

Toward the Construction of a School Environment Instrument: A Conceptual Framework

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Amid the growing complexities and turmoil that characterize the environment of the public school, it is curious that there have been few comprehensive efforts to assess systematically the impact of these changes on school operation. Based on current literature, this article proposes a two-dimensional matrix consisting, on the one hand, of *factors* extracted from macro-political, economic, social, and cultural domains having constraining effects on school operation and, on the other hand, of environmental *attributes* – change rate, complexity, organization, routineness (certainty), and directness – that conceivably describe those external factors identified. Although all relevant factors cannot be included, the model provides a basis for generating a 40-item instrument having a universal and dynamic orientation capable of constructing concrete graphic representation of sizes of external constraints on school for longitudinal and cross-cultural analysis.

Au milieu de la complexité croissante et du remue-ménage qui caractérisent le milieu des écoles publiques, il est étrange que l'on fasse si peu d'efforts pour en évaluer systématiquement les conséquences sur le fonctionnement des écoles. Basé sur la documentation disponible, cet article veut présenter une matrice bi-dimensionnelle qui comprendra d'une part, des facteurs tirés des domaines macro-politique, économique, social, et culturel ayant des effets restrictifs sur le fonctionnement des écoles et, d'autre part, des attributs environnementaux – taux de changement, complexité, organisation, routine (certitude), et absence d'ambiguïté – qui peuvent décrire ces facteurs externes en termes identifiés. Même si nous sommes limités par le fait que tous les facteurs pertinents ne sont pas tous inclus, le modèle permet d'établir un instrument de 40 points à orientation dynamique universelle et la possibilité de construire une représentation graphique concrète de la taille des contraintes externes qui pèsent sur l'école afin de faire une analyse en longitude et d'après la culture.

INTRODUCTION

Until very recently, the relationship between the school and its environment has received little systematic attention. This is probably due, as Carlson (1975) pointed out, to the fact that schools are “domesticated” organizations (i.e., that their existence is not closely tied to quality of performance and there is no real parallel with “production” organizations in their adjustments for survival). Nevertheless, the school environ-

ment over the past decades has experienced as much change from tranquility to turbulence as have other organizations. Campbell (1971) aptly observed:

In all public sectors we are being challenged to look anew at public needs, to plan progress to meet those needs and to recognize our structure and procedures to more effectively implement such program. ... Such a demand becomes ... a dominant theme of the environment of every public situation, including school.

Indeed, the myth of immunity (one that has prevailed concerning the public education system for past decades) has been rudely dispelled with the constant conflict of various interest groups, the tense struggle for a diminishing resource during depressed economic times, and general social, demographic changes that threaten the very nature and existence of schools (Derr & Gabarro, 1972; MacDowell, 1974). There is a greater need than ever for both educational researchers and practitioners to understand better this turbulent environment.

In view of the dearth of educational literature on this topic, this paper will attempt a critical review of related conceptual developments and existing measuring instruments in other areas. Second, after considering theoretical refinements and conceptualization, it will attempt to develop a model appropriate for the school system. Last, the model will be operationalized into a research instrument and the procedure for utilizing the measures formulated.

EXISTING CONCEPTUAL FRAMEWORK IN RELATED LITERATURE

Of the various interpretations of external environments currently available, that of Emery and Trist (1965), drawing from Pepper (1934) and Tolman and Brunswick (1935), first provided an insightful interpretation of the environmental impact on organizations. Their four ideal types of causal textures (*placid randomized environments*, *placid clustered environments*, *disturbed-reactive*, and *turbulent fields*) were developed into a general evolutionary framework to account for organizational change and adaptability (Terreberry, 1973). Convincing as their interpretations may be, these writers have articulated organization-environment relationships primarily in historical terms, thus failing to provide explicit theoretical linkages between organizations and their external environments.

Independent of these historical-analytical conceptualizations, J. D. Thompson (1967) analyzed the *task environment* of the organization and suggested a *homogeneous-heterogeneous*, *stable-dynamic* typology for classifying the external environment. In a similar vein, Lawrence and Lorsch

(1967) proposed the *diversity-dynamic* paradigm to assess the organizational-environmental fit.

Through these works, crucial foundations were laid for understanding explicit organization-environment relationships. However, because of a somewhat simplistic dichotomy of a few environmental attributes, these models have failed to capture the complexities and adaptability of the organization (Motamedi, 1977; Osborne & Hunt, 1974), and proved totally inadequate to account for the multiple contingency adaptation strategies that typify an organization's response to a turbulent environment (Child, 1977).

