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SOME IMPLICATIONS OF ECHELONS' FUTURE PLANNING PERSPECTIVES AND SATISFACTION WITH CENTRAL PLANS FOR THE ORGANIZATIONAL CLIMATE

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The perspectives of future time planning processes and plans defined by echelons operating in a large and centralized educational system and satisfaction with central planning are explored. Findings indicate that the subordinate echelons have low satisfaction with central planning processes and that a direct connection exists between the echelons' position in the organizational hierarchy and the future perspectives that they use for planning processes and plans. Based on these findings, some implications for the organizational climate are further discussed.

INTRODUCTION

The purpose of this study is to discuss some possible implications of planning variables for the organizational climate. Specifically, the study explores the future time perspectives that echelons positioned in different levels of an educational hierarchy use for long-term planning processes and plans and the satisfaction of school principals with central planning processes performed by the senior echelon.

Planning is a condition for organizational effectiveness (Faludi, 1973:1, Scholnick & Friedman, 1993), since it enables an organization to bridge rationally between present and future events (Inbar, 1985). This is done by preparing a set of decisions (Dror, 1973, Lachman & Burack, 1993) that direct present activities exclusively toward future goals (Davis 1985). The planning process involves the selection of relevant facts, assumptions and decisions that restrict the behaviors of organizational members (Cunningham, 1982), in an effort to reduce uncertainty and the variability of performed actions. Organizational planning increases the confidence in the organizational ability to handle future events (Schulz, 1980:261), and increases the probability that rational and calculated rather then random actions will be taken with reference to routine or unpredictable events (Saaty & Kearns, 1985, Armstrong, 1991).

Organizations' future time concepts need to be translated into operational time units to be used as guidelines by planners, if organizational goals are to be effectively achieved. The operational criterion for any organizational strategy is the future time perspective towards which organizational planning processes are directed.

Organizational planning perspectives may be short, intermediate or long term in their orientation (Webber, 1972:135), reflecting the degree of certainty which organizations are experiencing and their tolerance for uncertainty (Archer & Overholt, 1983:22). Since the overall changes in the environment that take place during a short period of time are relatively small, short-term planning processes are likely to deal with circumstances and interests that are evident and manifested. Such circumstances reduce the uncertainty which planners experience and increase their capability to accurately analyze the problems and create adequate plans for them. On the other hand, distant future circumstances are likely to be characterized by significant and unpredictable changes and by a large number of possibilities and combinations. Such circumstances limit the ability of planners to

forecast the probability for each of the possible future events. Therefore, long-term planning processes expose planners to a high degree of uncertainty. In this respect, long-term planning will always involve predictions and wishful thinking related to the future (Drucker, 1986). In spite of the uncertainty that long-term planners confront, these processes are considered to be of unique significance for organizational effectiveness (Das, 1991). Directing organizational processes toward long-term perspectives in future time improves the quality of decisions taken and enables organizations to concentrate their resources and avoid unnecessary deviations while organizational activities are performed (Cook, 1988). Moreover, it creates a dissonance in people, shakes old viewpoints and introduces new questions that may lead to new and better modes of operation (McCune, 1986). Hence, long-term planning processes are considered to have a unique contribution for organizational effectiveness, although organizations may direct long-term planning processes towards various perspectives in future time. It may be argued therefore that the future perspectives of long-term planning processes and plans reflect the most distant point to which organizations refer in a rational and operative manner (Drucker, 1972:10), and may be used as an indicator for the organizational future time orientation.

Although planning is considered a rational activity (Adams, 1988), it is influenced by the personal characteristics of planners as well as by their perceived role circumstances, which limit their rationality and objectivity. These influences are derived from the planners' beliefs and values (Das 1991; Davis, 1985), their personal background (Das, 1986), their personal interests (Shane, 1973), their ideologies (Lynch & Tason, 1984) and the social expectations related to the planning process (Scholnick & Friedman, 1993; Morley & Shachar, 1986:149). Furthermore, the planning process is likely to be influenced by the planners' position in the organizational hierarchy, which defines and frames all performed organizational actions (Herbert, 1981:69), the division of work and duties of role holders (Dalton et al., 1971:71) and their authority which may vary in quantity, depending on the degree of centralization which characterizes an organizational hierarchy (Hall, 1977:104). Centralized hierarchies limit the amount of delegated authority to lower level roles, restrict their autonomy and increase their dependency upon senior officials' decisions and plans. The present study assumes that both the hierarchical position of the planners and the degree of centralization characterizing a large organizational hierarchy significantly influence the planning processes and the plans. These influences are likely to be evident in the future perspectives attributed to these processes by planners.

A horizontal analysis of organizational hierarchies reveals that the organizational echelons positioned at different hierarchical levels experience different role circumstances since they are responsible for accomplishing different aspects of the organizational goals (Schlesinger, et al., 1992:7). For example, senior echelons' duties and role circumstances are considered to be abstract, while the duties and role circumstances of subordinate echelons are considered to be more concrete (Porter & Lawler 1965, Mintzberg, 1983:14; Hannaway, 1985). The senior echelons need managerial and perceptual skills while technical skills are mostly used by the subordinate echelons (Alexander 1979:186, Guglielmino & Carroll, 1979).

These differences, which are a result of the hierarchical position, seem to have great influence over the echelons' perspectives of, and reactions towards, the organizational system (Hall, 1977:104) and are likely to create different needs for planning. These differences are assumed to affect the planning perspectives that echelons of different hierarchical levels use for planning processes and plans.

By exploring the long-term perspectives defined for the planning processes and the plans by the echelons of a large and centralized educational hierarchy and the satisfaction of school principals with central planning processes, the present study attempts to discuss some possible implications of these planning variables for the organizational climate. It is argued that immense differences in the future perspectives defined by echelons for planning processes and plans and low satisfaction of school principals with central planning processes may have a negative effect on the organizational atmosphere, effectiveness and on the professional relations created among the organizational echelons.

Although the study was done in the Israeli educational system, it is argued that these planning variables are likely to influence the climate of any large and complex organizational system that is characterized by a vertical interdependency among its echelons that are positioned in different levels of the organizational hierarchy.

METHOD

Respondents

The study explores the centralized Israeli educational system comprised of civil service positions. Hierarchically, the system is made up of three echelons, and the chain of command runs from the Israeli Ministry of Education, Culture and Sports (the senior echelon), through the educational districts located in the various geographical areas of Israel (the intermediate echelon), to the executing echelon comprised of schools administrated by school principals.

Questionnaires were administered to 70 of the 80 senior officials of the senior echelon, to 77 of the 85 senior officials of the intermediate echelon in four different districts, and a sample of 163 school principals whose schools are being supervised by superintendents of the same districts mentioned above.

Instrument

A questionnaire was used to explore the future perspectives that echelons use for long- term planning processes and plans, and the school principals' (the executing echelon) satisfaction with central planning processes.

The measurement of the future perspectives of long-term planning and plans performed by the echelons of the Israeli educational hierarchy was studied using a scale which consisted of eight items: four items refer to future perspectives of long-term planning processes and four items refer to future perspectives of long-term plans. In each item, respondents are asked to fill in a number that most represents the future perspective toward which these processes are directed. For example:

> "The long-term planning processes which I perform are usually directed toward a ____ days ____ weeks ___ months ____ years perspective in future time."

The same item pattern is used by Gagne (1979), who studied teachers' future time perspectives for students and curricula, and by Timser (1985), who studied personal and global future orientation. These items were used in a previous study (Nir, 1995) which reported an Alpha Cronbach coefficient of

0.88 for the planning items and 0.86 coefficient for the items related to plans. Both coefficients were significant $p<.01$.

The analysis of the discrepancies among the echelons' future perspectives is performed using the Scheffe Contrasts procedure. This procedure allows simultaneous comparison among three means while the significance level remains $\alpha=.05$. However, this procedure offers only a limited basis for the interpretation of results since it does not refer to the actual size of the statistically significant discrepancies: A one-year discrepancy has a different meaning in comparison to a five-year discrepancy, although both discrepancies may be statistically significant. Therefore, statistically significant discrepancies among the echelons' future perspectives are also interpreted according to their size in absolute numbers. Since a one-year period of time may be considered a basic unit of time in education (as reflected in grade levels, in the placement of children in classes according to their age and in the structure of curriculum), all the statistically significant discrepancies which are smaller than one year are interpreted as moderate discrepancies and considered to be a natural result of the differences in the echelons' formal duties. On the other hand, statistically significant discrepancies which are larger than one year are interpreted as *immense discrepancies* which are assumed to have a negative influence on the echelons' professional relations, especially if they operate in a centralized, large and complex organizational system.

The second part of the questionnaire was administrated only to school principals (the executing echelon) for the purpose of studying their satisfaction with the central planning processes performed by members of the senior echelon. It contains two scales, each consisting of five items: The first scale refers to the perceived *speed of response* of the senior echelon's planning processes to the needs presented by school principals. The Alpha Cronbach coefficients of the items of the scale is $\alpha=.65$ and significant $p<.05$.

A second scale refers to the perceived *suitability of plans* determined by the central echelon for the needs of school principals. The Alpha Cronbach coefficients of the items of the scale is $\alpha=.71$ and significant $p<.01$. Both scales are scored using a seven-point response scale.

Procedure

The administration of the questionnaires was carried out by reviewers who explained to each of the respondents the mode of response in the Likert type scales as well as the items where numbers representing lengths of time were to be inserted. This pattern of questionnaire administration seems to contribute to the high rate of responsiveness, which ranged from 80% among the members of the executing echelon up to 93% among the members of the senior echelon.

RESULTS

The future perspectives defined by echelons: The results presented in Table 1 show that the future perspectives of long-term planning processes are closely related to the hierarchical position of the echelons and that the discrepancies among the echelons' planning perspectives are statistically significant.

TABLE 1
Time Perspectives of Long-Term Planning Processes

SD	*M* (days)		group1	group2
62.3	260.2	group1		
134.7	586.5	group2	p<.05	
255.6	1226.5	group3	p<.05	p<.05

group 1=school principals/executing echelon; group2=intermediate echelon; group3=senior echelon.
p<.05 reflects statistically significant differences among the groups using the Scheffe Contrasts procedure.

The direct connection between the hierarchical position of the echelons and the definition of future perspectives is evident also in Table 2, where long-term perspectives of plans are considered.

TABLE 2
Time Perspectives of Long-Term Plans

SD	*M* (days)		group1	group2
87.4	363.3	group1		
214.0	655.7	group2	p<.05	
312.1	1573.3	group3	p<.05	p<.05

group1=school principals/executing echelon; group2=intermediate echelon; group3=senior echelon.
p<.05 reflects statistically significant differences among the groups using the Scheffe Contrasts procedure.

Based on the results presented in Tables 1 and 2 it is possible to conclude that a direct connection exists between the future perspectives defined by the echelons for long-term planning processes and plans and their hierarchical position in the organizational hierarchy. The results show that the higher the position of an echelon in the organizational hierarchy, the longer are the perspectives in future time toward which planning processes and plans are aimed. The existence of discrepancies among the echelons' future perspectives is reasonable considering the differences in their formal role responsibilities and activities. However, it is evident that the discrepancies between the senior echelon and the executing echelon in the future perspectives of planning processes and plans are immense rather than moderate. Table 1 indicates that the average perspective of the long-term planning processes performed by the senior echelon is five times longer (about 40 months) than the one defined by school principals of the executing echelon (about 8 months). The same pattern is evident when the perspectives

of long-term plans are considered as shown in Table 2. Such immense differences may create pressures that are likely to have a negative effect on the organizational atmosphere and on the professional relations among the echelons, especially when operating in large, complex and centralized systems.

Satisfaction of school principals with central planning processes and plans

Since large and centralized organizational structures create a vertical dependency of lower level echelons on the senior echelon's planning processes and plans, school principals were asked to refer to the *speed of response* of central planning processes and to the *suitability of central plans* in relation to schools' actual needs. Both variables are used as indicators for school principals' satisfaction with central planning processes and plans. The means obtained are presented in Table 3:

TABLE 3

Satisfaction of School Principals with Central Planning Processes and Plans

	M	*SD*	*N*
speed of response	*5.17*	*1.31*	*163*
suitability of plans	*5.63*	*.98*	*163*

A 7-point scale was used where the number 7 indicates very low speed of response and very low suitability of plans.

The results presented in Table 3 indicate that school principals of the executing echelon reflect little satisfaction with the senior echelon's planned response to their needs. It is evident that school principals perceive the speed of central planning processes as being too slow and the plans as being of little relevance to their needs, although they are expected to implement these plans in their schools while operating in a centralized system. These circumstances are likely to have a negative effect on the working relations among the organizational echelons and reduce the effectiveness of the solutions offered by the senior echelon for the problems with which school principals have to deal.

DISCUSSION

Three main conclusions emerge from the results presented above:

1. A direct connection exists between the hierarchical position of an echelon and the long-term perspectives of planning processes and plans which are performed by the echelon's members.
2. The discrepancies in the long-term future perspectives be tween the senior echelon and the executing echelon are immense rather than moderate.

3. The executing echelon expresses a low degree of satisfaction regarding central planning processes performed by the senior echelon.

Based on these findings, it is argued that planning may have an effect on the quality of organizational climate, reflecting the internal atmosphere as perceived by the organizational members. This argument may be true especially for large, complex and centralized organizations, which increase the vertical dependency upon central planning processes and plans and decrease the freedom of action experienced by the subordinate echelons. Immense discrepancies in the future perspectives related to planning processes and plans, when they exist among echelons comprising a large and centralized hierarchy, are likely to increase the incongruency between central instructions and local needs, and may serve as indicators for the quality of the organizational climate which will be developed.

Keeping in mind the direct connection found between echelons' hierarchical position and the long-term perspectives that echelons define for plans and planning processes, four possible organizational climates are offered. These organizational climates reflect four different interactions between the two planning variables which were studied: the discrepancy among the echelons' long-term perspectives, which may be moderate or immense, and the degree of satisfaction of school principals with central planning processes, which may be high or low.

