

Examining School Environmental Constraints: A Comparative Study of Manitoba and Hong Kong Schools*

Y. L. Jack Lam
brandon university

Empirical study of environmental constraints on organizational adaptation, using both contingency theory and a School Environmental Constraint Instrument (SECI), showed that Manitoba and Hong Kong public school systems operated in environments whose characteristics and constraints were region-specific. Indeed, some adaptations of the systems were inconsistent with contingency theory.

Une étude empirique des contraintes environnementales en jeu dans l'adaptation organisationnelle, étude qui a fait appel à des théories de la contingence et à un School Environmental Constraint Instrument (SECI), a révélé que les systèmes scolaires publics du Manitoba et de Hong Kong fonctionnent dans des contextes dont les caractéristiques et les contraintes sont particulières à une région donnée. Certaines des adaptations mises en oeuvre par les systèmes scolaires étaient en effet incompatibles avec les théories de la contingence.

INTRODUCTION

Studies of educational systems in different cultures are usually narrative, drawing on data from histories, census, or personal observations. Although conventional studies are comprehensive, they usually neglect the process of change and overlook unique adaptations of organizations in different cultures. Quantitative analyses are less prevalent in comparative education than in other areas of study.

A primary obstacle to quantitative analysis is the lack of appropriate instruments or measures applicable to different cultures. This is particularly true for such macro-societal constructs as the environment. Yet the environment and its impact on organizations have received increasing attention from diverse schools of organizational theory. The structuralist approach, from such diverse theoretical sources as Max Weber and Karl Marx (Etzioni, 1964), pays attention to the two-way processes by which the environment

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and the organization affect one another. Foremost in their analyses are contacts with clients, interaction among organizations (including the government), and the effects of multi-group membership of workers and other participants both within and without the organization. The functional school (for example, Parsons, 1968) advances a social theory of action linking any social configuration with its functions. It leans heavily upon the premise that social and cultural conditions govern the intra-organizational structure and process. The organic school (for example, Haire, 1959), in searching for nomothetic processes in organizational growth found ecological equilibrium between organization and their environments. General system theory (for example, Von Bertalanffy, 1968) proposes an open system by which the organization regulates itself through constant exchange with its environment. It stresses that the efficiency, effectiveness, and ultimate survival of the organization depend on the organization's ability to cope with the changing environment. Alternatively, according to this theory, means have to be found for controlling or manipulating directly environmental turbulence if the organization is to remain.

One finds more precise formulations of environment models in the works of Emery and Trist (1965), Jurkovich (1974), Lawrence and Lorsch (1967), and Thompson (1967). Earlier two-by-two categories have been refined and integrated into a complex typology (for example, Jurkovich, 1974). Uncertainty scales (for example, Duncan, 1972; Lawrence & Lorsch, 1967) purporting to measure environmental impacts on organization have appeared. Nonetheless, all existing typologies can be faulted for their simplicity or their failure to capture the dynamic nature of environmental impact (for example, Lam, 1981), and the uncertainty scales display both oversimplified conceptualization and a lack of empirical validity (for example, Downey, Hellriegel, & Slocum, 1975; Tosi, Aldag, & Storey, 1973). In the search for an alternative, Lam (1985a) formulated a 40-item School Environmental Constraint Instrument (SECI) which allows graphical recordings of external constraints from multitudes of factors encompassing two unordered dimensions. Eight factors—policy, control, funding, resources, values, demography, ethnicity, and language—account for school operation from political, economic, social, and culture standpoints. Five environmental attributes—change (instability), complexity, organization, routine-ness (certainty), and directness—depict how each of the eight external factors affects the school.

PURPOSE OF THE STUDY

I propose to apply this recently developed model to compare the school environments in Manitoba and Hong Kong. The contrast is particularly apt

since the public school system in Manitoba, as in other provinces of Canada, is more than ever under public scrutiny. Carlson's (1975) description of public school as a "domestic enterprise" seems to have been seriously challenged in this period of financial restraint and increasing politicization. The school environment has gone from tranquility to turbulence in the pervasive movement vaguely termed "accountability." So too, as the Hong Kong school system prepares for the official changeover from British to Chinese sovereignty in the colony in 1997, one wonders if the centralized system will remain, whether the pressure for reform in the economic and cultural orders will be stepped up, and whether social values and student life will change dramatically.

