. The two architecture contrasts are not orthogonal. In addition, the unequal number of teachers in each cell of the design produced small correlations between the program contrasts and each of the architecture contrasts. The effects of these correlations on the significance tests that were made was effectively nullified by employing the following strategy: All possible sequences of contrasts in the main effects (followed by the interactions) were employed. In any given sequence, the contrasts estimated later in the sequence did not contain variance associated with those contrasts estimated earlier. The statistical significance of an effect was judged only when it occurred at the end of the sequence, whether of main effects or interactions. Contrasts in the main effects were always estimated earlier in the sequence than interaction contrasts.

In order to accomplish this analysis, we used a multivariate technique developed by Bock (1963a, 1963b) and programmed by Finn (1971). The multivariate and univariate F-ratios were evaluated for statistical significance by setting α, the probability of an error of the first-kind, to 0.05.

RESULTS

Means and standard deviations by school, means by program and architecture, and alpha reliability-coefficients (Cronbach, 1951) are presented in Table 1. The reliability coefficients range from .72 for the Attitude Toward Pupils scale to .82 for the Attitude Toward Education scale. These coefficients reflect a level of internal consistency that can be expected for scales of the length and content that were used.

An examination of the means reported in Table 1 reveals that teachers in the school with open architecture and more open program had the highest scores on all scales except the Attitude Toward Teaching scale. The means for the schools with less open programs were lower within each category of architecture on all scales compared to the means for schools with more open programs. Also, schools with open architecture had higher average scores on all scales than the schools with either mixed or closed architecture. A comparison of the means for schools of mixed architecture

TABLE 1

Means, Standard Deviations, and Reliability Coefficients of Teacher Scores on Four Attitude Scales

Variable		*Schools*						*Program*		*Architecture*			
		MOP-OA	*MOP-MA*	*MOP-CA*	*LOP-OA*	*LOP-MA*	*LOP-CA*	*MOP*	*LOP*	*OA*	*MA*	*CA*	α
Attitude toward education	$\bar{X}$	162.6	146.5	143.6	150.8	133.9	136.6	150.9	140.5	156.7	140.2	140.1	.82
	SD	7.7	10.3	6.2	12.2	7.8	9.7						
Attitude toward teaching	$\bar{X}$	116.5	111.6	117.6	114.6	100.8	109.6	115.2	108.3	115.6	106.2	113.6	.80
	SD	8.4	7.4	4.5	5.9	11.7	6.8						
Attitude toward pupils	$\bar{X}$	83.2	75.8	76.2	79.9	68.1	68.4	78.4	72.1	81.5	72.0	72.3	.72
	SD	4.9	7.4	5.8	4.9	3.9	4.4						
Attitude toward innovations	$\bar{X}$	86.9	77.6	76.1	80.5	73.1	72.8	80.2	75.5	83.7	75.4	74.5	.75
	SD	6.2	8.3	8.4	4.1	7.2	7.8						
n		15	19	11	11	12	19	45	42	26	31	30	87

NOTE: MOP = More open plan; LOP = Less open plan; OA = Open architecture; MA = Mixed architecture; CA = Closed architecture

TABLE 2

Results of Multivariate and Univariate Analyses of Variance of Teacher Attitude Scores

	Main Effects			*Interaction Effects*	
	I *MOP-LOP*	*II* *OA-CA*	*III* *OA-MA*	*I x II*	*I x III*
Multivariate[a]	10.43**	13.86**	14.51**	NS	NS
Univariate[b]					
Attitude toward education	26.30**	41.32**	43.86**	NS	NS
Attitude toward teaching	17.58**	NS	17.32**	NS	4.61*
Attitude toward pupils	28.61**	38.86**	40.34**	NS	NS
Attitude toward innovations	8.59**	21.38**	19.15**	NS	NS

[a] $df = 4,78$

[b] $df = 1,81$

* $p < .05$

** $p < .01$

NS: Not significant

with those for schools with closed architecture does not reveal any noticeable trend.

Results of the multivariate and univariate analyses of variance are summarized in Table 2. The multivariate F-ratios for all main effects are significant. The univariate analysis of variance results indicates that teachers in schools with more open programs had significantly higher scores on all four attitude scales than teachers in the schools with less open programs. The comparison of schools with open and closed architectures yielded significant F-ratios for all scales except the Attitude Toward Teaching scale. The third contrast, involving schools with open and mixed architecture, resulted in significant F values for all four scales, schools with open architecture having the higher means in every case. None of the multivariate interactions (program level by open versus closed architecture, and program level by open versus mixed architecture) was significant.[1]

Additional evidence on the relationships between teacher attitudes and program level was obtained by correlating individual teachers' DISC scores to their scores on the four attitude scales. These correlations are reported in Table 3. Except for the Attitude Toward Teaching scale, the

TABLE 3

Intercorrelations Among the Attitude Scores And Their Correlations with DISC Scores

		I	*II*	*III*	*IV*	*DISC*
I	Education		.31	.71	.61	.65
II	Teaching			.33	.24	.26
III	Pupils				.58	.55
IV	Innovation					.56

remainng three attitude scales correlate with each other in the range of .58 to .71. Correlations of the Attitude Toward Teaching scale with the remaining three attitude scales range from .24 to .31. A similar trend prevails in the correlations with teachers' individual DISC scores. The correlations are much higher for the Attitude Toward Education scale, the Attitude Toward Pupils scale, and the Attitude Toward Innovations scale than the correlation for the Attitude Toward Teaching scale. (All four correlations are statistically significant.)

DISCUSSION

The results of this study indicate that teachers working in schools classified as more open by program and open by architecture obtained higher scores on measures of attitudes towards education, teaching, pupils, and innovations than teachers working in schools classified as less open by program

and either mixed or closed by architecture. Higher scores on these attitude measures reflect a progressive orientation seemingly in line with the philosophy of open education.

The effects associated with the architecture contrasts were stronger, statistically speaking, than the effect associated with the program contrast. This finding is difficult to interpret. A partial explanation, perhaps, lies in the fact that degree of programmatic openness was correlated with degree of architectural openness in the six schools of the study. The two architecturally open schools had somewhat higher average scores on DISC than the two schools of mixed architecture, and these latter schools had somewhat higher average scores on DISC than the two architecturally closed schools. This situation represents a flaw in the design of the study; it is a situation that could not be avoided, however, given the schools available for study.

There are at least two ways in which architectural openness itself may have been responsible for the strong and statistically significant architectural contrasts obtained in this study: (a) It may be that not all teachers can face the prospect of teaching in an architecturally open facility. For example, to accept a post in open architecture is to agree to be "on display" to a wider audience than a single class of students; this same prospect usually does not face those who work in architecturally closed schools. For this reason, and possibly for others, the teachers in an architecturally open school may be unrepresentative of teachers at large. The underlying set of characteristics that would describe this unrepresentativeness may well include, or be related to, the attitudes toward education that were measured in this study; (b) The experiences that teachers have in an architecturally open school may cause their attitudes to become more progressive or, at the least, less conventional and less typical of teachers in general. This change may be a consequence, for example, of being on display to a wider audience than a single class of students, and also of being able to observe other teachers directly. The validity of these explanations of the effects associated in this study with architecture remains to be tested in future empirical research.

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[1] In the face of non-significant multivariate effects, univariate effects are presented but not interpreted.

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Sar B. Khan is an Associate Professor and Ross E. Traub is a Professor, both in the Department of Measurement, Evaluation, and Computer Applications at The Ontario Institute for Studies in Education, Toronto, Ontario M5S 1V6.