The interactions between these planning variables, and the four possible organizational climates which they produce, are illustrated in the following analytical model:

TABLE 5
Four Possible Organizational Climates

The discrepancy among echelons' long-term planning perspectives

	Moderate	*Immense*
High	"Purposefulness"	Tranquillity"
School principals' satisfaction with central planning processes		
Low	"Frustration"	"Alienation"

Purposefulness

When central planning processes are perceived by subordinate echelons as corresponding to their needs and the discrepancies among the echelons' long-term perspectives of planning processes and plans are moderate, a positive working tension is likely to develop in the system, pushing all the actions taken toward the organizational goals. In a situation where central planning processes take into account local needs, school principals and teachers are likely to be encouraged to implement central plans more purposefully. Moderate discrepancies in long-term perspectives among the echelons enable subordinate and senior echelons to maintain operational working relations and to direct a larger portion of the organizational energy toward the achievement of the organizational goals rather than to the solution of internal conflicts.

Frustration

This pattern of organizational climate is likely to develop when central planning processes are perceived by subordinate echelons to have little relevance to their needs, although the discrepancies among the echelons' long-term perspectives of planning processes and plans are moderate and enable them to maintain operational working relations. Frustration is likely to be experienced by school principals when they are obliged to implement plans which are of little relevance to their actual needs and which reflect senior echelon's members' unawareness or inconsideration of local level problems and constraints. Frustration is likely to be experienced by the senior echelon's members as well, since the probability that school principals' actions will accurately implement the senior echelon's plans fully is relatively low.

Tranquility

This pattern of organizational climate is likely to develop when central planning processes are perceived by subordinate echelons as corresponding to their needs and when the discrepancies among the echelons' long-term perspectives of planning processes and plans are immense. The fact that central planning processes correspond to local needs contributes to a relaxed atmosphere and mutual understanding which the echelons are likely to experience and share. In addition, the immense discrepancies in future perspectives between the echelons give school principals more time for the implementation of central plans in comparison to the typical time perspective that characterizes their work. As a result, schools' need to present achievements is postponed to a further point in future time, since they are expected by their supervisors to implement plans more slowly in comparison to their typical work rhythm. This may encourage the school personnel to reduce the rhythm of actions taken, on the one hand, while, on the other hand, create the impression for the senior echelon's members that progress is constantly being achieved.

Alienation

This pattern of organizational climate is likely to develop when the discrepancies among the echelons' long-term perspectives of planning processes and plans are immense and when the strategic planning processes and plans performed by the senior echelon are perceived by schools' personnel to be of little relevance for schools. The low degree of relevance of the plans offered by the senior echelon is likely to damage the enthusiasm, motivation and involvement of teachers and school principals implementing central plans. Immense discrepancies among the echelons' long-term perspectives are likely to postpone schools' need to produce and present achievements in a near future and reduce the rhythm of actions taken by schools' members. Such discrepancies might reflect that each one of the echelons is performing its role regardless of the expectations and needs of other echelons. As a result, both the central planners and the educators who implement the plans are likely to be discouraged since implementation processes will neither serve the needs of schools nor the intentions of senior echelon members.

The organizational climates which are assumed to develop out of the differences in the echelons' orientations towards future perspectives of planning processes and plans and satisfaction with central planning are likely to influence the quality of the actions performed by the members of the organizational echelons. A purposeful climate may develop when high

congruency exists in the perceptions of echelons that are related to organizational planning processes and plans. This argument seems to be true in particular in large and complex organizational systems, where the vertical dependency between the echelon which produces the plans and the echelon which implements the plans is high and significant for the achievement of organizational goals.

Therefore, organizations need to increase the congruency of actions and perceptions related to planning processes and plans among the echelons of which they are comprised if a purposeful organizational climate is to be developed.

For that purpose, two main courses of action may be taken. Firstly, in an effort to reduce the immense discrepancies among the echelons' future perspectives of planning processes and plans, training programs for school principals should address the issue of long-term planning processes and plans. Such programs should train future principals to use strategic rather than tactical planning, so that they will direct their managerial work towards operational time perspectives that are long-term in nature. This demand corresponds to most of the pedagogical processes performed by schools that are long-term in their essence.

Secondly, developing a common language among the echelons comprising the hierarchies of large organizations is highly significant, if organizations intend to gain the most out of the differences in the echelons' orientations and contribution to the achievement of organizational goals.The existence of a common language among organizational echelons is likely to increase the congruency in their perceptions and actions and to establish operational working relations among them, which are based on mutual terms and concepts related to work. Such circumstances are likely to decrease the internal conflicts that negatively effect organizational effectiveness. For this purpose, organizations may use the services of the intermediate echelon as coordinator in order to create a common language among the organizational echelons and bridge more effectively between local needs and central planning processes and plans.

The vertical dependency existing in large, complex and centralized organizational systems subjects these systems to incongruencies among the echelons' expectations. Developing an organizational climate that is perceived by the organizational members as purposeful requires that the differences in the work and role duties of echelons positioned at different hierarchical levels be used in order to promote all the aspects of organizational plans in the most effective way. Planning offers a rational and purposeful strategy to bridge between present circumstances, future goals and the differences in the echelons' responsibilities, depending on the assumptions regarding contents and time which planners of different hierarchical levels employ.

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CURRICULUM CHANGES AMIDST POLITICAL TRANSITION IN HONG KONG

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This piece focuses on the background of curriculum changes including political changes and educational development (1965-1997), the essentials of curriculum changes, the nature of curriculum changes, and the political, social, and educational significance of curriculum changes. The piece concludes by analyzing what these curriculum changes really mean to the future development of Hong Kong.

INTRODUCTION

Changing from a British colony to a Special Administrative Region (SAR) of the People's Republic of China in 1997, Hong Kong is experiencing historical transitions in political structure, economic development, social transformation, and educational system. In the midst of these historical transitions, the school curricula in Hong Kong have undergone unique changes. Efforts in planning these changes have been focused on two strands: additions to and reformation of existing curricula. Three discipline areas have been the pivots of changes: language studies, history, and social sciences. Changes in language curricula have focused on two different directions: promoting Cantonese, the most popular spoken language in schools, as the medium of instruction, and expanding Mandarin instruction at all levels of schools. Changes in history curriculum include: "one-world" approach, modern history, and Hong Kong history. Changes in social science curricula include: restructuring civic education and social studies, and creating the liberal studies program. These curriculum changes are shaping and shaped by educational, social and political forces in transition. These changes will have a great impact upon people's life in Hong Kong. In this paper, we focus on the background of curriculum changes including political changes and educational development (1965-1997), the essentials of curriculum changes, the nature of curriculum changes, and the political, social, and educational significance of curriculum changes. The paper will conclude by analyzing what these curriculum changes really mean to the future development of Hong Kong.

BACKGROUND OF CURRICULUM CHANGES

Political Changes (1942-1997)

Curriculum changes in Hong Kong have always been closely tied with and influenced by political changes. As a British Crown Colony, Hong Kong was governed by the Treaty of Nanking 1842, the Treaty of Peking 1860, and the Treaty of Peking 1898. Under the terms of the three treaties, Hong Kong had been administered by the British

Government until the year 1997 when it was time to be returned to China. In its 155 years of British administration, Hong Kong first changed from a fishing village to a trading entrepot. To survive in a competitive world economy after the Second World War, Hong Kong emerged from a little trading entrepot to a large industrial city as well as a busy tourist center. The economic development during this period was fully supported by a British infrastructure in which education was an important component. The transition to Chinese sovereignty has caused subsequent changes to all aspects of the British system in Hong Kong. Curriculum changes in education are only a reflection of this great momentum of change amidst this political transition in Hong Kong.

Educational Changes (1965 - 1997)

From 1945 to 1965, Hong Kong Government attempted to control the curriculum to encounter the perceived threat resulting from the conflict between the Chinese National Party and the Chinese Communist Party. This attempt was reflected in Hong Kong school curriculum with a focus on a depoliticized, decontextualized and abstract content (Morris & Chan, 1997). This pattern was maintained from 1965 to 1984 with the emergence of mass elementary and secondary education to enhance public education in a rapidly growing society. Curriculum changes as a reflection of the political turnover were discussed soon after the Sino-British Joint Declaration in 1984. They involved social sciences, history and language studies curricula. Most of these curriculum changes occurred in the nineties were a continuation of the educational policy development from 1965 to 1997. These thirty years can be divided into two periods. In the first period (1965 - 1980), the focus of development was on increasing the quantity of education whereas in the second period (1981 - 1997) the focus was on improving the quality of education (Tsang, 1998).

The first period was highlighted by the submission of the 1965 Education Report in which the Government's plan of providing educational opportunity for all up to elementary school children was sketched (Hong Kong Government, 1965). Effort towards this direction was further reinforced by Governor David Trench's Report of 1970 that disclosed the Government plan for free education for all elementary school children (Hong Kong Government, 1971). In fact, before the end of 1970's, the goal of free elementary education had been achieved. At the same time, the plan to support free education for the first three years of secondary schooling was first formulated in 1974 (Hong Kong Government, 1974). After several modifications, the plan was implemented earlier than the original schedule. As a result, school children in Hong Kong started their first three years of free secondary schooling in 1978.

In the second period of educational development (1981 - 1997) the focus was on the improvement of educational quality marked by the establishment of the Hong Kong Education Commission and the participation of educational leaders in the Legislative Council of the Hong

Kong Government. Hong Kong Education Commission, the educational policy making body established in 1984, was responsible for coordinating the effort of the education policy making entities of all levels (Hong Kong Government, 1984). During this period, seven educational reports and three special reports were issued by the Hong Kong Education Commission to shape the policies of various education concerns in Hong Kong. At the same time, the designation of a seat in the Hong Kong Legislative Council to represent the education profession in 1987 has been an enlightened approach to improve the quality of education (Tsang, 1998). Educational issues at this time have been centered on improving the quality of education, such as school-based management, language as a medium of instruction, teacher qualifications, task-oriented curriculum, and quality based education.

ESSENTIALS OF CURRICULUM CHANGES

With its return of sovereignty to China in 1997, most curriculum changes in Hong Kong are marked by changes in language studies, history and social sciences. Changes in language studies involved the following: (1) promoting Chinese language instruction, (2) adding Putonghua (the Chinese official language) into school curricula, and (3) encouraging the use of Cantonese, the first language of most Hong Kong people, as the instructional medium at school. Changes in history curriculum include one-world approach, modern history, and Hong Kong *history*. Changes in social sciences include the changes in *civic* education, social studies, and liberal studies.

CHANGES IN LANGUAGE STUDIES

Promoting Chinese Language Instruction

The change in language curriculum in response to the political change is the shift of emphasis from teaching English language to teaching Chinese language. This is indicated by the increased allotment of periods to Chinese language instruction in the primary and secondary school schedules. 8 to 11 periods are recommended for primary schools per week while 6 to 7 periods for secondary schools. At the same time, a kit for teachers to teach simplified Chinese characters used in Mainland China was produced in 1996. Though the use of the kit is optional, the intent to shift Hong Kong culturally closer to China is clear. (Adamson & Lai, 1997).

Adding Putonghua into School Curricula

Another significant aspect of the curriculum change is the promotion of Putonghua. Putonghua, which is not the native language of Hong Kong people, is treated in the Hong Kong curriculum as an adjunct of the Chinese language subject since the writing system in Cantonese is equally applicable to Putonghua. In 1950s and early 1960s, Putonghua

was a half subject in the Hong Kong Certificate of Education Examination. In 1980, the Education Department set up a Putonghua Subject Committee to develop a teaching syllabus for Primary 4 to 6 and Form 1 to 3 students. Between 1981 and 1984, this syllabus was trialled in the senior primary section. Between 1984 and 1987 this syllabus was trialled in the junior secondary section, and was adopted formally as an elective subject in 1988. In March 1996, the government announced that Putonghua would become a core subject in the 9 years of compulsory schooling from Primary 1 to Form 3. By September 1998 there had been a Putonghua syllabus up to Form 5. At the present Putonghua could be offered in all the schools in Hong Kong (Adamson & Lai, 1997).

Revising Policies on the Medium of Instruction

Besides adding Putonghua, the government encouraged schools, students, and parents to accept the fact of shifting from English to Chinese as instructional medium (Hong Kong Education Commission, 1984, 1986, 1990). The shift appeared to be pedagogical. However it was political. Although it started with a shift to Cantonese rather than Putonghua, it was a move away from English, the colonial language which had been dominant in Hong Kong school curricula in the history. Presently only 100 schools are granted permission to use English as the medium of instruction (Hong Kong Government, 1997).

Changes in History Curriculum:

Significant changes were also made in the history syllabuses. The secondary school history syllabus, previously only covered China up to 1949 to avoid any touchy issues resulting from conflicts of the two Chinese political parties, was amended to cover up to the year 1970. The choice of the official ending date was to stay away from offending the sensitivities of the People's Republic China since the Cultural Revolution occurred during the period of 1966 and 1976. In the last fifteen years, three revisions were made to the history syllabus. Most of these revisions covered changes to beginning and ending dates, to organizational structure, and specific content. Sweeting (1997) identified the major changes as follows:

1. A tendency to take a "one world" approach to world history and away from regionalization;
2. An emphasis on modern periods of world history;
3. A tendency to emphasize the political aspects of history curriculum rather than the neutrality approach;
4. An emphasis on data-based questioning
5. An arising enthusiasm for Hong Kong history.