A graphic comparison of schools in Manitoba and Hong Kong may throw new light on adaptation processes in each system, and show the importance of the environment in organizational change under contingency theory.

METHODOLOGY

Sample

A stratified random sample of about 300 principals from Manitoba school divisions and districts, selected by division and size, produced 237 useable returns. To ensure appropriate comparison, the sample of Hong Kong schools was mainly from those receiving some kind of public funding. Seventy-eight school principals provided data. Of these, some 5% were from government schools and 95% from grant-in-aid or subsidized schools (that is, schools receiving 80% of their operation costs from the government). About half of these were Anglo-Chinese (that is, using English as medium of instruction) and the remaining were typical Chinese schools. There were slightly more secondary than elementary schools in the sample. All organizational types of public schools in the colony were represented, however.

Instrumentation

The 40-item SECI analysis used a Manitoba sample for reliability and construct validity (Lam, 1985b). On dual scaling analysis, reliability alpha was 0.86. Construct validity of the instrument was examined under Quartimax and Varimax orthogonal rotation analysis with resultant elimination of ten empirically impure items, and adjustment of subscale weightings so composite scores of each subenvironment would be unaffected by the uneven number of subscales. Figure 1 depicts the profile of schools' external environments, measuring constraints from different external factors.

A modified SECI was translated into terminology familiar to Hong Kong

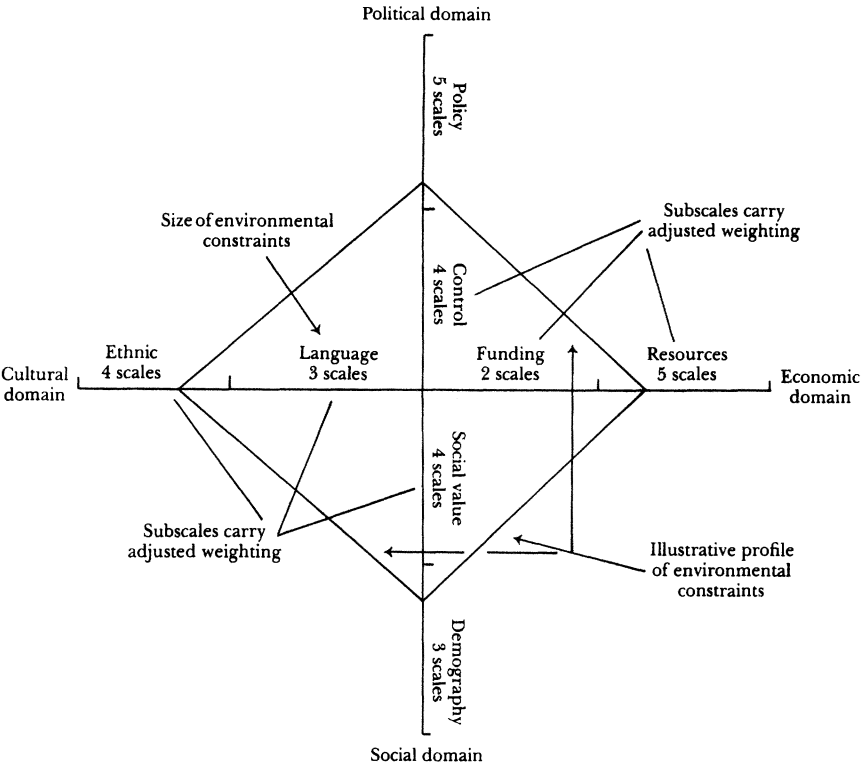


FIGURE 1
Plotting of School External Constraints

school headmasters (in both English and Chinese versions). Validation of the instrument was assessed by inter-item reliability for each subscale using a small pilot sample. Coefficients ranged from .50 to .64, deemed acceptable.

RESULTS

Environmental Characteristics of the School Systems in Each Culture

The Manitoba school environment profile displayed persistently higher degrees of change, complexity, organization, and directness than did the Hong Kong school environment. The reverse was true for uncertainty or non-routineness (see Figure 2).