In search of a more holistic perspective on the organization's external environment, Jurkovich (1974), perhaps more than any other, provided what Shortell (1977) called "the most complete conceptualization of environments." In brief, he utilized five attributes of the organizational external environment – complexity, routineness (or certainty), organization of the environmental field, exertion of direct or indirect effects on organization, and degree of stability (change) – to construct a 64-cell core typology.

Notwithstanding a sophisticated nesting of the attributes and dichotomies of attributes that defines all categories of organizational environments, the typology has not gone beyond some of the earlier works' unitary characterization of the organization's environment. With each cell in the typology representing certain composites of environmental attributes, the model seems to suggest that relationships of all external forces impinging upon an organization can be held constant for some period of time. With the attributes ascribing a certain wholeness to the organization's environment, the model also seems to convey the idea that macro-aggregation and task environments, as Osborne and Hunt (1974) described them, should be homogeneous. Both assumptions fail to withstand some initial empirical testing and logical comprehension (Lam, 1980; 1981).

EXISTING MEASURES

Two major instruments exist for assessing organizational environments. Developed independently by Lawrence and Lorsch (1967) and by Duncan (1972), these two scales share a conceptual basis for approximating environmental uncertainty. In conceptual terms, the inherent shortcoming of focusing on one type of organizational-environmental relationship both precludes the wide application of the instruments and limits the utility of data after they have been collected. In statistical terms, Tosi (1973) and Downey, Hillriegel, and Slocum (1975) both reported that

Duncan's total uncertainty score did not correlate with any of their criterion measures. Lawrence and Lorsch's total uncertainty score correlated with only one of their four criterion measures, casting the construct validity of both instruments into doubt. Further, as these two scales, designed to measure a similar environmental attribute, were not related to each other, little confidence can be placed in their overall validity.

THE PROPOSED CONCEPTUAL SCHEME

Basic to developing the present conceptual scheme is a recognition that if an external environment model for the public school is to be viable, it should be holistic as well as dynamic: *holistic* in the sense of accommodating the complex context in which the school operates, and *dynamic* in the sense of measuring and charting changes in the degree of impact of major external forces upon the school administration. Thus the following tasks emerge: (1) conceptualization and delineation of the school's external environment; (2) postulation of the functional linkage between the school and its external environment; (3) formulation of a school environment instrument; and (4) construction and quantification of the items that constitute the instrument.

Conceptualization and Delineation of the School's External Environments

Recent writers have agreed that an organization's external environment is highly complex and turbulent. Of the many versions of the school external environments popularized, a few major works have displayed sufficient similarity to formulate a basis for the present undertaking. At the outset, all should recognize that unidimensional descriptions of such environmental conditions, which most of the existing paradigms expound, are totally inadequate. R. Hall (1972), for instance, segregated environmental conditions into two categories – general and specific. While Hall's specific environmental influences were relevant to personal interorganization contacts and are excluded from the present consideration, his description of general environmental conditions touched on the technological, legal, political, economic, demographic, ecological, cultural, and social subenvironments. Similarly, Kast and Rosenzweig (1974) referred to some of these subenvironments as the major fields of forces in the external environment that shaped the character of the contingencies impacting on an organization.

One can surmise, however, that further condensation of subenvironments is possible. The technological conditions described by R. Hall (1972) and the informational and technical forces identified by Kast and

Rosenzweig (1974) aptly depict the degree of change and uncertainty that an organization experiences. In other words, they can be treated more as attributes of external forces than as one major subenvironment. Legal conditions and ecological concerns are, admittedly, potentially critical aspects of the school's surroundings. However, these are second-ordered outcomes of the political conditions and interaction and should be treated as features associated with the political domain. Likewise, demographic conditions only partially describe a larger social condition. To the extent that we delineate major fields of forces as providing a comprehensive framework for a school's external environments, we should recognize that political, economic, social, and cultural subenvironments are *basic* to the general external environment from which other second-ordered forces are generated.

Once the four basic subenvironments of the organization's external surroundings are established, synthesis with the environmental attributes reviewed by Jurkovich (1974) becomes possible. One can then begin to describe the degree and nature of external impact on each subenvironment as reality dictates. There is no longer an artificial inhibition which requires that all external impacting forces be treated as homogeneous or compatible, as typological models suggest. The provision of such a flexible framework for mapping complex forces in a holistic context should be stressed as the first major departure of the proposed model from other works in this area.