"One world' approach was utilized in history curriculum to position Hong Kong globally in order to avoid any content on sensitive topics. An emphasis on modern periods of world history helped avoid any topics on the legitimacy of the colonial government. The tendency to emphasize the political aspects of history curriculum might help transform the

traditional British top-down approach to a more challenging democratic approach. This emphasis on the political and the new popularity of Hong Kong history were aimed to deal with political factors concerning 1997. The data-based questioning in the Hong Kong Certificate of Education Examination in 1996 included questions on an extract of the US Constitution, a Japanese cartoon about Russo-Japanese War, a documentary source about Japan's entry into the First World War, and a British cartoon showing the effects of unlimited indemnities on post-First World War Germany (Sweeting, 1997). The participants in the examination were expected to demonstrate analytical and interpretive skills instead of traditional memorization of content, which also added new political dimensions to 1997.

CHANGES IN SOCIAL SCIENCES CURRICULUM

Changes in Social Sciences curricula involved changes in Civic Education curriculum, Social Studies curriculum, and Liberal Studies curriculum.

Civic Education

Civic education in Hong Kong is primarily seen as a co-curricular and cross-curricular input rather than a school subject. In 1985, one year after the signing of the Sino-British Joint Declaration, the government issued *Guidelines on Civic Education in Schools* (Civic Education Committee, Education Department, 1985). In 1996, the new guidelines made an explicit link between civic education and the political transition:

> The civic learner needs to know the cultural and political identity of Hong Kong as a Chinese community, as a British colony for a certain period, and as the HKSAR of China from July 1997. At a time of political transition, we need our citizens to actively adopt a new national identity, and to be participative and contributive to bring about smooth transitions,. to sustain prosperity and stability and to further improve the Hong Kong society. (Education Department, 1996, p.21)

The curriculum guidelines include civic responsibility, Sino-British Joint Declaration, Basic Law, knowledge of China and Chinese culture, and critical thinking on controversial issues. Grants are available for schools to implement the curriculum. As of the 1997-1998 school year, 96 secondary schools and 24 elementary schools participated in implementing the curriculum. However, for a variety of reasons, civic education was given a low priority in schools in Hong Kong (Sing Tao Daily, October 4, 1997).

Social Studies

Social studies were first designed as a subject in junior secondary schools. Curriculum guidelines issued in 1975 included civic

responsibility and Hong Kong Government organization. The content areas of the curriculum guidelines were revised in 1990 to include civic responsibility, Sino-British Joint Declaration, Basic Law, one country two-system concept, the organization of Chinese government, the Chinese Communist Party, and knowledge of China. The major change in the 1990 syllabus was the coverage of various topics to provide information about China and to develop awareness of Hong Kong's affiliation to Chinese culture and the People's Republic of China. Students were encouraged to draw the red flag of the People's Republic China, describe the development and structure of the Chinese Communist Party, study the biography of Mao Zedong. Such activities were previously viewed as contrary to Education Regulation No. 98 concerning activities of a party or party political nature (Morris and Chan, 1997). Any school involved in such activities could be closed, the teacher be fired, the government financial support be withdrawn. In the 1996-1997 school year, however, social studies were taught at about 20% of the junior secondary schools (Morris and Chan, 1997).

Liberal Studies

Liberal Studies was established as a subject to be taught at the matriculation class of senior secondary schools. In 1989-1991 liberal studies was attempted to broaden the Form 6 curriculum and its content. The Working Group on Sixth Form Education (1988-1989) was to make liberal studies as a core subject to be taken by all Form 6 students (Education Department, 1989). Liberal studies attempted to provide a more contextualized and politicized curriculum to develop more democratic awareness before Hong Kong's transition in 1997. The six modules which made up the liberal studies curriculum were: China today, Hong Kong studies, the modern world, human relationships, environmental studies and science, technology and society. These six modules attempted to develop students' critical thinking skills to help students' ability to cope with the complex situations people were going to face on July 1, 1997. However, the opportunity to broaden and change the ideology of Form 6 curriculum was lost when all the universities made the paradoxical decision not to use it as a prerequisite for university admission in 1991. Liberal studies has not been implemented as a core and compulsory subject in Form 6 curriculum since 1992, but rather adopted as an optional subject in slightly more than 10% of schools with Form 6 (Morris & Chan, 1997).

NATURE OF CURRICULUM CHANGES

Chinese Language Curriculum:

Changes in the Chinese language curriculum have been a continuation of the trend of language education development in Hong Kong. The promotion of mother language as the medium of classroom instruction started as a movement in the 1970's. The movement gained momentum because of the rapidly increasing necessity of using Chinese language to do business with Mainland China. However, the political change in 1997 provided legitimate justifications for the curriculum changes.

History curriculum

After the Second World War, the Hong Kong Government gave directions for the planning of history curriculum in Hong Kong schools to avoid any controversy between the political parties of China. The curriculum specified certain periods in history to be studied. All these periods were remote from modern time. This made History an isolated academic subject with little reference to the present. Hong Kong's political change to become part of China actually pushed history curriculum planners to face the reality. Students need to know what Hong Kong was and how it becomes the way it is today. Most of the changes in history curriculum after 1984 were intended to bring the study of history to a more meaningful connection of the present time.

Social Sciences Curriculum

The social sciences curriculum, which consists of civic education, social studies, and liberal studies, is focused around the issue of civic responsibilities. The study of civic responsibilities has been a trend of curriculum development in the last fifty years. After the 1967 riot, the urge to strengthen the Civic Education curriculum became an imminent need. Since the Sino-British Joint Declaration was made in 1984, changes in the social sciences curriculum have included a new dimension of politicization toward China. This indicates that policies in social sciences curriculum shift from depoliticization to politicization, from British focus to Chinese focus.

THE SIGNIFICANCE OF CURRICULUM CHANGES

Political Significance

The curriculum changes in Chinese language studies, history and Social Sciences carry a very strong political sense. They originate from a reality oriented approach to address the political change. First, Hong Kong Government demonstrated its effort to break the long icing period of depoliticization by allowing the restructuring of curricula to reflect the political change. This was done in recognition of China's sovereignty and also the new relationship of Hong Kong and Mainland China as announced in the Sino-British Joint Declaration. In a sense,the changes

in curricula include knowledge of China, Chinese government structure, history of Chinese Communist Party and Hong Kong as a Special Administrative Region of China. The contents of the curricula actually help the younger generation of Hong Kong people strengthen their sense of belongings and identify themselves with China. This is what China really needs in the long run to plan for the unification of China.

Social Significance

The people of Hong Kong, mostly Chinese originally from Mainland China, live quite a different life from the people who live in Mainland China. Hong Kong was under British colonization for 155 years while China was for half a century under Communist rule. Because of different political systems in China and Hong Kong, the goals and expectations of people in these two places are totally different. It is very difficult for the people of Hong Kong to accept a new way of life overnight. The one country two system plan initiated by Deng Xiao Peng is to provide a 50-year transition for bridging the two ways of life. The changes in curricula help students, teachers, parents, educators, administrators, policy makers, and other citizens in Hong Kong develop an understanding toward such a transition. The promotion of Chinese culture oriented curricula facilitates students to understand more about their heritage. It also helps understand the social and economic differences so as to develop the relationship between Hong Kong and Mainland China.

Educational Significance

Curriculum changes after 1984 help meet the changes in student demographics and maintain the quality education in Hong Kong. The changes in the curricula better prepare Hong Kong students who plan to pursue their studies in higher education in China. Special programs make it easier for influx immigrant children from Mainland China to overcome language difficulties in Hong Kong schools and adjust themselves to the social environment in Hong Kong. The changes in curricula improve the curriculum quality by drawing academic subjects closer to reality. This is in line with what the Quality Assurance Inspection movement has been aiming for in the past decades. However, China oriented curricula do create certain difficulties for Hong Kong schools to manage their busy weekly schedules due to the fact that some extended curricula require additional instructional time. In some cases, the implementation of China oriented curricula was achieved at the sacrifice of art, music and physical education.

IMPACT OF CURRICULUM CHANGES ON THE FUTURE OF HONG KONG

The impact of curriculum changes on the future of Hong Kong as a Special Administrative Region (SAR) is enormous. It can be felt in the political awakening process, the citizenship identity, the transition schedule, and the importance of Chinese language.

The Political Awakening Process

The British colonial policy of education in Hong Kong has generated a population of career-centered people mainly interested in career advancement and pursuit of economic benefits. Citizens' political rights were never taught or discussed in the education process. This fitted well with the ancient Chinese political philosophy that all people aimed to live a peaceful and comfortable life without getting involved in politics. The changes in curriculum reversed the colonial policy of producing a group of obedient people who would not challenge the British supremacy. The political dimension of the curriculum changes calls for representation, rights and responsibilities of citizens. The curriculum changes awaken the long time suppressed political awareness in Hong Kong people.

The Citizenship Identity

Under the British rule, all curricula and related textbooks were ingrained with the idea of Hong Kong citizenship. Chinese students, British by birth in Hong Kong, were taught to identify themselves as Hong Kong citizens with no sense of country belongings. The political change in 1997 brought a complete change of notion in curriculum. The emphasis on China oriented programs in the curriculum changes helps prepare the next generation of Hong Kong people to develop a strong sense of belongings to China.

The Transition Schedule

Recognizing the political, social and economic differences between China and Hong Kong, the Basic Law which governs Hong Kong as a Special Administrative Region of China has set aside 50 years as a transition to facilitate a smooth amalgamation of Hong Kong and China. The changes in Chinese language, history, and social sciences curricula will enhance a mutual understanding between the people of Hong Kong and Mainland China, which will hopefully improve the time- table for amalgamation.

The Importance of Chinese Language

Despite the strong opposition, the current Hong Kong Government stands firm on its position of using mother language as the medium of classroom instruction. For years, the parents have associated the learning of English language with better career future of their children. To certain extent, this is true since Hong Kong is an international trading port. However, the unhealthy development was a simultaneous downgrade on the study of Chinese language, the mother language of most students. The Chinese language emphasis in the

curriculum changes may not meet with favorable public approval at this time, nevertheless, these changes will eventually affect Hong Kong as a Special Administrative Region because it counter-balances the utilitarian ideology of using English as an instructional medium and reiterates the importance of mother language in daily life.

CONCLUSION

The curriculum changes in language studies and science studies are shaping and shaped by political changes and educational changes (1965-1997). Changes in language curriculum are marked by adding Putonghua into school curricula and revising policies on the medium of instruction. Changes in history curriculum include: "one world" approach to world history and away from regionalisation, an emphasis on modern periods of world history, a tendency to emphasize the political aspects, an emphasis on critical and analytical skills, and an enthusiasm for Hong Kong history. In social sciences curriculum changes occur in *civic education, social studies, and liberal studies.* What do these curriculum changes really mean to the future development of Hong Kong? Hong Kong is in transition. The education in Hong Kong is in transition. The school curricula in Hong Kong are in transition. People's lives in Hong Kong are in transition. Although the curriculum changes are generally considered as heading for the right direction amidst this political transition, they have not received enthusiastic responses from most schools and universities. In view of the political, social and educational aspects of the current development in Hong Kong, it will take some time for the recommended curriculum changes in languages, history, and social sciences to be effectively implemented. In the future study, we plan to interview Hong Kong teacher educators, classroom teachers, policy makers, administrators, and principals to explore how these curriculum changes act upon and are acted by the educational, social, and political changes as well as people's life in Hong Kong in transition.

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Developing a Systemic Approach to Educational Planning for the New Millennium: An Analysis of the North American School as a Complex of Heterogeneous Systems

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This article provides an analysis of the evolution of North American educational systems in the United States and Canada using an emerging systems model that provides educators with systematic, useful information about the historical significance of six heterogeneous components and also provides them with insight into effectively planning for their respective system's future in the new millennium.

INTRODUCTION

Education can be thought of as a complex of emerging heterogeneous systems of people, things and ideas. School, as an institution, occurs at the formal confluence of these components, and is constantly evolving in structure, form and substance because of the interaction between and among six heterogeneous systems. These systems are identified in our emerging systems model as: physical, psychological, social, symbolic, cybernetic and axiological. Each one grows out of the initial core, but each constantly feeds back into the core, thus further developing, adapting and sustaining this human institution known as school.

An analysis of the evolution of North American educational systems in the United States and Canada using this emerging systems model provides educators with systematic, useful information about the historical significance of these six heterogeneous components, and also provides them with insight into effectively planning for their respective system's future in the new millennium.

A HISTORICAL REVIEW OF SCHOOLS AS COMPLEX EMERGING HETEROGENEOUS SYSTEMS

The notion that aspects of schools may be conceptualized as systems is derived from systems thinkers whose publications began to appear nearly half a century ago. Norbert Weiner (1948), published the basic principles of cybernetic systems in a mathematically laden text entitled *Cybernetics: Communication in the Animal and the Machine*, and followed it with *The Human Use of Human Beings* (1950). At approximately the same time, Ludwig Von Bertalanffy (1950) published a seminal paper, *The Theory of Open Systems in Physics and Biology*, which argued that the Second Law of Thermodynamics did not apply to living systems; that they maintained a condition similar to equilibrium, a balance of inputs and outputs that he called a steady state. The basic notions of these authors, together with those of subsequent generations

of systems thinkers such as Kenneth Boulding, Anatol Rapport, Harold Pattee and James Miller led to the formation of the Society for General Systems Research.

Among the succeeding generations of systems thinkers, Ervin Laszlo (1972) suggested a synthesis of systems models to create "second order models." From this suggestion, Guy (1983) further investigated such an evolving systems model based on the more obvious first order systems models that could be conceived within a public school. He discovered that they seemed to derive directly or indirectly from the school, conceived as a physical system, and the connections and relationships between and among the buildings, bodies, books, computers and other objects or ideas that make up the basis components of schooling. These components may be generally classified as people, things and ideas. The confluence of these three components in the "real world" constitutes the parameters and gives structure, form and substance to the typical public school.