Statistically, environments of the schools in the two cultures differed significantly from one another in change, organization, routineness, and

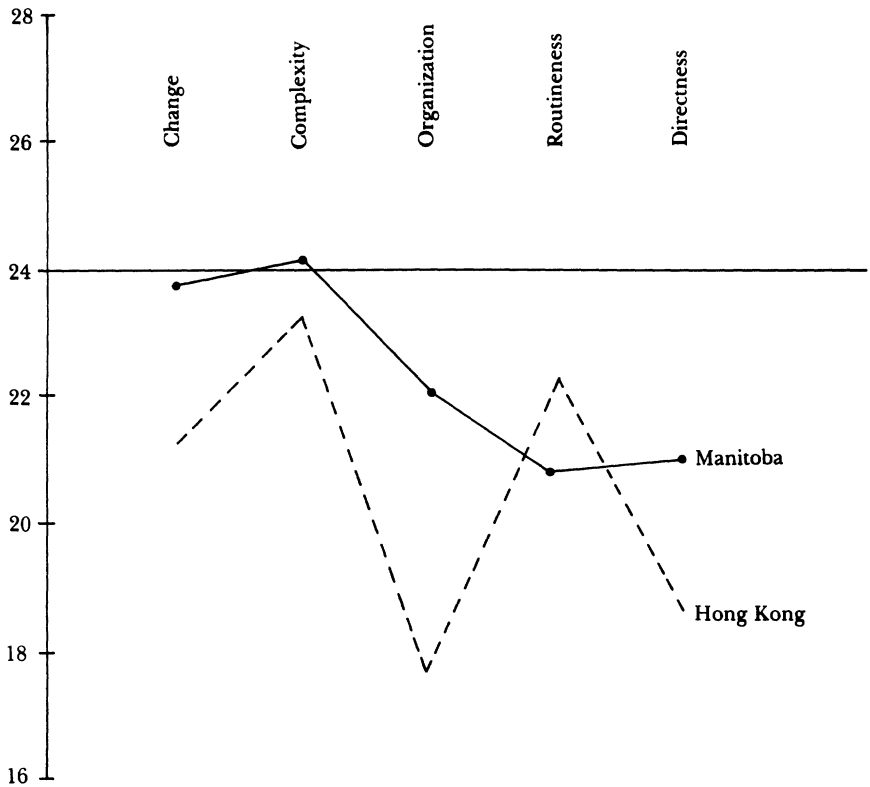


FIGURE 2
*Comparison of School Environmental Characteristics
Between Manitoba and Hong Kong*

directness (see Table 1). They did not differ greatly in complexity of environment, although in both cultures, environmental complexity was ranked highest among various environmental characteristics. One may conjecture some explanations for variations in school environments—characteristics to which the instrument draws our attention and the significance of which it indicates.

Change

That Manitoba public schools showed a higher rate of change than their counterparts in Hong Kong may well be attributed to the twin facts of dramatic experimentations in the 1960s and 1970s and by the recent

TABLE 1
One-Way Anova of Manitoba and Hong Kong Public School Environmental Characteristics

<i>Variable</i>	<i>Source</i>	<i>S. of S.</i>	<i>d.f.</i>	$\bar{X}S$	<i>F</i>	ρ
Change	Between	343.99	1	343.99	22.73	.00
	Within	4948.74	314	15.76		
Complexity	Between	29.27	1	29.17	2.22	N.S.
	Within	4312.99	314	13.73		
Organization	Between	1166.79	1	1166.79	82.98	.00
	Within	4415.58	314	14.06		
Routiness	Between	120.43	1	120.43	11.63	.00
	Within	3248.94	314	10.35		
Directness	Between	334.35	1	334.35	39.10	.00
	Within	2796.28	314	8.9		

conservative "return to the basics" or "accountability" movements (for example, Fullan, Eastabrook, & Hewson, 1973). The roles of schools in general and those of the teacher in particular are increasingly complex (Lam, 1984) and the need to deal with diverse social problems in an ever-changing curriculum (Levenson, 1974; Perticone, 1972; Szasz, 1970; Whiting, 1970) is pressing for school administrators and staff.