Postulation of Functional Linkage Between a School and Its Environment

In mapping the functional linkage between an organization and its environment, Dill (1958) stressed that cognitive activities of organizational participants link environmental stimuli and the participants' overt responses. Hall and Mansfield (1971) expanded that premise into a more elaborate model showing how external stress operating on a system could trigger change in an internal system, leading to organizational responses, individual stress and strain, and ultimately individual responses.

In keeping with this perspective, I will place the key administrative perceptions and interpretations centrally in the proposed model as a leverage between *impacting forces* originated from the external subenvironments and *internal adjustment*. A basic problem in this approach is whether school administrators' assessments can be considered as individual psychological traits rather than environmental attributes (Downey et al., 1975). However, in accordance with Weick (1969), Michael (1973), and Galbraith (1973), it is believed that unless the environmental forces become stimuli and are structured by an individual

perceiver, they lack inherent meaning or information to trigger conscious individual and organizational responses. In this sense, the behavioural environment – that perceived and reacted to by school administrators – becomes intimately linked with the physical environment in which external forces reside.

A second concept related to the linear transformation of external stimuli into internal responses is that, overall, external forces constrain school operation. The concept of constraints has been widely echoed in different terminologies in literature. Bales (1965), for instance, observed that external organizational stress tended to result in a decrease in system integration. Schein (1965) posited that “being externally threatened undermines good [internal] communication, reduces flexibility and stimulates self-protection rather than concern for the system as a whole.” Dill (1958) found the environment could influence managerial autonomy; Pfeffer (1970) considered dependency to characterize how the organization relates to its environment; and Khandwalla (1972) conceptualized environmental properties in terms of uncertainty, hostility, and heterogeneity.

Irrespective of the wide range of descriptors used, it can be argued that the basic impact of external factors on organizational conditions takes the form of constraints. To the extent that an organization succumbs to the externally induced problems, there would be substantial organizational disintegration and personal distress. Much hinges on the leadership abilities of the school administrators in cushioning the destructive impact.

Formulation of a School Environment Instrument

Given the need to conceptualize the general environment in terms of political, economic, social, and cultural subenvironments, and to integrate Jurkovich's environmental attributes as characteristics of these subenvironments, one can elaborate an embryonic model of two unordered dimensions. Along the first dimension are critical factors that exemplify the impact of each subenvironment upon school environment. As there are infinite choices here, two factors have been selected from each subenvironment commonly shown to bear strongly on school administration. In light of this restricted parameter, the proposed model cannot claim to exhaust all pertinent external environmental factors. On the other hand, as a first step in building a comprehensive model and measure, it has left the door open to further expansion and refinement when more work is undertaken along this present framework.

In examining the first subenvironment of the macro-school environment, the *political* domain, the role played by policy becomes obvious. As

externally initiated policies influence every aspect of school operation, a typical response, according to Johnston (1977), would be to seek a stable policy environment through a direct control mechanism or, depending on risk propensity and environmental uncertainty, through other means. Ratsoy (1976) perceived that policy, as a guide, provides predictability and stability in the school, and assists it in coping with complexity. Thus, the domain of the policy-making process and its impact upon school curriculum and school administration should be ascertained.

A second important factor in the political domain is the type and nature of control. In charting the path of pluralistic educational policies, Fisher (1972) noted the process of *maturing decentralization* in that individual boards and schools have gained greater control over a broad range of curriculum matters. As the school system is particularly vulnerable to political pressure (e.g., MacKinnon, 1960), it seems critical to examine the *decisional jurisdiction* (Brown, 1976) of schools at this stage.

In the *economic* domain of the school macro-environment, the adequacy of funding is the most important single factor affecting school operation. The devastating effects of a funding program not in keeping with rising unit costs and inflation on program and resource allocation at the district or division level are well documented (e.g., Manitoba Teachers' Society, 1975). Expressions of concern regarding a new funding system (Lam, 1982) reveal school sensitivity to external economic pressure.

Related conceptually to funding adequacy are the human, technical, and curriculum resources available to schools. With the periodic changes of the funding formulas, school divisions and schools must correspondingly adjust the kinds of resources that become accessible. In Manitoba, for instance, the Education Support Program, implemented in 1981, has forced most school divisions to shift their focus to special education resource teachers and to vocational programs as special funds become available, whereas school libraries and library personnel have been completely overlooked (Lam, 1982). With the availability of federal support, once neglected French language instruction (Ariano & Lam, 1977) has been transformed into popular immersion programs across the nation. The extent of external interferences in school resources, therefore, should constitute another vital area for further investigation.