Both Polka and Guy (1995) noticed that these systems seemed to be logically arranged in a hierarchy with the physical system forming the base. One class of physical components, the human bodies, provides the attributes of the psychological systems. These systems, or personalities, interact and interrelate among themselves at another level to form social systems (students organized into classes, teams and clubs), and teachers organized according to grade levels (primary, elementary, and secondary), and into various committees. The primary purpose of the social systems is the transfer of symbolic systems from one generation of people to the next; that is, the teaching of reading, writing, mathematics and other subjects. Guiding these activities is another system, an axiological or value system. The cybernetic or governance system coordinates and gives structure to the other systems, and enables them to function as complex heterogeneous systems operating throughout the hierarchy.

The Polka-Guy Emerging Heterogeneous Systems Model is presented to visually demonstrate the concept that the institution of schooling occurs at the formal confluence of people, things and ideas. However, these three key components (people, things and ideas) are dynamic and serve as the core from which the six heterogeneous systems emerge. These six heterogeneous systems - physical, psychological, social, axiological, symbolic and governance - are also dynamic and constantly emerging. They continually interact with each other and rejuvenate the core components to constantly change and adapt as the entire heterogeneous system emerges and becomes more encompassing of people, things and ideas.

This is why comparing the contemporary experiences of the institution of schooling with those of the historical past from any period reveals that the school has, indeed, become more of a comprehensive institution, especially within the North American society. But a review of the changes within the institution that have already occurred definitely serve as valuable benchmarks from which to predict future changes in this emerging system. This review also promotes the development of a systems perspective vis-a-vis educational planning which is imperative for effective planning in the new millennium.

THE NORTH AMERICAN SCHOOL AS A COMPLEX OF HETEROGENEOUS SYSTEMS

Polka (1996) developed a variation of the conventional time-line technique and a chronology of educational developments in North American schools to provide historical evidence of the existence, growth and development of the six heterogeneous systems. He identified historical educational events (i.e.; things and ideas) and people that had a significant impact on the various complex heterogeneous systems that interact to form the current structure of schooling in the former British colonies of North America.

The timeline activity that Polka developed is designed to encourage educators to reflect on the interrelationships between and among the various heterogeneous systems. As a result of completing the timeline activity, educators are able to more comprehensively recognize that the North American School is a continuously emerging complex of heterogeneous systems. Those systems have evolved and are continuing to evolve as people, things and ideas are added to the complex, interact with those already in the complex, and create new needs in the complex that further require heterogeneous systems reactions. This specific timeline experience further develops educators' systems thinking from a broad field perspective. However, educators are encouraged to review the historical development of their specific state, regional or local school system, using this timeline activity model as a reference in order to develop their specific local perspective or the micro-view. A suggested approach is to simply edit this timeline activity by adding significant people, things and ideas that have influenced the development of the state, regional or local school system and deleting those listed that may not be appropriate.

Subsequently, educational planning may become more systems oriented as educators specifically and comprehensively become more knowledgeable about the emerging complex of heterogeneous systems in the development of North American Schools.

PRACTICAL EXAMPLES OF HETEROGENEOUS Systems, Interactions and Evolutions

The following three examples, one from each core area, are presented in order to illustrate the interrelationships between the heterogeneous systems as described in this article, as well as to give practical examples which educators can use in further developing their own comprehensive perspective for future educational planning.

A concern that has been evolving from the "people" core area, and one that has received considerable attention during the past twenty-five years in American public education has been the strong orientation that "all children can learn". A related issue is that it is most appropriate to have all children within the least restrictive environment possible so that they can be educated with their peers as much as is appropriate. This

philosophical orientation stems from our basic belief of the intrinsic personal worth and inherent dignity of each individual. The contemporary focus on including all students, and having them actively involved in the schools as learners in the least restrictive environment possible, has definitely changed the climate and the physical structure of our schools. School architecture has become more democratically oriented. There are building handicap codes and regulations that mandate that schools be designed in a manner that makes them accessible to all people. The specific presence of wheelchair ramps, elevators, handicap restrooms, handicap parking spaces, and other similar school physical improvements were generally lacking in the physical structure of our North American schools fifty years ago.

These actions, of course, served as catalysts in terms of legal issues and additional axiology or values issues, such as: the legal parameters for Individual Education Plans (I.E.P), more inclusion programs, and the need to be sure that appropriate services were available to help children who, in the past, were not provided equal access to the North American public school. As one reflects on these changes in each heterogeneous system, it is self evident that each has continued its emerging evolution toward more comprehensive education because of the stimulus provided by our desire to implement our societal belief regarding all people in our public schools.

The evolution of "ideas" related to extended student attendance at comprehensive schools has evolved from its "one room" neighborhood common school origin as an institutional idea to more comprehensive elementary and secondary schools in order to accommodate ever increasing populations and a need for more specialized training. The busing of students, especially in areas of low population density such as rural and suburban areas, became a physical necessity to facilitate the attendance centralized at comprehensive schools which were a greater distance from students' residences than would be feasible for them to walk. Issues of appropriate busing, changing legal mandates, and court-ordered mandates, are illustrative of the continuously emerging interactiveness of the various heterogeneous systems. The physical system's solution to the school distance problem created a series of reactions in the psychological, social, symbolic, axiological and governance systems.

Another related "idea" that emerged as school attendance became more comprehensive during the past fifty years has been the issue of schools providing meals for students because of the increased distances between home and school. It quickly became obvious to educators that not all children brought their lunch to school or had access to lunch because of financial difficulties. This gave impetus to a whole series of values discussions, and then legislation vis-a-vis free or reduced cost lunch programs, to ensure that all children had access to nutritious mid-day meals. Research followed which illustrated the value of this from a psychological perspective in terms of learning, as well as the fact that the cafeteria social experience at lunch time certainly became associated with the typical North American school experience. Subsequently, in recent years there has been a movement toward free and reduced cost

breakfast programs because of the changing demographics in society. Educational researchers contend that there are a number of children who do not have access to nutrition at home and, therefore, breakfast has become a new school experience for many children. This again has engendered a whole new series of emerging and evolving legislation and values issues, as well as school physical needs.

Issues interrelated to the evolution of the "things" of education can most clearly be exemplified by the massive influx of computers and computer technology in contemporary education. Most schools began using computers as teaching tools and aids for teachers - such as word processors, attendance and record keeping, and some specific instructional programs. Governance and axiology issues began to develop regarding software program ownership, including the ability to modify programs and the site licensing of various programs. Subsequently, given the ever-expanding global capabilities of the internet, there are currently discussions about limited access to students because of abuses which are evolving into additional school governance mandates. The psychological and social heterogeneous dimensions of the school will continue to change because of the physical appearance of these technological "things" such as computers in our schools. It may not be necessary to have groups of students interact in classrooms in the future in the same manner as they currently do, and as they did in the past. Education may truly be a much more independent and/or a limited cooperative experience occurring at different sites throughout the community, even at students' homes and at their convenience. The schooling changes caused by these "things" will continue to emerge as the other heterogeneous systems interact and adapt to the changes. The entire institution of schooling will continue to evolve in form and substance in the new millennium because of these heterogeneous system interactions and adaptations.

These three examples just begin to "scratch the surface", but certainly are illustrative of the kind of systemic thinking that needs to be done as one probes the North American public school as a complex of heterogeneous systems. Each example definitely illustrates that the systems thinking of educational planners needs to be non-linear, and must definitely include a continuously emerging multi-faceted approach. Thus, it can be demonstrated that the evolution of the North American school into a complex of heterogeneous systems is occurring dynamically and exponentially. Consequently, educational planners must be prepared to comprehensively envision the next emerging interrelated developments that may occur as the issues at this core (people, things and ideas) continuously change.

SYNOPSIS

In our previous presentations, we only provided a theoretical model, and the support afforded by historical and perceptual evidence. We now try to justify this model on epistemological grounds, and then develop a means of applying it to recent and current events that have been happening to schools across North America during recent years.

We begin by asserting that epistemology is only a theory of knowledge; it is continually being challenged. To support this claim, we have only to refer to the confusion over scientific discoveries and defer to the opinions of prominent scientists of the current century. For example, scientists have frequently argued about whether we know that Pluto, the newest planet to be "discovered", really exists in the sense that other planets in the solar system exist, or whether it exists as a mass of frozen methane gas (Zeilik, 1988). Similarly, there has been considerable debate about whether certain learning disabilities, such as dyslexia and attention deficit disorder (ADD), are genetically determined disorders or environmentally caused conditions. Furthermore, in his volume Genetic Epistemology, Jean Piaget (1970) stated that "scientific knowledge is in perpetual evolution; it finds itself changed from one day to the next." Finally, Gregory Bateson (1979), a revolutionary transdisciplinary scientist claimed "science is based on presuppositions", that "it is a way of perceiving the world", and that it "probes; it does not prove." From these convictions we may logically conclude that knowledge is, at best, an ephemeral condition in a rapidly changing world where credibility, not objectivity, is the paramount criterion.

The epistemological claims for the concept "system" have already been discussed by Laszlo (1972). Our model has been influenced by his thinking. If it may be assumed that their thinking is correct, and that our model is based on precepts that were derived from careful observation, then we may justifiably conclude that all it needs is credibility. Accordingly, we claim that the results of our probing the organization of the public school as a complex of heterogeneous systems may at least be given the status of a heuristic, or means of possible discovery - if not an algorithm, or procedure for achieving consistently reliable results. As a heuristic, it seems possible to apply our model to public schools that are in operation at the present time, and obtain an overview of the present stage or state in the evolution of particular schools. The initial results may be expressed in the form of a particular set of data dealing with the identified systems that make up the particular complex of heterogeneous systems. When combined with past events, these data may provide a retrospective scenario of how the school developed, and a set of prospective scenarios based on current observations and policy options for the future. This would provide the governors and administrators of a particular school with a comprehensive systems approach to educational planning.

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ISSUES IN USING NEEDS ASSESSMENT IN EDUCATIONAL PLANNING

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This paper discusses four issues in the practice of educational needs assessment: adequacy of methodology, cultural and sociolinguistic factors, setting priorities, and utilization of results. It suggests criteria for choice of methodology and recommends using multiple methods of data gathering. Published reports indicate that needs assessors generally use only one method of data gathering, mainly the written survey questionnaire, and that the needs assessment rarely establishes priorities among needs. There is little information on the extent to which sociocultural and language factors are considered, or how NA results are utilized. The paper suggests several lines for future research, including investigating the extent to which educational systems actually use NAs to establish or modify educational policy and programs, or if NAs have resulted in beneficial changes to the system.

INTRODUCTION

For more than three decades, needs assessment (NA) has in principle been accepted as the first step in systematic planning for educational organizations. It was not unusual for early educational NAs, in the 1960s and 1970s, to appraise an entire educational system as well as its component parts--the individual schools, students, faculty, and facilities--in order to identify those needs with the highest priority as a basis for long-range planning. In later years, the focus of many NAs became much narrower. Published reports of 125 educational NAs conducted in various school systems from 1981 to 1993 reveal that few were related to planning for whole systems (Witkin, 1994). Most of the studies target specific groups of students, such as children with learning disabilities or behavioral disorders, or specific programs in the curriculum--e.g., vocational education, community education, English as a second language, or adult basic education. That is, a "need" is postulated, and the assessment is then designed to gather more information about that specific area of need in order to plan an intervention program.

What has happened, then, to the original idea that a NA is intended not only to identify system-wide needs but to set priorities among them? In fact, there is very little information about the extent to which NA is actually used to provide a basis for establishing priorities among needs in educational planning. One problem in gathering data to explore that question is that most educational NAs are not reported in journals or in such data bases as ERIC, but remain as in-house documents for local decision making. Some inferences might be drawn from a book of four case studies that illustrate school district planning, and that are probably fairly typical (Carlson & Awkerman, 1991). Only one of the plans stated specifically that the first phase involved the board of education in a needs assessment process to define the purpose of the

planning project. In the others, either the needs were based solely on analysis of test data or social indicators, or no NA was done at all.

Regardless of the focus or scope of educational NAs, whether of whole systems or of specific groups or programs, an examination of published reports raises several questions concerning procedures used for data gathering and decision making. From among the many possible issues that could be examined I have chosen four that are central to the practices of NA:

(1) adequacy of methodology,
(2) consideration of salient cultural and sociolinguistic factors of target and respondent groups,
(3) setting priorities, and
(4) ensuring the utilization of results.

The issues are relevant for all levels of education (K-12 and higher education) as well as for all levels of educational agencies (local, regional, and state).

ISSUE I: HOW ADEQUATE IS THE METHODOLOGY USED IN EDUCATIONAL NEEDS ASSESSMENTS?

This section raises four questions about methodology:

(1) Is it really a NA or only a data-gathering exercise?
(2) How appropriate are the methods chosen for data- gathering and setting priorities?
(3) Does the NA use enough methods? and
(4) Does the NA confuse levels of need, or needs with solutions?

The following is a brief examination of each of the above questions:

(1) *Is it really a NA?*

A NA should deal specifically with discrepancies between existing states in the system and specific goals or ideal states, and establish priorities for action. Some studies that purport to assess needs deal only with existing states. That is, they gather data on some question of interest, such as student achievement, without linking the data to a desired state and setting priorities. Therefore, the first issue is to be sure that the study is indeed a NA.

(2) *How Appropriate are the Methods?*

Methods for collecting data for NA are of three general kinds: archival (e.g, from school records, demographics, student assessments and other secondary sources); communication (e.g., surveys, interviews, and community forums; and analytic (e.g., causal analysis, success mapping, risk assessment). Each method has strengths and weaknesses. Issues concern the appropriateness of choice for the particular NA, and adequacy for decision making.

(a). *Criteria for choice of method.*

The choice of method of data gathering depends on the purposes of the NA, the length of time to be allotted to it, how the data will be used, ease of gathering the information, and in some cases, the skills and knowledge of the needs assessor. Archival data are useful for exploratory phases of the NA and for identifying the parameters of the "what is" part of the NA. Survey questionnaires are best used for investigating opinions about needs, exploring the "what should be" dimension, or verifying the perception of facts related to the NA. Key informant interviews and small focus groups are excellent means of getting expert opinions; nominal groups are efficient for deriving consensus on issues.