In contrast, the colonial government in Hong Kong aims to keep change at a minimum. Perhaps motivated by political desire for stability, the Department of Education monopolizes all major decision-making power through control of the purse strings (Simpson, 1966) and public examinations (Lam, 1975). In these circumstances, neither parents, students, nor the teaching professional have a say in curriculum or in teaching methodology. Even in preparation for turning sovereignty over to China, changes take into account only a few social needs agreed by the government (Cheng, 1982).

Complexity

The relatively high degree of complexity in school environments identified by both Manitoban and Hong Kong school administrators shows both recognition of and sensitivity to the growing politicization of diverse groups (Kwan, 1982; Wirt & Kirst, 1982). More and more, professional organizations and citizen groups in Hong Kong, as in Manitoba, have begun to demand from the education authorities a more significant role in all major decision-making processes. The once placid environment of the Hong Kong

school system is fast disappearing.

Organization, Routineness, and Directness

On the three remaining environmental characteristics, substantial differences may be attributed to school support or subsidy by the Hong Kong government, which shelters these enterprises under rigid codes. Unionization of the teaching profession and supporting staff in the public school system is strongly discouraged. The sense of routinization (certainty) among school administrators in Hong Kong surely could be the outcome of standardized administrative procedures, clear-cut managerial authority, a stable curriculum, and a well-defined funding formula.

Environmental Constraints in Both Cultures

A number of aspects of school environments in both countries, including control and social values, showed degrees of constraint exceeding the average (see Figure 3).

Constraints in both settings were relatively low in such aspects as policy, resources, demography, ethnic composition of the student population, and second-language programs (see Table 2). Still another category, funding, displayed marked variation of constraint in different social settings.

The composite scores on the four subenvironmental constraints and the results of applying the formula

$$\sum_{i=1}^{N=4} \frac{1}{2}(l_i \times w_i)$$

show that Manitoban schools were under more pressure from their environments (1456 units) than were public schools in Hong Kong (1372 units).

In Manitoba, even though the provincial government has constitutional authority over education, professional bodies are deeply involved both in the consultative processes and in direct committee work on all educational legislation. Furthermore, within the broad guidelines provided by the Department of Education, specific interpretation and implementation are in the hands of the local boards of education. In short, political bodies and local boards have many recourses within the democratic framework to making and implementing legislative acts or official policies.

In contrast to Manitoban decentralization, policy in Hong Kong is in the jurisdiction of an advisory Board of Education. Even under the recent liberalization, with soliciting of public opinion and establishment of a structure involving professionals, decision making remains very much centralized (Tai, 1984).

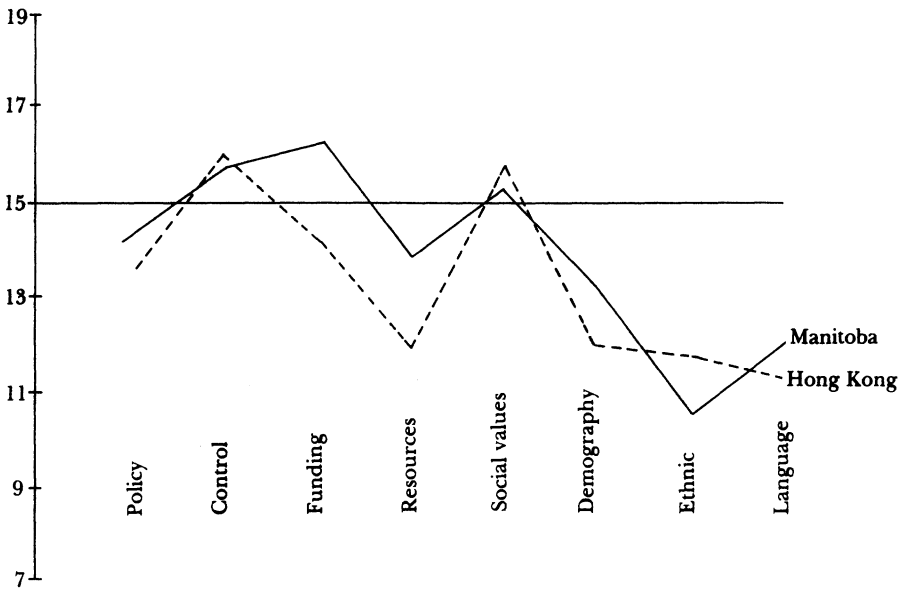


FIGURE 3
*Comparison of School Environmental Constraints
 Between Manitoba and Hong Kong*