In the third macro-segment of the school's external environment, the *social* domain, the social values cherished by schools and students present an interesting area for study. From a sociological perspective, the public school often represents a microcosm of society (e.g., Adeniji, 1974). As we live in a time of value conflict and value confusion (Lavaroni & Togni, 1979), the management of divergent values becomes a potentially tension-filled task for school administrators. In the absence of explicit

policies in Canada (Cochrane & Williams, 1978), for example, crime control becomes important to the schools' dual role of serving the students and ensuring that they will be effective members of the school (Wettig, 1976).

Another major social force that has an immediate impact on school operation is demographic change. Such change, as Cuban (1979) observed, serves to squeeze school enrolment and trigger program cuts and school closure while at the same time raising the costs of schooling (Lam & Carbo, 1982). In studying the impact of enrolment decline on administrative intensity, Freeman and Harrman (1975) further noted the disproportionate effect on the direct and supportive structures of the school organization. The stress resulting from this segment of the turbulent environment should be properly assessed.

Turning to the last of the macro-environments of school, the *cultural* domain, two factors greatly affect school operation: ethnicity and second language. Divergent as the philosophies and approaches might be, the school in a multi-cultural setting is concerned with problems of racial integration and harmonization as well as preserving the mother tongues. Hymovitz (1976) captured one underlying principle when he stated that the school may be expected to be "a centre for broad ethnic heritage studies, articulating multi-cultural principles, offsetting separatist or assimilationist incursions." Such an ideal goal clearly poses a continued drain on resource distribution within the school. School administrators must continue to adjust to program demands in the community (Thompson & Schram, 1978). They continually have to deal with disruptive conflict arising from disrespect for other cultures (Gaymon & Garrett, 1975). They must tackle underachievement and other minority social problems (Luetgert, 1977; Harker, 1978; Paulston, 1978). The degree of pressure placed on the school operation by this factor must be scrutinized.

Associated with divergent ethnicity of a student population is second-language learning in the curriculum. In describing the American scene, Gurney (1974) noted that foreign (or second-) language suffered today from competition brought about by limited finances, early release, and program and course electives. In many multi-cultural countries, Mase-mann (1981) noted a constant push toward the dominant cultural forms in evaluation and assessment regardless of program content and its avowed goals. This inevitably generates tension and stress for conformity in face of the established policy of cultural diversity. The schools' constraints in adhering to these conflicting expectations pose another challenge to school administrators.

In total, these eight major factors (namely, policy, control, funding, resources, values, demography, ethnic composition, and language pro-

grams) from the four subenvironments provide the major referents for Jurkovich's comprehensive list of external organizational attributes (1974), the second unordered dimension in the model. Included in the list of attributes are: complexity, routineness, organization in the field, directness of effects, and changes. By definition, environmental *complexity* refers to the degree of heterogeneity and the range of activities relevant to an organization's operations. *Routineness of problem-opportunity state*, a term borrowed from Perrow (1970), assesses the extent to which the decision maker can approach an opportunity or problem without vastly altering organizational activities. *Organized* and *unorganized* sectors refer to the degree clients or members of the institution are unionized or united by professional organizations. Implicit in this concept is the number of power blocs with which an organization's administrator has to deal. *Directness* or *indirectness of impact* are distinguished by the degree of necessity in employing intermediaries to resolve issues. *Change* refers to the degree of stability or instability induced by external forces. The involvement of our factors in Jurkovich's five attributes represents the extent and type of constraints impinging upon school administration.

Through the integration of the two dimensions in the proposed conceptual schema, each of the eight factors extracted from the macro-external environments now inherits five distinct attributes in its impact on schools. In other words, external impacts from policy formulation, control structure, funding system resource availability, social values, demographic changes, ethnic composition, and demands for second language instruction can now be examined in terms of change (stability), complexity, organization, routineness (certainty), and directness. Conceivably, as each domain never exerts uniform pressure at any point in time, one could assess the divergent degrees of impact these external factors have upon school administrations. One could also draw comparisons among external constraints in similar school organizations in different localities or different socio-cultural settings. Given such comprehensive and flexible theoretical bases, measures could be developed eventually to map the size of external constraints.

CONSTRUCTION OF SCHOOL ENVIRONMENT INSTRUMENT

Item Construction

Operationally, the matrix of the two dimensions consisting of eight external forces from the four subenvironments, each with five attributes, leads to the development of a 40-item school environment instrument.