(b). *Adequacy of method for making decisions in the particular context.*

The needs assessor should ask the following questions about any method: Will it yield data useful for making decisions about needs in the specific context? What will work best with this particular group of informants--e.g., a written survey or a group process? Is the method cost-effective in terms of time and other resources needed to develop instruments and collect and analyze the data? Will the answers be relevant? Will the data help distinguish between needs and wants, or between needs and solutions? Will the data be specific enough to furnish guidelines for action in the educational context of this particular NA?

The written survey is especially prone to pitfalls in the construction of questions. Errors to avoid are global statements or questions about adequacy of services or programs, or questions asking for statements of needs, which usually elicit lists of wants or solutions. For example, elementary school teachers may report that they need small classes. But class size is a solution to an implied need--perhaps that of ensuring optimum learning for each student.

(3) *Does the NA use enough Methods?*

Despite the richness of potential sources of NA data, over two-thirds of NAs reviewed in a recent study used only one method (Witkin, 1994). Nearly half of those used the written questionnaire survey. Of the NAs that used two or more methods, three-fourths used the written survey as the principal source of data. Since surveys are usually more valid for evoking opinions on needs rather than facts, any NA that

confines its data gathering to surveys seriously limits its potential for drawing meaningful conclusions about needs.

There is considerable evidence that it is better to use two or more methods of gathering data, rather than to rely on one (Demarest, Holey, & Letterman, 1984; Evans, 1985; Buttram, 1990; Witkin & Altschuld, 1995). For one thing, the kinds of data gathered are constrained by the methods and instruments used. Focus groups or key informant interviews are likely to yield results different from structured written surveys, but they can complement each other. Group or individual interviews can probe for in-depth responses on a limited set of questions, while surveys can derive a broad picture from several constituencies.

The needs assessor may also combine multiple methods with multiple data sources. That is, the same survey could be used with students, parents, and teachers in secondary schools, or university students, professors, and community representatives; but the survey could be preceded by key informant interviews and/or focus groups with different sets of respondents. As another example, survey responses could be compared with information from archival sources to establish whether parents' opinions on the extent to which students in a school system have achieved certain goals are congruent with the actual data about student achievement.

The main advantage of using multiple methods is that the different data inputs provide alternative kinds of information that add to the understanding of needs in a given context. The main disadvantage is that using several methods adds to the costs, time, and complexity of the NA process. There is also the problem of interpreting results if data from different methods are contradictory. When that is the case, it is important to follow up with interviews or focus groups to establish the source of the differences in perspectives.

(3) *Does the NA Confuse Levels of Need?*

Most needs assessors accept the definition of need as "a discrepancy between 'what is' and 'what should be'" in terms of results (Kaufman, 1988). Kaufman has made it clear that the two parts of the equation refer to student outcomes, not to solutions. That is, needs should be differentiated from solutions. Thus, aides in classrooms, school busing, or different textbooks are not needs, they are solutions to some (perhaps unexpressed) need.

One way of keeping the distinction clear is by recognizing that there are at least three levels of need, related to different target populations or levels in a school system:

- At Level 1 are the students or learners--the population for whom the educational system exists.
- At Level 2 are the people who provide educational services or nurturing for the students--faculty, parents, counselors, school nurses, bus drivers, principals, and other administrators and policy makers.
- Level 3, the system level, consists of resources and other solutions: buildings, equipment, laboratories, supplies, programs, class

size, transportation, salaries and benefits, program delivery systems, and time allocations.

It is obvious that Levels 2 and 3 would not exist without Level 1--the students or learners. Yet all too many NAs focus on needs of teachers or other professionals (Level 2, training needs), or on such matters as building upgrades, better working conditions for teachers, reductions in class size, whether or not to bus students, and programs to improve reading or mathematics learning (Level 3, organization or system needs). Although it is legitimate to analyze needs at Levels 2 and 3, much confusion can be avoided if the needs assessor keeps in mind their relationships to the Level 1, primary needs of learners.

ISSUE II: DOES THE NA TAKE INTO CONSIDERATION IMPORTANT SOCIOLINGUISTIC AND CULTURAL FACTORS OF RESPONDENTS OR TARGET POPULATIONS?

In general, methods of NA have been developed by and for groups that could be characterized as western, Caucasian, and middle class. Only recently has attention been paid to ways of working with populations that differ linguistically, ethnically, and culturally from this norm.

Witkin and Altschuld (1995) suggest that the needs assessor consider language, cultural and ethnic values, and individual differences when selecting procedures to use in gathering data from different groups. Soriano (1995) emphasizes the importance of knowing the target group in respect to written and oral language, cultural sensitivity and relevance, and social factors. Following is a brief discussion of issues related to language and cultural differences.

Language

Many students in large urban school districts, particularly those on the east and west coasts of the United States, come from homes where English is not the first language. This author has known schools where there were as many as 40 or 50 different home languages spoken. In such places, the extent to which English is understood or spoken fluently by students and their parents varies widely. Survey questionnaires may need to be translated into such languages as Spanish, Mandarin or Cantonese, Tagalog (for Filipinos), Vietnamese, or Russian, depending on recent patterns of immigration to the area.

If the NA calls for individual or focus group interviews with non- or limited-English-speaking students or parents, interpreters should be provided. If the NA is focused on general needs of all students, rather than on any specific language group, and if there are many home languages to consider, it is probably better to use individual interviews, with interpreters present, than to attempt to use group processes.

Cultural and Ethnic Variables

In addition to language, the needs assessor should take cultural differences into account:

"Rules" for social action and deliberation vary greatly among different ethnic and cultural groups. In some cultures, younger participants always defer to elders and lower status adults defer to those of higher status. Verbal and nonverbal factors include spatial relationships and distances that are tolerated between speakers, preferences for oral or written modes of expression, use of hyperbole or metaphors to express values, relations to authority figures, assertiveness or shyness in group deliberations, degree of eye contact, gestures, and willingness to challenge or defend points of view. (Witkin & Altschuld, 1995, p. 54)

Group discussion techniques are common in educational NA, yet they may not be appropriate means of gathering information in some cultures. Hawaiians and other South Pacific islanders, for example, do not readily volunteer information in groups. Giving one's opinion is considered to be a form of "showing off," and individuals shy away from expressing strong points of view in such situations. Thus, the needs assessor may think there is more agreement in a group than really exists.

The concept of time is also an important variable. Some cultures, such as western Europeans and Japanese, tolerate only a few minutes' divergence from the time set for appointments or business meetings; whereas for many Latin Americans and some Native American groups in the United States, an hour or more deviation is not unusual. The needs assessor should consider such matters as whether respondents are likely to return questionnaires promptly, to arrive at meetings at the scheduled time, or to complete assigned tasks by the target date.

Another cultural difference is the extent to which people encourage or avoid confrontation. In general, Americans are accustomed to taking adversarial positions, while Japanese value consensus much more highly.

The needs assessor should be aware of levels of acculturation and assimilation in the area in which the NA is being conducted. Soriano (1995) notes that "Less-acculturated populations are likely to be limited in English proficiency and adhere to the cultural values of their country of origin. Knowing this likelihood may have implications for the language and wording used in the needs assessment instrument" (p. 100). Physical appearance alone, however, is not an indication of acculturation. Someone with marked Asian or Hispanic features may have been born in the United States of a second- or third-generation family.

The main issue is that the needs assessor should be aware of expectations embodied in the data gathering methods. If they are inappropriate for given cultural groups, they should be eliminated or adapted in order to obtain valid data.

ISSUE III: DOES THE NA SET PRIORITIES?

One of the main purposes of educational NA from its inception has been not only to document needs, but to decide which of those needs were most important for short- or long-term planning. NA became the basis for deciding which student needs were most pressing for allocating resources.

Currently it appears that much less attention than formerly is being given to setting priorities. Many NAs simply report the data, without making recommendations as to which needs are more important for action than others. Fewer than half the studies in the Witkin (1994) survey of practices mentioned priorities. When priorities are omitted, the NA becomes merely opinion polling or data gathering without adequate criteria for action planning.

Another issue is whether the NA uses the best methods of establishing priorities. There are many drawbacks to the traditional practice of ranking priorities solely on the magnitude of discrepancies between "what is" and "what should be." Additional factors to take into account are (a) causes of the needs, (b) degree of difficulty in addressing needs, (c) effects on related parts of the system if certain needs are or are not met, and (d) political and contextual factors that might affect efforts to solve high-priority needs.

A further difficulty with establishing priorities is that the "what should be" dimension is often stated as a general goal that represents an unattainable ideal, and it is therefore difficult to quantify discrepancies meaningfully. One method that holds promise is risk assessment, in which educators set acceptable levels of specified risks. Any greater levels would be indications of need. With risk assessment, the "need" then becomes a level at which action should be taken (Witkin & Altschuld, 1995).

ISSUE IV: DOES THE NA PROVIDE A MECHANISM FOR ENSURING THE UTILIZATION OF RESULTS?

Utilization of NA results implies that decision makers will use priorities to guide strategic planning, to install new programs, or to modify existing programs. Too often, however, the NA ends with a written report to a governing board, with no subsequent action taken. Needs assessors can do much to ensure utilization by gaining a commitment from decision makers before the assessment, and by building bridges to utilization as an integral part of the NA process.

The needs assessor can take several steps to increase the probability that the information from the NA will result in an appropriate action plan. On the short list are: (a) secure a memorandum of agreement from policy makers before beginning the NA, (b) work with an advisory committee representative of all the stakeholders, and (c) keep the lines of communication open by means of brief oral and written

reports to key people in the system as the NA progresses. (For an elaboration of these points and other suggestions for utilization in the context of a three-phase model of NA see Witkin & Altschuld, 1995, Chapter 4).

SUMMARY AND DISCUSSION

This paper has been limited to discussing four issues in the practice of educational NA: adequacy of methodology, sociocultural and linguistic factors, setting priorities, and utilization of results. If published reports of educational NAs are representative of the practices in general, it appears that there is a strong tendency for educational NAs to be narrow in scope, to use only one method of data gathering (typically the written survey) and not to establish priorities among needs. There is little information about the extent to which NAs take into account cultural and linguistic factors, or how the data are utilized. Many of the published NA reports, however, do state that the NA was undertaken at the request of a board of trustees, or for policy purposes. Therefore, it could be inferred that the school system would act on the NA findings.

Further research is needed to establish the extent to which researchers or administrators in educational systems are actually conducting NAs as the first step in strategic or program planning (rather than targeting limited groups or programs), and if so, what methods they use. Another question for research is whether needs assessors base their work on particular NA models, and how closely they adhere to the model. Finally, there has been no appraisal of the value of NAs for establishing or modifying educational policy and programs, or if NAs undertaken in the past actually resulted in changes that were beneficial to the system and the people whom it serves.

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School Design Factors That Influence Student Learning

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This paper argues that planners must emphasize designs that are in harmony with developmentally appropriate educational goals and activities. Furthermore, educators and architects need to work together in providing user-friendly schools, free of dated educational specifications. The discussion contends that as educational planners and designers, we must consider this question: How do school design patterns influence student learning?

INTRODUCTION

Concerns about aspects of school design are gaining increased attention as school construction spirals to a new high in the United States. Recent articles on school size (Raywid 1997/98) and class size (Achilles et al. 1997/98) help to confirm the mounting interest in educational planning issues. School and class size, however, are only part of the family of design issues. For example, how much attention should educators give to functional and structural aspects of design?

To deal with the total spectrum of influences on student learning, we should expand our concerns to include a broad range of relative design factors. For example, the University of Georgia's School Design and Planning Laboratory[1] (SDPL) supports the idea that all indoor and outdoor spaces must be studied, planned, and designed with diverse student populations in mind. The SDPL's top priority is to ensure that the school curriculum is the driving force behind the design of learning environments. Too often, the school's buildings and grounds constrain the curriculum. As educational planners and designers we must consider this question: How do school design patterns influence student learning?

Unfortunately for our multi-cultural student populations, an entrapment has been set. Local school boards in many parts of the United States are adopting one design for new school construction and reproducing it throughout the system (whether it fits a unique curriculum and culture or not). As designers and planners we cannot assume that one school design fits all school systems (or all school sites within a school system). There are too many variations from community to community, state-to-state, and country-to-country to make this foolish assumption. Yet, there are state and local policies in existence that encourage the "cookie cutter" notion. We must challenge these policies through research and reason.

Some ways of questioning these policies include a careful look at the basic principles of school design and how they might affect student learning. I will introduce some ideas about functional and structural design that we may use in school planning and design. These can be helpful in re-thinking how we go about planning and building schools for our changing student populations.

SOME BASIC PRINCIPLES OF SCHOOL DESIGN

Let's make the assumption that the functional aspect of design is centered on what is happening in the educational program (the total curriculum), while the structural component (natural and built environments) "facilitates" the program component. Both built and natural environments embellish student learning (Although there are other classifications, learning as discussed in this article may be categorized according to affective, behavioral, and cognitive dimensions. In this discussion, I refer to these as the ABCs of learning).

Design, in the generic sense, is not an easy concept to define. What we know about the subject is broad and extremely subjective. It may be viewed as a rallying device for architects, landscape architects, city planners, and [educators] who have in the past been occupied with smaller and simpler matters (Tyrwhitt, 1957). The design should be considered in terms of three basic considerations: How do students learn, what should they learn, and places for learning.

Design deals with the philosophy, objectives, and processes that exist in the educational scheme (Banghart and Trull 1973). All we have to do is look around some school systems to determine that there are built structures that do not and cannot provide adequate support for the ABCs of learning (Consider temporary classroom units for starters). Some examples of design will help us envision new perspectives for planning.

A basic principle that I endorse is "in harmony with nature." Let us begin an overview by examining some positions on design as viewed by environmentalists.