Provincial government funding in Manitoba aims to assume from local boards an ever larger share of the fiscal burden. When the foundation program (a funding system that guaranteed a province-wide minimum education expenditure level) was in effect, provincial support fluctuated around 60%–70%, rising to 80% under the Education Support Program (Lam, 1982a). A government financial review (Nicholls, 1983) recommended this be raised further to 90%. But constraint is still the order of the day. And regional disparities in tax bases still result in some poorer divisions encountering difficulty in balancing their educational budgets. Thus, the constraints of finance are very high.

In Hong Kong, the colonial government did not think itself socially responsible for public education finance until 1971 (Chung, 1982). Then primary education became compulsory for all, and in 1974 compulsion was extended to the junior high level (Chung, 1982). These events vastly improved the financial situation in the schools from which a large proportion of the sample of this study was drawn. Reflecting upon these improvements, the school administrators in Hong Kong might sense a lessening financial constraint compared with their past experiences, while Manitoban school administrators wrestle with the problems of rising costs at a time of budgetary restraints.

TABLE 2
One-Way Anova of Manitoba and Hong Kong Public School Environmental Constraints

<i>Variable</i>	<i>Source</i>	<i>S. of S.</i>	<i>d.f.</i>	$\bar{X}S$	<i>F</i>	<i>p</i>
Policy	Between	38.28	1	38.28	6.96	.00
	Within	1723.76	314	5.50		
Control	Between	10.41	1	10.41	2.02	N.S.
	Within	1619.93	314	5.15		
Funding	Between	226.68	1	226.68	15.18	.00
	Within	4688.56	314	14.93		
Resources	Between	168.34	1	168.34	24.29	.00
	Within	2176.89	314	6.93		
Social values	Between	6.80	1	6.80	1.28	N.S.
	Within	1659.79	314	5.28		
Demography	Between	88.71	1	88.71	6.33	.01
	Within	4401.58	314	14.01		
Ethnic	Between	68.94	1	68.94	4.10	.04
	Within	5275.61	314	16.80		
Language	Between	22.29	1	22.29	1.96	N.S.
	Within	2560.09	314	11.33		

Resource Allocation

Observations about finance apply to resource allocation, with the major exception that Manitoban funding provides categorical grants as well as supplementary school grants to ensure that human, curriculum, and technical resources are available despite regional economic disparity. Some Manitoba schools thus experienced fewer problems than those of their school boards under general funding formulae. Still, the constraints are relatively higher than for the Hong Kong public schools, all of which receive government annual grants with full consideration for inflation.

Social and Cultural Differences

The systems experienced almost identical amounts of pressure to accommodate student sub-cultures within the school (for example, Hinton, 1967;

Lam, 1984). Problems encountered in dealing with youth sub-culture are among the most challenging for school administrators in both Manitoba and Hong Kong.

The relatively low level of hardship arising from enrolment fluctuation in both cultures belies the complex adjustments schools in both settings have gone through. The enrolment decline in Canada as a whole has so seriously affected schools that many studies appeared in the late 1970s to assess its impact (Husby & Riffel, 1979; Scott, Hickox, McLeod, & Ryan, 1978), and the debate on the merits of school closure generated much attention (Johnson, 1978; Lam, 1982b; Sher & Thompkins, 1977). With the establishment of due processes for school closure by the Manitoba provincial government, with a funding formula developed to cushion the impact of enrolment shrinkage, and with a recent slight increase in enrolment, the situation stabilized. This study shows the aftermath of a dramatic adjustment in Manitoba schools after devastating effects were contained.