Stress on the school from the policy formulation constraint is measured by the five attributes pertaining to (1) the rate of policy changes affecting curriculum and operation, (2) the relative ease in the interpretation of policies, (3) the degree of school involvement in the process of policy making, (4) the accessibility of regulations and rules in implementing current policies, and (5) the extent to which non-educational sectors initiate the policy changes.

Stress on the school from the control structure probes (6) the relative degree of local control over curriculum matters, (7) the complexity of the governing structure in the educational system, (8) the discretionary power individual schools enjoy in selection of textbooks and staff, (9) the clarity of directives from provincial or central offices, and (10) the frequency of directives from the immediate superior.

Constraints from the funding system are examined by (11) the stability of sources from which financial support comes, (12) the difficulty of understanding the funding formula, (13) the diversity of sources that make up the total financial support, (14) the certainty of regular sources in keeping up with inflation, and (15) the proportion of support directly transferred to the school.

Constraints from resource availability are measured by (16) the ability to rely on securing human, technical and curriculum resources in meeting program modification requirements, (17) the degree of difficulty in obtaining these resources, (18) the extent of participation in organizations by various resource personnel and the nature of that participation, (19) the certainty of supply of the resources from year to year, and (20) the directness of involvement in securing these resources.

The problem in coping with the diverse social values is to be assessed in terms of (21) the rapidity of change in social values that affect students, (22) the extent of problems in the school that have been brought about by changing social values, (23) the clarity of guidance that social values have provided for students, (24) the necessity for the school to utilize additional resources in meeting the task of coping with value changes, and (25) the extent that social values directly influence student behaviour.

The challenges arising from coping with demographic change are measured by (26) the extent to which school enrolment fluctuates from year to year, (27) the complexity of administration arising from changing enrolment, (28) degree of organized effort for coping with enrolment changes, (29) the adequacy of the plan to meet enrolment certainty, and (30) the extent to which the school has undertaken direct recruitment of students.

The schools' adjustment to the ethnic composition of the student population is ascertained by (31) the stability of ethnic composition over

TABLE 1
Conceptual bases for item construction

<i>Environment Characteristics</i>	<i>Change Rate Items</i>	<i>Complexity Items</i>	<i>Organization Items</i>	<i>Routineness Items</i>	<i>Directness Items</i>
<i>Political</i>					
Policy	How frequently over the past five years have there been changes in educational policies which have affected your school curriculum and operation?	How difficult is it to understand existing policies?	To what degree have the schools been involved in the process of policy making?	How accessible are the regulations and rules concerned with the implementation of current policies?	To what extent have the initiatives for policy changes been taken by non-educational sectors of society?
Control	To what degree has curriculum come more under local control and initiative over the past five years?	Would you describe the governing structure in the whole educational system as easy to understand?	How much discretion do individual schools have in general and curriculum matters?	How clear are the rules and regulations issued by the educational authorities?	How frequently do instructions come directly from your immediate superior?
<i>Economic</i>					
Funding	To what extent have the proportions of financial support from the regular sources changed over the past five years?	How difficult is it to understand the funding formula for schools in general?	Name the sources from which the total financial support for the school comes each year?	To what extent does the financial support from regular sources keep up with inflation?	What proportion of the financial support is transferred directly to the school?

TABLE 1 (Continued)

<i>Environment Characteristics</i>	<i>Change Rate Items</i>	<i>Complexity Items</i>	<i>Organization Items</i>	<i>Routineness Items</i>	<i>Directness Items</i>
Resources	Over the past five years to what degree have human, technical and curriculum resources kept pace with required program changes?	How difficult is it to obtain these resources for your school?	Name the Unions/Associations that school staff (teachers, administrators, secretaries, janitors, etc.) belong to?	How certain is the supply of necessary resources for the school from year to year?	How often are you involved in the hiring of teachers and the procurement of resources?
Social Values	How rapid are the changes of social values (ethical, moral) that have impact upon students?	To what extent do changing social values create problems in school administration?	To what extent do the prevailing social values provide a clear guide for students' conduct?	To what extent does the school have to use additional resources (human, technical, curriculum) to compensate for these changing values?	How direct is the impact of current social values upon student behaviour?
Demography	To what degree does the school enrolment fluctuate from year to year?	To what extent does the changing enrolment complicate school administration?	To what extent is changing enrolment manageable to the classroom level?	How well has the school planned for enrolment fluctuation over the past five years?	To what extent does the school actively recruit its students?