THE ENVIRONMENTALIST'S VIEW OF STRUCTURAL COMPONENTS

From the environmentalist's perspective, basic design recognizes the needs of the human community. This deals with the interrelationships among natural, cultural, social, educational, and economic resources both locally and globally. To explain these important aspects of design, the United States Department of the Interior has made available to us a document entitled *Guiding Principles of Sustainable Design* (1994). I have taken the liberty of applying their principles of site design and building design in the examples below. They will help initiate what we may think about when trying to match the physical structure of the school with the curriculum.

First, let's think about safety and security. The design of a school involves a closer, more integrated relationship of students with nature. Students' awareness of their natural and built surroundings is the best safety insurance. Three illustrations make the point:

- Students must have a sense of personal safety and security to be attracted to the school.

- The use of artificial lighting should be limited to retain natural ambient light levels and provide a basic sense of security.
- Appropriate atmosphere and security can be enhanced by controlled access to the facilities - incorporate natural barriers into facility design to minimize need for security fencing or barriers. (These statements are based on ideas in Chapter Five, *Guiding Principles of Sustainable Design*)

Without question, entries and exits of the school should be clearly visible to teachers and principals. This design feature offers a sense of safety and security for the child and school personnel. The assumption is that the learner must feel secure before learning can take place (See also Weinstein 1987). Compare this to schools with doors at the ends of dimly lit corridors and entryways that are not readily visible from the vantage points of supervising personnel.

Windowless schools also violate the philosophy of safety and security, especially for children who suffer from phobias and certain types of convulsions. Fluorescent lighting in windowless schools may trigger seizures in some people. The child should be able to see beyond the classroom into a garden or other inviting, natural areas. Natural light should come from two sides of the learning area.

The second design factor is a 'sense of place' for buildings. The guiding principle of sustainable development and sustainable building design is to create optimum relationships between people and their environments. "More specifically, sustainable development should have the absolute minimal impact on the local, regional, and global environments. Planners, designers, and developers have an opportunity and a responsibility to protect the sanctity of a place, its people and its spirit" (Chapter Six).

By thinking about a sense of place we can discover a sustainable building philosophy dealing with design that balances human needs (rather than human wants) with the carrying capacity of the natural and cultural environments. By following this principle we minimize environmental impacts and the importation of goods and energy as well as the generation of waste. We should view sustainable design as an ecosystematic approach that demands an understanding of the consequences of our actions. Sustainability (green architecture) involves simple things such as the use and reuse of water, energy saving design, solar energy, and energy efficient materials and appliances.

Let us make the assumption that if we show students the value of built and natural learning environments, they will develop an appreciation for maintaining these areas (show a sense of pride and ownership). Somehow, we must convey the notion of ownership to students and the community. A feeling of ownership can be achieved when school and community (including children) plan and design their own school and when children help clean up the buildings and grounds (indoor and outdoor learning environments). This must happen if they are to achieve "a sense of place."

The theme of balance is the foundation for goals under the sustainable philosophy. Let us consider the sustainable building design objectives inferred from Chapter Six.

The long-term objective of sustainable design for schools is to minimize resource degradation and consumption on a global scale, while maximizing student learning. Thus the primary objectives are to "lead through example" and heighten environmental awareness. Sustainable building design must seek to:

- use the building (or non-building) as an educational tool to demonstrate the importance of the environment in sustaining human life (e.g. solar design of windows),
- promote new human values and lifestyles to achieve a more harmonious relationship with local, regional, and global resources and environments . . . , and
- relay cultural and historical understandings of the site with local, regional, and global relationships (Chapter Six).

If we can accept the environmentalists' point of view, then the uniqueness of school environments could also create the curiosity for learning and the desire to experience success. This should be one of our goals as educators, planners, and designers. In providing schools and learning activities for students, we must take special care not to destroy the natural environment with educationally unfriendly designs and structures. Stripping a natural site to build a large, rectangular institutionalized (monolithic) structure instead of designing a series of buildings for the site is a violation of the philosophy of "a sense of place." The built environment should blend with the natural environment to educate, not repress and depress, its users. This follows Frank Lloyd Wright's notion of "organic architecture."

THE EDUCATOR AND ARCHITECT'S VIEW OF FUNCTIONAL COMPONENTS

If schools are not user friendly, then the solution may be found by rethinking how we, the educators, communicate program needs to architects and builders. The initial job for the SDPL's associates and researchers is to match areas of learning characteristics with developmentally appropriate learning goals and activities. When our job of classifying corresponding goals and activities has been completed[2], we can recommend the foundation for functional design, which in turn shapes structural design for the built learning environment.

When studying school design, we need not look any farther than the foundation for the "restructuring movement." Fiske (1995) provides some important implications for built learning environments when he charges that "American school architecture is as rooted in the 19th century values as every other aspect of education." (p. 2). Fiske is concerned with the continuing efforts to accommodate 21st century curriculum in 19th century architecture. One perceived problem is that

schools are still organized around the "factory" model, which may be broadly defined as centralized authority. In this situation the teacher does the real "work," while the student learns to think by sitting in a passive mode and receiving information.

School structures need to be geared to developmentally appropriate learning goals and activities. 'Activities' imply that students do more than sit and read and listen and write. They get involved in projects that complement learning. Structural design can accommodate learning goals, a requirement causing architects and educators to investigate learning possibilities in the context of the site, the natural setting, the community, and the educational program. This deals a fatal blow to the "one size fits all" (cookie cutter) notion. It enhances the notion of nature and a sense of place (Crowe, 1995).

The act of designing configurations of possibilities allows us to take learning goals and activities and define a place for them to work. Bakos, Bozic, and Chapin (1987, p. 270) state that ". . . It is only by becoming immersed within a place that it is possible to create what we call *configurations of possibilities.*" Design means becoming immersed within the concept and the setting. As Bakos, Bozic, and Chapin indicate, becoming immersed within a place means ". . . moving in and setting up drafting tables and sometimes building our own designs on site." (Here we see a distinct conflict with the "one school fits all" policy.) The famous painter Monet moved to the site and proceeded to draw and paint it. He experienced the setting. We need to take a lesson from his success.

Moving in and studying the culture before designing a learning environment involves knowledge of the functional program and the structural design relationships. Educators must know the program functions clearly, have a sense of space relationships, a vision of the structure that will "facilitate" the program, and then communicate these important points to the architects, engineers, and contractors. In a sense we as educators paint the pictures of the developmentally appropriate spaces we need for student learning, and architects and engineers build environments to match our creations.

It is important to view design as a job for educational planners and architects working together, assisted by school and community influence. Perhaps school facility planners of the past had a much too limited focus on design. For example, the common elements in school planning such as surveys, student population forecasts, and educational specifications, alone, have proven to be inadequate. Antiquated educational specifications (often catalogued and computerized) have become policy in many states.

Changes in program brought on by the educational reform movement need to be considered in school design (Moore & Lackney, 1995). For example, the trend toward block scheduling has implications for the design of larger classrooms with technology assisted work-stations. These changes suggest that communications between educational planners and architects should include developmentally appropriate educational specifications and three-dimensional models of learning spaces (architectural support systems).

Communications between planners and designers must reveal that both groups know the learner for which the structure is being planned. They must ask these questions: What goals and activities are necessary for learning? What are the reasons for certain structural designs?

Reasons for various natural and built support systems may be depicted by constructing a simple chart founded on knowledge of how students learn. This chart can suggest appropriate learning environments. To illustrate how the chart might work, we will consider an elementary school setting PK - 2 (Four to seven years of age).

THE LEARNING SUPPORT SYSTEM

During these years, playing and fine/gross motor skill development are continuous. The children are developing memory, routine, emotional, and intellectual experiences. They acquire knowledge through concrete manipulatives geared toward size, quantity, space, and color. At this level, the children can recognize and recall information and ideas in the approximate form in which they were learned. They also construct knowledge through exploring their environments. They learn through observation and interaction with the learning environment and with other children.

The indoor environment for these age levels should stimulate interaction with other children and the structure itself. Concepts such as over, under, top, bottom, beginning, end and color relationships are only a few of the numerous aspects incorporated in this built environment. Play is very significant for skill development and the outdoor environment should further stimulate gross motor development and social interaction such as turn taking, problem solving, and leadership development. This is referred to as the ABC's of Learning.

AN EXAMPLE OF THE ABC's OF LEARNING

A- *Affective Development*

Developmental characteristics include visual perspectives, spatial interrelationships, valuing life and property, color relationships, texture relationships, expressing emotions appropriately, building personal relationships, following instructions, and self-directing one's time and activities.

Learning goals may involve being able to appreciate all forms of life, from insect life to human life. The appreciation for balance between the built environment and natural environment, harmony with nature, and the blending of natural surroundings' colors with the built environment's colors is an appropriate goal.

Learning activities may be role playing, taking turns, painting, supporting others in practice efforts, digging in the soil, planning habitats, developing habitats, planting seeds and vegetation, harvesting items from the garden, and maintaining animal habitats and gardens.

Natural/architectural support systems may include site and contextually compatible buildings, smaller school buildings and reduced class size [(15-20):1], the campus plan concept, natural/full spectrum lighting, adequate acoustics, visual and physical ties between the outdoor and indoor learning environments, greenhouse habitats, reptile and insect habitats, indoor and outdoor gardens, technologically friendly learning centers, color diversity, shape diversity, and **buildings that resemble homes, not institutions**.

B - Behavioral Development

Developmental characteristics should involve role playing, cooperation with others, team building, skill development, personal satisfaction from accomplishments, and relaxation.

Learning goals center on the student's ability to take directions, give directions to others, take turns as a leader and follower, accept responsibility for one's action, gather materials, keep time, solve problems, and practice fine and motor skills.

Learning activities for this age group may have the student charting and explaining information, supporting classmates with kind words, interacting successfully with people, plants, and animals, taking turns in class activities, planning activities, and participating in maintenance projects.

Natural/architectural support systems for behavioral development cover those presented in the affective section. They allow student projects such as construction of indoor and outdoor green houses and animal habitats, terrariums for plants and reptiles, habitats for insects, and the development of an aqua lab canal system. An outdoor area for "adventure-based learning" enhances behavioral development. ***Indoor and outdoor spaces for hands on activities are required.***

C - Cognitive Development

Developmental characteristics consist of recognition of things, information recall, sequencing of objects and numbers, practice, interpretation of information, and dramatization.

Learning goals entail ability to recognize shapes, sizes, relationships, remember facts, interpret data based on written student-prepared charts, explain facts, summarize findings, and describe detailed events.

Learning, activities encompass reading, writing, explaining concepts and objects to groups, taking pencil and paper examinations, pretending, constructing/de-constructing, manipulating objects, preparing soil for gardening, harvesting and separating seeds and plants, measuring and charting growth, reading weather station instruments and charting trends in temperatures and humidity.

Natural/architectural support systems to support cognitive development may include all those areas presented in the previous sections. Smaller schools and lower student to teacher

ratios are expected to improve the student's cognitive development. Computer stations, science and mathematics laboratories, and language laboratories as part of the 'block scheduling' themes may improve learning. The notion of "great spaces" (Moore & Lackney, 1995), flexible and adaptable learning areas, and user-friendly scales are important. ***Larger spaces for indoor learning activities in smaller schools are recommended as a part of developmentally appropriate design.***

Additional ideas on developmentally appropriate practice for early childhood programs may be found in Bredekamp (1990). There is a current void on research that compares the influence of design on learning, especially at the middle and high school levels. School planners should lead the way to further research in this area. One possible alternative is the idea "campus plan" for new school construction.

THE CAMPUS PLAN AS A LEARNING SUPPORT SYSTEM

The campus plan[3] is a series of small school-houses designed in such a way to resemble a residential sub-division. A modified version of the plan may be a contiguous group of buildings [4]. Above all the campus plan is driven by the curriculum needs of children, and it reduces the institutionalization of schools. It also has the potential for supporting the ABCs for learning environments described above and represents a pattern language for building and planning schools (Alexander, Ishikawa, & Silverstein, 1977).

Numerous studies confirm that small schools lead to improved student achievement (Raywid, 1997). Large, high-density schools are harmful to children and drain resources (Aiello, Thompson, & Baum, 1985). High-density schools also have more discipline problems. Student achievement tends to be lower in large, high density classes (Achilles, Finn, & Bain, 1997/98).

Moore and Lackney (1995) reveal several design patterns that complement the campus plan. The campus plan includes smaller buildings and classrooms. School, in the campus plan model, is a community hub, since it is in a 'subdivision' setting. In the campus model, one 'school house' might be exclusively for one grade level, while the 'school house' for large meetings and play could serve interaction and social functions. The classroom suite, a common reform idea, is a series of structures that adapt to learning activities. Large classrooms with small work stations may also be used for hands on learning (computer stations, science, mathematics, and language laboratories, for example).

An ideal elementary school that I support is designed for 350 to 400 students (PK - 5), requires a 15 - 20 acre site, and includes eight distinct 'school houses.' An issue currently under study is whether this complex can be constructed at less cost[5] than the traditional institutionalized (monolithic) complex. Covered walkways may be added

in strategic places. Solar power is recommended for efficiency, and a garden area is the centerpiece of the school.

A "Tiny Town[6] " outdoor learning environment may be included. Play areas for team sports are located at the extremities of the site. There are variations in roof slopes and colors that lend an artistic value to influence the affective dimension of learning and blend with the surroundings (a sense of place).

CONCLUSION

I insist that we are at a critical stage in designing and planning school environments in the United States, primarily because some states have policies that dictate and support obsolete design. I hope that my comments here will assist educational planners in challenging policy that promotes the notion that "one school design and size fits all." Planners must emphasize designs that are in harmony with developmentally appropriate educational goals and activities. Furthermore, educators and architects need to work together in providing user-friendly schools, free of dated educational specifications. Unfortunately, there are few designs that escape the censorship of bureaucracies. Our obligation is to emphasize the influence of school design on the ABCs of learning and challenge censorship.