Apparently, Hong Kong has been similarly successful in adjusting to enrolment fluctuation, although there the challenge is to accommodate ever-increasing number of students. Through innovative utilization of school space, with morning, afternoon, and evening sections, very high enrolment has been accommodated. Rigorous screening examinations consistent with elite education (Lam, Fun, & Chang, 1982) reduce pressure on space at the senior high level and in post-secondary education, even though student hardships and the social consequences of rigorous elimination have yet to be fully assessed (Lam, 1976).

In accommodating students of different ethnic origins, the degree of constraint is minimal in both cultures. An immigrant country, Canada endorses ethnic plurality. Racial harmonization was achieved in schools in Manitoba, as elsewhere in the country, through bilingual and multicultural programs. Occasionally tension has flared over conflicting community expectations, and minor localized incidents have been reported in the province.

In Hong Kong, the multicultural population has been dealt with through segregation of schooling, so that the majority of the students (Chinese) attend different schools than do English children and children from other ethnic origins. Disputes arising from ethnic differences are almost negligible.

Second Language Programs

Both Manitoba and Hong Kong school administrators rated the constraints for delivery of second language programs low. Perhaps the Manitoban categorical grants, chiefly channelled from federal sources for provision of

French teaching staff and resources, facilitated the offering of second language programs (whether in the form of immersion programs or heritage programs). In the case of Hong Kong, Anglo-Chinese schools using English as a medium of instruction treat Chinese as a second language, whereas in other schools Chinese is the medium of instruction and English is considered a second language. Since English proficiency is a prerequisite for upward social mobility, and for entry into Civil Services, the supremacy of the English language has long been accepted by both schools and parents. One can speculate, as Simpson (1966) feared, that pupils might be badly educated in Hong Kong and Manitoba. On the other hand, the low level of constraints experienced by school administrators in Hong Kong in offering second language teaching to their students is likely an outcome of parents' readiness to make financial sacrifices by engaging private coaching for their children (Simpson, 1966). In this fashion, parents voluntarily compensate for whatever limitations and deficiencies they detect about school resources in second language instruction.

CONCLUSION

Through separate applications of SECI to two distinctively different socio-cultural settings, Manitoba and Hong Kong, I have sought to identify major environmental characteristics and constraints of the public schools in both societies. In general, variations in environmental characteristics such as change, organization, routineness, directness and constraints in policy, funding, resources, demography, and ethical composition of the student population were empirically verified as region-specific. Although interpretation of these differences would require study of data from other sources—as in most conventional cross-cultural work—the present study sheds light on some current conceptualizations of organizational adaptation.

This paper offers a preliminary statistical analysis under contingency theory, and in mapping the extent of external determinants in the schools' adaptation. SECI generated profiles of environmental characteristics and constraints that affirm some, and challenge other basic assumptions of the contingency theory. The notion of loose coupling (Corwin, 1981), which allows subunits of school organizations to be semi-autonomous and to respond with varying adaptive patterns to external constraints, is central to the contingent perspective on organizational structure. My discovery of administrators' varying perceptions of constraints in funding and program, for instance, shows that internal differentiation of functions and boundaries has a range of impacts.

On the other hand, assuming contingency theory's view that organizations never have enough information, school administrators' uncertainty,

awe, and anxiety about the turbulent environment should translate into high profiles of perceived constraint. Yet the empirically derived configuration from both cultures is low. Given SECI's multi-dimensional analysis, this finding puts in doubt methodological deficiencies sometimes ascribed to quantitative studies. Other factors beyond the scope of contingency theory must be at work.

The contingency view of organization adaptation considers that adaptation is environmentally decided, and that the managerial role is reactive. However, in explaining why some of the external forces exerted far less than anticipated pressure on schools (for example, demographic pressure on schooling in Hong Kong), one is struck with the innovative utilization of school space by school administrators there. Indeed, through proactive strategic management, many of the potentially high external pressures on schools have been neutralized, and this accounts for the relatively low profiles of constraints the data generated.

In view of the debate over whether organizational adaptation is an outcome of strategic choice or of environmental determinism (Hrebiniak & Joyce, 1985), the present findings furnish early empirical evidence to show similarities and differences among the schools.

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Y. L. Jack Lam is in Administration and Educational Services, Faculty of Education, Brandon University, Brandon, Manitoba, R7B 3M8.