TABLE 1 (Concluded)

<i>Environment Characteristics</i>	<i>Change Rate Items</i>	<i>Complexity Items</i>	<i>Organization Items</i>	<i>Routiness Items</i>	<i>Directness Items</i>
<i>Cultural</i>					
Ethnic	To what extent has there been a change in the ethnic ratio in the student population over the past five years?	How often do you have to deal with problems related to inter-ethnic relationships (or, problems of an inter-ethnic nature)?	To what extent do students of different ethnic origins mix socially?	To accommodate different ethnic groups of students, to what extent does the school need to set up special classes or additional counselling services?	How often are inter-ethnic problems dealt with at the school level?
Language	Over the past five years, how many program changes have involved second language offerings?	What proportion of students have academic problems directly associated with the major language of instruction?	List the languages (or dialects) that are spoken by students in the school?	To what extent has the school required extra resources to offer a second language?	To what extent do the languages (dialects) used in school pose barriers for direct communication between teachers and students?

the past five years, (32) the complexity of problems related to inter-ethnic relationships, (33) the degree of inter-ethnic cohesiveness, (34) the degree to which schools find it necessary to cope with inter-ethnic student problems, and (35) the frequency of resolving problems without external intermediaries.

The constraints of accommodating second language instruction in school are assessed by (36) the extent of program changes in second language offerings, (37) the level of difficulty students have in the regular program, (38) the diversity of language spoken by students in school, (39) the extent to which extra resources have been called for to accommodate second language instruction, and (40) the severity of language barriers affecting direct communication between staff and students.

Quantification

Responses to each item in the instrument are either in a 5-point Likert-type scale or in an open-ended format from which quantification can be done. As ten items assess each scale score, the four composite scores should represent the gross amount of constraint on school operations from these environmental segments. By plotting and joining these scores along the X- and Y- axis in a graph (as in Figure 1), the size of constraints can be charted.

While it is understood that factors from the subenvironments might be interrelated, the need to preserve the conceptual purity of these subenvironments strongly suggests that the axes be orthogonal to each other. Another pragmatic reason to prefer the orthogonal rather than oblique configuration is that the areas (or sizes) of constraints are more easily calculated.

SOME ILLUSTRATIONS

Given the proposed conceptual parameters and procedures of quantification, external environmental constraints of similar schools over time or of comparable schools in different socio-cultural settings can be readily compared. For example, one could examine in global terms the Canadian public school in the 1960s, 1970s, and 1980s (see Figure 2). Canadian public schools in the 1960s experienced much expansion and innovative change. Politically, there had been marked decentralization as divisions/districts and schools were given wide latitude for experimentation. In terms of policy making and control, school administrators experienced a higher change rate, less complexity, adequate organizational and union support, routineness in coping with problems, and direct involvement. In