NOTES

[1]A comprehensive description of the SDPL's activities may be found [On-Line] at (http://www.coe.uga.edu/sdpl/sdpl.html).

[2] We have provided a framework for classification [On-Line] at (http://www.coe.uga.edu/sdpl/archives.html).

[3] A campus model constructed by Dr. Lawrence Stueck, an SDPL associate may be viewed [On-Line]: (http://www.coe.uga.edu/sdpl/model/model.html)

[4] See [On-Line] (http://www.coe.uga.edu/sdpl/montessori/monteindex.html).

[5] Evidence from the Athens, Georgia Montessori School indicates that cost can be minimized [On-Line] (http://www.coe.uga.edu/sdpl/montessori/monteindex.html).

[6] Tiny Town may be viewed [On-Line] at http://www.coe.uga.edu/sdpl/tinytown/tinytown1.html).

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UNIVERSITY PLANNING IN VENEZUELA

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This article presents a general vision of the nature and scope of university planning in Venezuela; their philosophical and methodological aspects, as well as their official demand. This article also provides references about educational planning in the second autonomous university in our country, La Universidad del Zulia (LUZ), Venezuela.

INTRODUCTION

The international paradigms that at this moment regulate the values of the university deploy the notion of an university of excellence, involved in the cycle of economic production and in the generation of competitive science and technology, in order to increase the national capacity of science and technology that makes countries able to participate in the global economy. These paradigms have been progressively accepted by Venezuelan society and particularly by the university community. This acceptance requires that the public universities introduce some changes in their regular functions and begin a process of transformation of its organizational structure that can support the decision of becoming a contemporary university to assure the education and training of professionals with high levels of knowledge and intellectual abilities who can participate in the work markets at local, regional, national and global level in the next century. The change is also indispensable so that the university assumes the task of producing industrial technology in cooperation with the productive sector. In that context, it is necessary the existence of a system of planning that allows one to conduct the operational process and development of the university intrinsically, in such a way that those institutions can pay attention to and satisfy those expectations and demands that come from the different sectors of the Venezuelan society.

It is necessary also to identify and to evaluate the infrastructure of planning that is required at national and institutional level to support and to guide the process of development of those functions and activities related to the university in the context of the national economic and social development. As a consequence of these facts, it should be pointed out that it is not an easy task to carry out the planning of the university education in Venezuela. This is a complex activity because it involves national government's institutions (Ministry of Education, National Council of Universities, National Office of Planning of University Education) and the public universities (Autonomous Public Universities and Experimental Public Universities). The government, in its high levels, has the responsibility to provide enough resources to finance the cost of the different academic activities, to authorize the creation and reorganization of universities, faculties and research institutes; as well as

to select the students that have expectations to attend the public universities. As long as the public universities have the responsibility to formulate the development and the operative plans to request the central government's financial support.

As long as the university functions become complex, these institutions need to have a high capacity of planning to respond to the internal and external demands. It is required a dynamic and flexible process of planning, supported by institutional and political resources and for an appropriate technology that facilitates the design of the instruments of planning in short term, in order to design and to adapt the means to prevent and to give solutions to the great number of problems that are affecting the development of the universities.

I. THE NATURE AND SCOPE OF UNIVERSITY PLANNING IN VENEZUELA

To treat the nature and the scope of university planning in Venezuela, it is necessary to make some references regarding certain characteristics of the public university, particularly of the autonomous public universities. During the forty years of democracy of the country, these institutions, having the total financing of the State, fulfilled the function of forming human resources fundamentally, giving execution to the demand of the gratuitous higher education for all the applicants to enter to these institutions. At this moment, the university has reached its end of having ample resources, functioning with enough self-sufficiency, without a total opening to the different sectors of the regional and national society, and with a conduction of the university institution without substantial support in effective processes of planning.

In consequence, the relationships between the two main actors of the university education, Government and University, have varied in a substantial way. It has presented as a result differences regarding the execution on the part of the State of its function of guarantor of higher education by means of the full financing of the resources required by the institution, and the demand by the government from a series of allusive answers to the relevancy and quality of the services offered by the universities. In addition, Venezuelan society, in general, is demanding that the autonomous university bears the transformation of its structures, the improvement of the quality of the university services, the improvement of the administrative process and the financial resources, the incorporation and academic administration of new technologies of information and communication, the conception and application, together with other organisms, of political strategies of development to become user of the international cooperation.

This has given place to a new kind of dialogue among them (Government and University) and among these with other important social sectors to achieve a strategy, by means of consent, that can make real the necessary transformations. In consequence, the transformation and development of the university in our country presents us with a new conception, the design and the instrumentation of a process of planning with enough capacity to allow and to promote the participation of new

actors and to satisfy the expectations and necessities that emanate from the society in general and are directed to the university.

Regarding this fact, it is necessary to mention that the considerable breach that generally exists between the plans and the reality has been a common fact for a long time. The reason for which the planning has been constantly criticized, giving place to question its intrinsic validity as an instrument for the orientation of the actions and the making of decisions that affect the community. The immediate cause of this problem is almost always, the lack of political will to apply one plan or another. This phenomenon may be explained citing two kinds of reasons: First, because what has been planned has been imposed as a central approach to decide the technical-economic optimization in the use of the resources, there is a tendency to forget the objective to achieve dynamic balances among the involved social forces. Second, for reasons of institutional, operative and methodological order related to the inability to manage the uncertainty and the conflict, there is an evident discontinuity of the processes of planning and with the weakness and incoherence of the responsible institutions.

The economic and social circumstances of the present have made the university recognize the necessity to replace a university model that has been drained, and in consequence to revise the conception of planning that has been used. The study of some early experiences of planning by several universities presents a common denominator, the strategic issue, conceived in generic terms as the anticipation of the reactions of those affected by the process of planning in one way or another, which implies the full incorporation from the sociopolitical variable to the process. From this perspective, it is clear that planning is a political matter with technical and economic inputs.

The scope of the university process of planning is extended beyond the institutional environment since it begins to assume the position of an instrument that faces both direct government's pressures and the critics of the users and suppliers of the university.

II. PHILOSOPHICAL ASPECTS OF UNIVERSITY PLANNING

In Venezuela, the new group of agreements among the government, the university and the productive sector coalesce in order to transform the educational institutions and this new arrangement involves some fundamental changes in the focus of planning. The adoption of strategic planning to conduct the process of university planning recognizes that this process compels a new model of social organization in order to reach the transformation of the university. It is not only the result of a technical and economic process, it also implies political actions to negotiate the introduction and implementation of specific instruments for the regulation of the financing sources, the university functions and the economic and social services.

In that order of ideas, we assume university planning as a technical and political process that promotes and guides the joint participation of diverse sectors: government, university, industry and social organizations to reach the transformation of the university

institution, with the specific purpose that this actively involves the local, regional and national development in the context of the global interdependence (See figure 1).

This conception of the process of planning is based on the following principles:

Transformation and Development in Long Term

The transformation of the Venezuelan university in a changing and turbulent context is an action of long term. The reasons are diverse. We have to formulate an integral vision of the university, able to integrate and to organize the economic, social and academic forces around a paradigm of the educational institution with the capacity to move our society from the dependence of knowledge and technology to the society for creativity and national innovation. Nevertheless, our university needs to begin a transformation. It is vitally important to adjust the existent processes and initiatives toward transformational means. The process of strategic planning and the implementation of tactical plans require the government's economic, social and political support and the economic contribution of the private sector.

Prospective Vision

More than a transformation, it is accepted as the only way so that the public Venezuelan universities are efficient and competitive in the national and global society, and that the future of the autonomous university seems as the most likely solution to the shortage of economic resources, since they should have the capacity to visualize prospective situations and to make opportune decisions. In this sense, the process of planning should take into account the importance of building possible and alternative economic, social and political scenarios for the development of the autonomous university in the environment of the government's pressure.

Strategic Process

To plan and to implement the transformation of the autonomous Venezuelan university is not an easy lineal task. This is a complex process that affects many interests of groups and individuals, and it demands the existence of institutional resources to give momentum to the transformation. The loss of social support can mean a loss to press the government in order to get the demanded resources for their normal operation and more even to invest in development activities. It takes the university to a conception process and selection of the programs and projects that assure that the government grants the necessary contributions, and that the private institutions and international organizations finance the execution of some strategic programs.

Political Viability

Political action is a fundamental aspect of the process of planning to maintain a dynamic balance among the involved social forces. Within the government's institutions that coordinate and regulate the operation

of the universities and inside each university there is a functional political system through permanent negotiations among diverse sectors and groups that gives place to that the transformation of the university. This political arrangement causes the agreements and pacts to become manifest. In the context of these circumstances, we have assumed as part of the process of planning the task of building the political viability to the different objectives and transformation's strategies, this means to agree with the different sectors, groups and individuals with power and capacity to influence the making of decisions that promote actions to support the implementation of the strategic transformation of the organizational structure of the university.

Social Viability:

To preserve and to strengthen the political space that the autonomous university has reached in the regional and national environment, the autonomous university largely depends on the impact of the actions of various sectors in order to regulate its functions in connection with the external sector. Many of the changes and transformations that at this time our university is trying to introduce have a deep impact in its social context. Actions such as reducing the size of the institution, to increase the tuitions, to diminish the demand of goods and services in the local market, to diversify the professional careers, to cooperate with the productive sector transferring knowledge and technology, to create companies associated with the private industry. All of these sectors create expectations and tensions between the university and the different sectors.

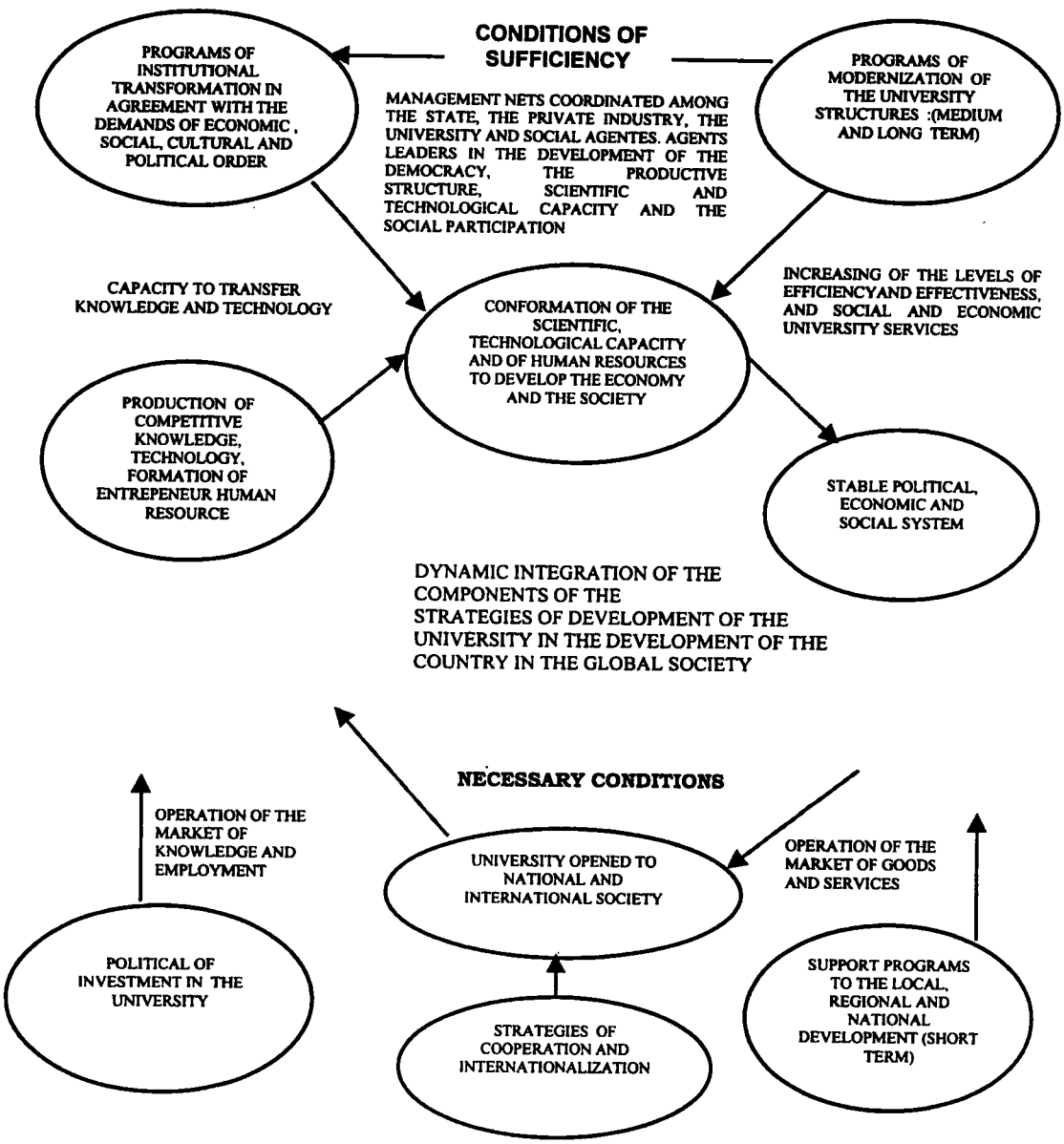
From this perspective, the process of planning must consider these actions seriously take them into account. This include the participation of diverse institutions that can work as sources of information, image creator for the university, mediator of necessary conditions to introduce the crucial actions and to associate with other institutions to develop joint projects. In this sense, the joint management of the process of planning correspond to the level of integration of actions and resources of the different social sectors that the university is able to obtain, so as to strengthen its capacity to implant strategic actions in its integration with the external context with the smallest possibility of loss of support of some internal and external sectors (Espinoza, 1998)

Proactive Participation

So that the planning process becomes in an effective transformational instrument, it is necessary to stimulate a wide and effective participation of all the sectors that are affected by the university activity. In that order of ideas, the process of planning through the consultation, the interaction, the construction of the diagnosis of necessities and the demand of specific projects involve all the sectors that are clients and suppliers of the university. The purpose is to formulate a consensual plan as product of a dialogued democracy.