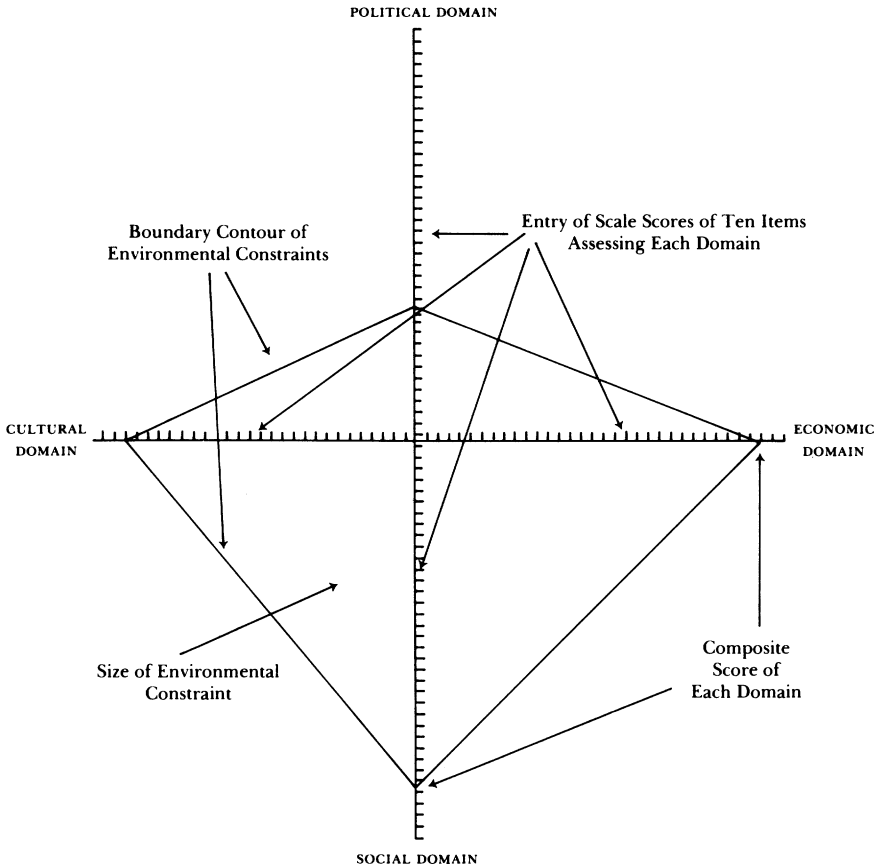


FIGURE 1
Illustrative profile – plotting of school external constraints

the economic sector, both in terms of funding and resources, schools enjoyed stable sources of support, little complexity, routineness in coping with problems, and substantial direct funding for certain school programs in spite of the beginning of demands from unionized staff. Socially, values changed rapidly, with a growing complexity in conflicting needs, less routine ways of coping with student problems, and more resources needed to meet challenges from this area. Demographically, enrolment increased rapidly, exerting considerable demands for space expansion. The pressure from this domain predominantly concerned school administrators. Culturally, the presence of more ethnic representatives as a result of liberal immigration policies created certain problems for schools.

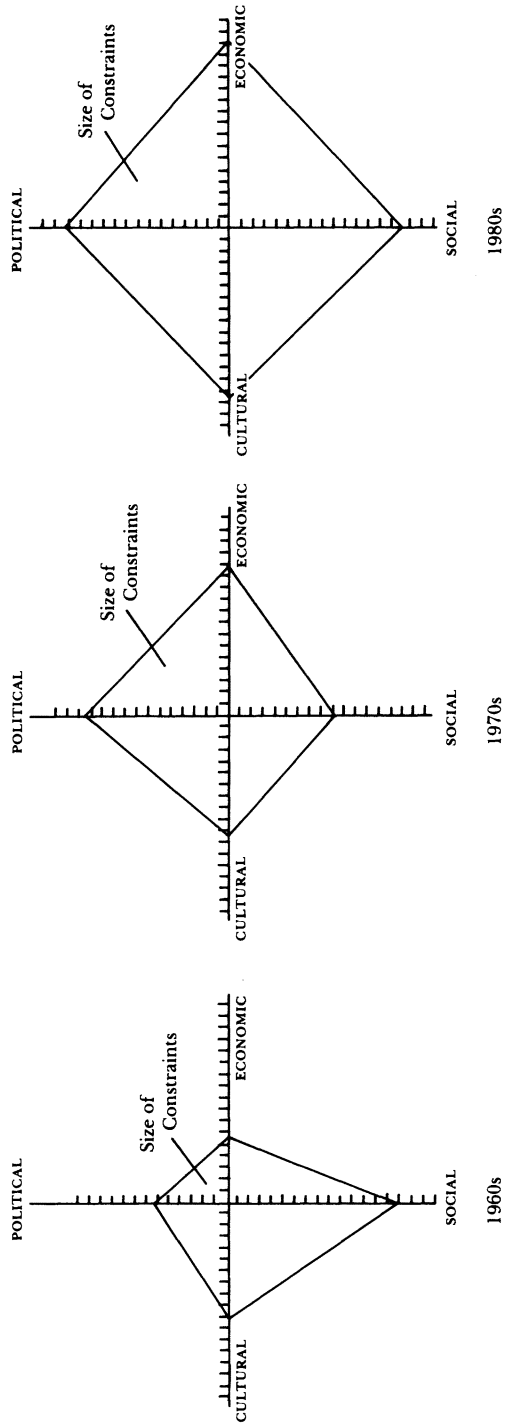


FIGURE 2
Illustrations of possible longitudinal analyses of school external constraints

NOTE: not to scale.

However, as the central theme was unity rather than diversity, there was little demand for heritage programs, though second-language instruction began to take root. Overall, the public school of the 1960s experienced relatively little political and economic pressure, with moderate to severe constraints from cultural and social domains.

The advent of the 1970s saw a growing political complexity in the public school system. Interest groups at both provincial and local levels became more vocal and visible in their lobby effort, and this vastly affected policy-making processes and control of the public school. Economically, this was a transitional period from affluence to financial restraints. Social values were divergent but more tolerant, and enrolment shifted from expansion to decline. Culturally, ethnic compositions stabilized but demands for heritage programs began to surge to the forefront. Overall, pressures from political and economic sectors became intensified while those from social and cultural sectors remained relatively moderate.

With the arrival of the 1980s, the Canadian public school system became more than ever engulfed in politicization. In the accountability movement, the school experienced increasing political and financial constraints. While social values remain numerous and confused, sharp enrolment decline triggered massive teacher-layoffs and school closures. Culturally, French immersion programs became well entrenched while heritage programs of various ethnic groups began to demand a share in the dwindling resources. Overall, the stress on the school system from all sectors became highly intensified.

Through the plotting of constraints experienced by the public school from the four macro-environmental domains, one can readily compare the relative growth and decline of stress in each specific domain over the three decades. By examining the sizes of constraints in different periods, one can further ascertain the gross amount of stress to which the public school has been subjected. Such longitudinal profiles should be extremely interesting and important to researchers and administrators alike in mapping our school external environment.

PROBLEMS AND PROMISES

By the reconceptualization of the school's external environment and the development of a two-dimensional model and its corresponding instrument, this article provides a comprehensive framework for empirical testing. Given the complexity of the extra-school environment, the model does not and cannot address all pertinent issues. Neither can the instrument be employed for cross-cultural comparison without some refinement of its terminologies.

Nonetheless, the present attempt represents a major step toward better understanding the contingency approach as applied to the dynamic reality of school environment. The quantification of the scales along the X- and Y- axes permits a concrete graphical representation and scrutiny of the forces from each segment and the total size of the constraint, hitherto a highly metaphysical interpretation of psychological reaction to external stress.

Aside from articulating historical environmental data for longitudinal analysis, as illustrated, the present conceptual framework and instrumentation suggest further development in at least three other areas. First, according to the conceptualization of Hall and Mansfield (1971), environmental constraints are readily translated to a job-related managerial stress factor for the public school administrators (Lam, 1984), and this could be compared with intraorganizationally and intrapersonally induced stressors. Second, contextual analysis of environmental constraints should reveal disparities associated with the locality and size of the public school and so allow critical appraisal of the degree of effectiveness of compensatory measures applied by the government. Third, profiles of the public school environmental constraints generated from different socio-cultural settings should reveal the essence of regional and national external characteristics. This would enable an indepth interpretation of the forces accounting for the profiles identified.

Prior to any further development of the present endeavour, however, is the need rigorously to assess the reliability and validity of the instrument so that it can be empirically refined and modified.

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Unter den zunehmenden Schwierigkeiten und Unruhen, die das Grundschulmilieu kennzeichnen, ist es eigenartig, daß wenige umfassende Versuche unternommen wurden, um ihre Wirkung auf die Funktion der Schule systematisch zu beurteilen. Auf der Basis heutiger Fachliteratur schlägt diese Arbeit eine zweidimensionale Matrix vor, die einerseits aus Faktoren, die von makropolitischen, ökonomischen, sozialen und kulturellen Bereichen extrahiert wurden, die einheimende Wirkung auf die Funktion der Schule haben, und andererseits aus Umgebungsattributen – Änderungsrate, Kompliziertheit, Organisation, Routinemäßigkeit (Bestimmtheit) und Deutlichkeit bestehen, die erdenklicherweise jene festgestellten äußeren Faktoren beschreiben. Trotz der Begrenzung, daß nicht alle einschlägigen Faktoren einbezogen sind, gibt das Modell eine Grundlage, um ein 40-Punkt Instrument mit einer universalen und dynamischen Orientierung und mit einer Fähigkeit konkrete graphische Darstellungen von Größen der äußeren Begrenzungen auf Schule für Längenanalyse und Analyse verschiedenartiger Kultur zu bilden.

En vista del ambiente de la escuela pública que se torna cada vez más complejo y lleno de conflictos, es sorprendente que existen pocos esfuerzos por evaluar sistemáticamente su impacto sobre el funcionamiento de la escuela. En base a la literatura actual, este artículo propone una matriz bi-dimensional que consiste, por un lado, de factores tomados de los campos macro-políticos, económicos, sociales y culturales que tienen efectos restrictivos sobre el funcionamiento de la escuela y, por otro lado, de atributos ambientales, es decir tasa de cambio – complejidad, organización, rutina (seguridad), y dirección, que probablemente describen los factores externos identificados. A pesar de que no todos los factores están incluidos, el modelo ofrece una base para generar un instrumento de 40 artículos, que tiene una orientación universal y dinámica y una capacidad de construir representación gráfica concreta de la magnitud de las restricciones externas para análisis longitudinal y a multicultural.

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