FIGURE 1

STRATEGIC VISION



III. METHODOLOGICAL ASPECTS

Assuming the strategic planning as the approach that is suitable to be applied in our reality and circumstances, it is convenient to review how we reached to the method that is used. This approach determines the theoretical perspective and the conceptual arrangement to consider in the design of the method. The method is the systematic form of carrying out the steps of the technological process that planning puts into practice in specific environments. In this order of ideas, it should be pointed out that in a variant of the strategic approach, it is considered that the strategies conform to a flexible scale among that deliberated and the emergent issue. This approach also demands the synchrony of the strategist's mind with the situation and to understand that the development of a strategy is based on stability (López, 1997).

In this sense, the difficult transition of a country with enough revenues to finance the public university to a country with limited resources to continue supporting these institutions requires transformations to give answers to supportive strategies in order for the country to become a more productive country. It take us to design, for the approach of planning, strategic methods of planning whose components have the tools that are potentially necessary in agreement with the characteristics of the approach.

Considering that the new planning should be characterized for being able to face a complex, uncertain and conflicting world and of suppressing the artificial limit that has existed between this and the daily administration, the methodological conception of the new planning confronts the necessity to build and to share a strategic vision of the development of the university that provides the reference frame for the transforming action of itself and of the society. The design of the vision shared by the public universities must keep in mind the following aspects: a) the ability to generate scenarios on the possible futures where the universities will be unwrapped; b) to analyze the behavior of the suppliers and clients of the university and of the segments of the strategic society; c) to analyze the capacity of the university and of their competitors; d) to develop a strategic vision and to identify the possible options.

In order for planning to be effective, it should have the specificity to guide the decisions that allow it not only to strengthen the organization in their areas or environments of excellence (internal strengths and external opportunities), but to overcome the problems that affect it and that, in most of the cases, are the result of the internal and external restrictions (or weaknesses) that impede the successful administration in a considered temporary frame.

In the specific case of university planning, and based on our experiences, we have believed that a form to achieve that effectiveness and to propitiate the successful execution of the plan is formulating its objectives, goals and strategies, with the full participation of the university community.

The mentioned participation has become effective by means of consultations to that community and, as a result, a repertoire of opinions

has been elaborated. It contains their perceptions about the internal aspects (strengths and restrictions) and external factors (opportunities and threats) that favor or hinder the development of the institution.

To sum up, the strategic visions and their instrumentation, the process of planning has leaned on the tools of the strategic plan, the functional plan, the operative plan, the program-budget and the strategic evaluation (See figure 2).

IV. OFFICIAL DEMANDS OF THE UNIVERSITY PLANNING

The economic crisis that at the moment takes place in the Venezuelan society, particularly within the national government, has generated a bigger interest about university planning, on the part of national organizations, which assign the economic resources to the universities, so that these institutions formulate their annual budgets based on viable and feasible plans. On the other hand, the autonomous universities have assumed the process of planning as an activity from which comes their own transformation. In agreement with what was stated before, one can conclude that the university planning is seen, at the moment, as a matter of national interest.

V. THE PROCESS OF PLANNING IN LA UNIVERSIDAD DEL ZULIA

La Universidad del Zulia is the second autonomous university in importance in the country. This university has 10 faculties, 45.000 students, 3.059 professors, 2.385 office workers and 928 workers. It is located in Maracaibo, capital of the state of Zulia that is characterized for being an area of high economic potentiality because of the disposition of oil and agricultural resources, as well as the industrial activity in the petrochemical area, metal-mechanics and foods. On the other hand, the state registers a diversification of scientific, social and cultural activities that lead to the growth of population's levels and in consequence to the generation of necessities and expectations of educational type and of other services that are expected to be assisted by the university. In this context, this university faces the challenge of contributing to the development of the region and the country, guaranteeing the access to higher education, strengthening the scientific and technological capacity of the nation and participating in the economic process through the production of goods and services in its technological park and particular companies. In the previous perspective and based on the transformational approaches, relevancy, quality, integration, competitiveness, were integrated in the conceptualization of the university model. We expected to build, in long term, a contemporary university (See figure 3). The university assumed to complete its transformation and development using a corporate strategic model of planning, which is addressed to its strengthens as a public institution, its permanent necessity of updating to date and its capacity to outline, from its academic functions, alternative of solution to the social demands. (See Figures 4 and 5).

Figure 2

MODEL OF STRATEGIC PLANNING

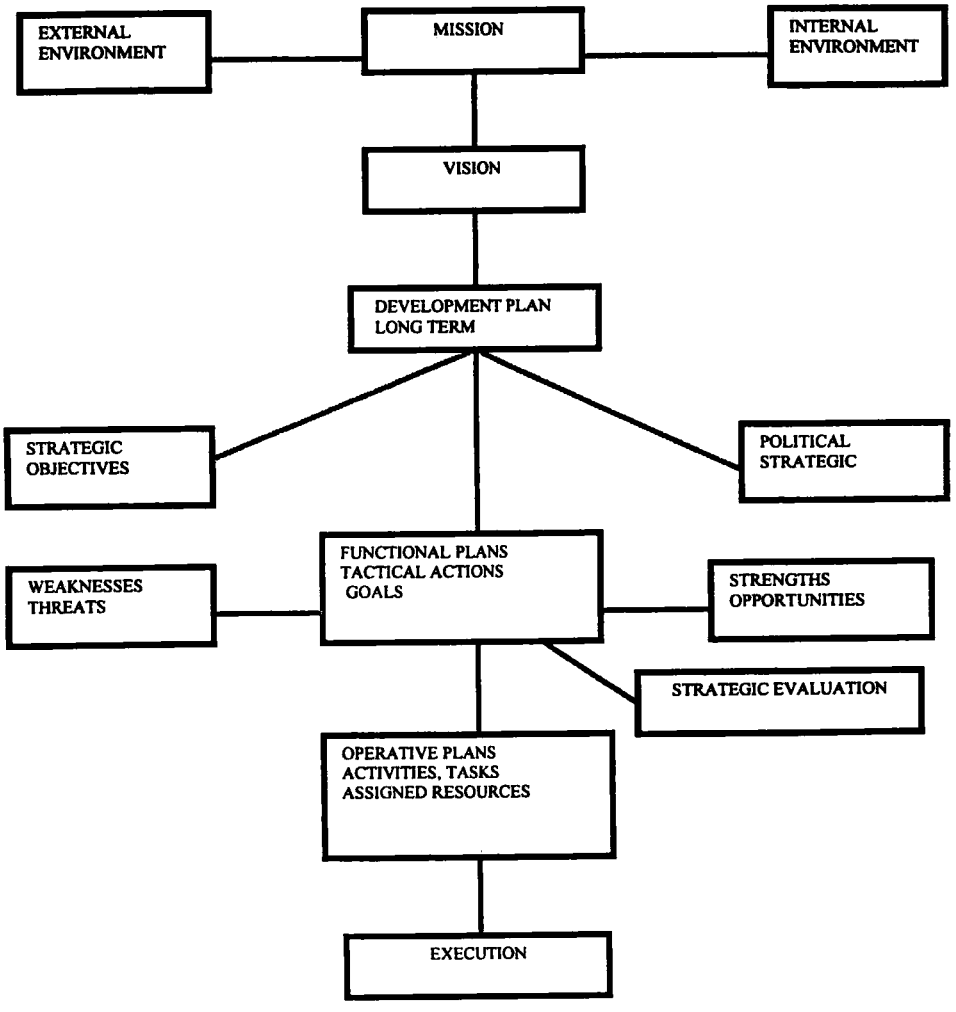
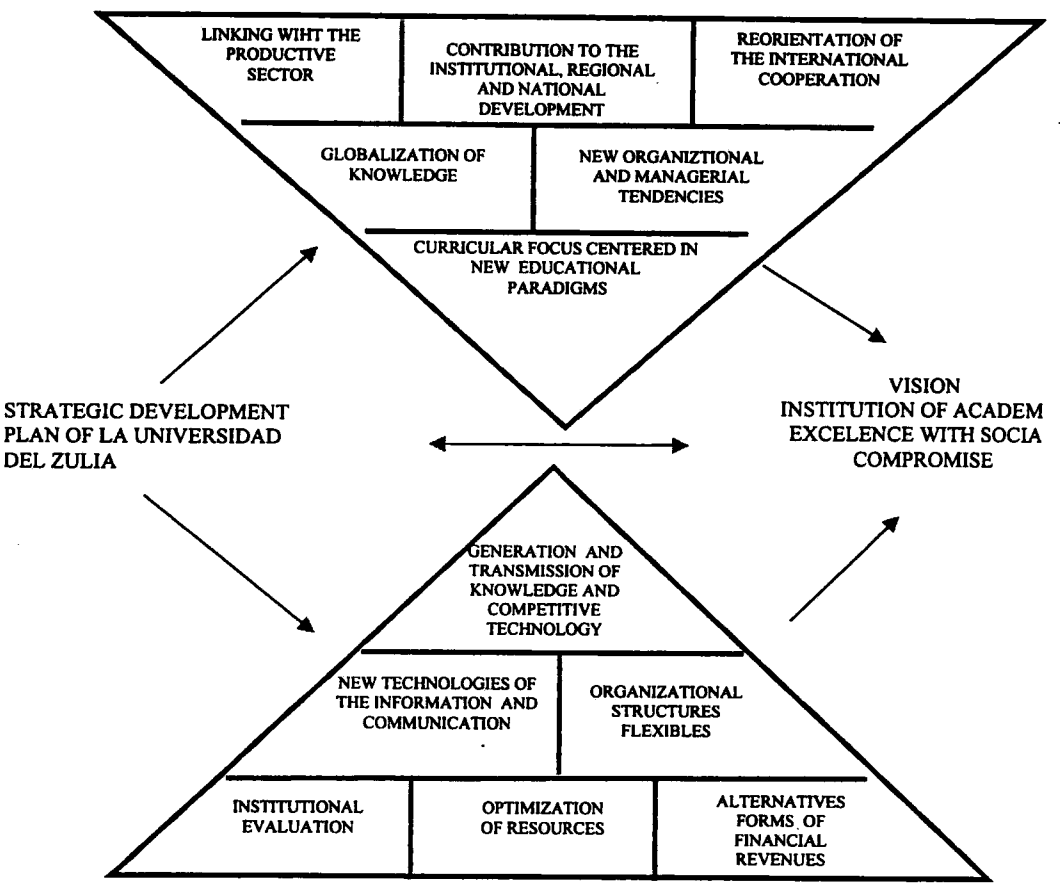


Figure 3

PROFILE OF THE PROPOSED PATTERN



Source: La Universidad del Zulia, 1998

Figure 4

MODEL OF CORPORATE STRATEGIC PLANNING

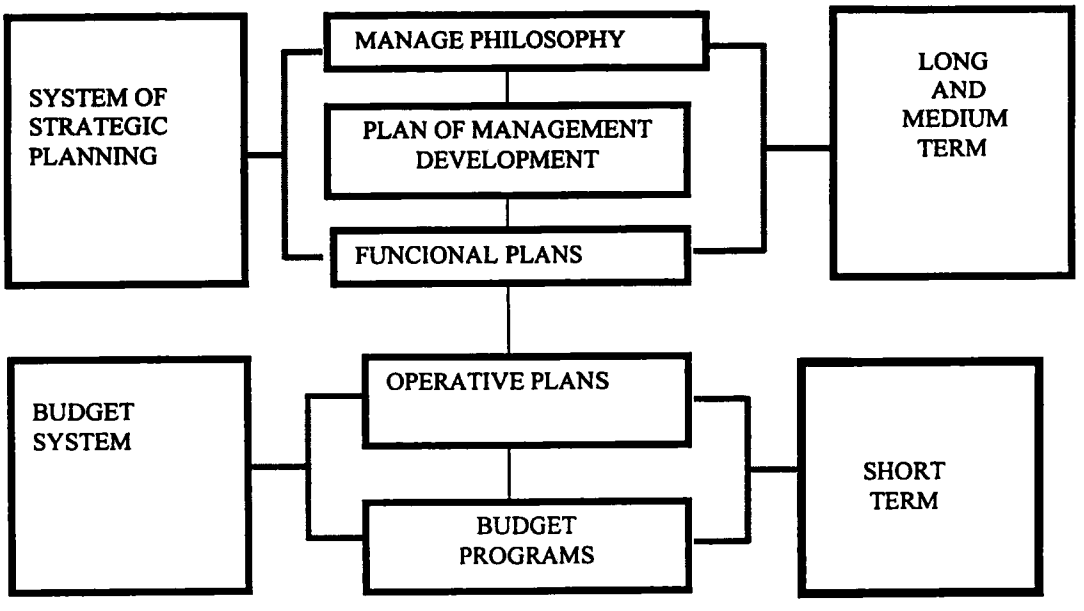


Figure 5

STAGES AND INSTRUMENTS OF THE PLANNING PROCESS CORPORATIVE STRATEGIC APPROACH

STAGES	INSTRUMENT	ELEMENTS/FACTORS	LEVEL
I	PHILOSOPHY OF INSTITUTIONAL ADMINISTRATION Instrument that expresses the fundamental doctrine of the institutional administration. Pivot on which rests the plan of institutional strategic development, sustaining, optimizing and summing up the taking of decisions around he programs and projects of high priority	. INSTITUTIONAL VALUE . VISION . MISSION . STRATEGIC OBJECTIVES . INSTITUCIONAL STRATEGICS . INSTITUCIONAL POLITICS	PHILO-SOPHICAL FUNCTION
II	PLAN OF STRATEGIC DEVELOPMENT Instrument of central reference obligee for the taking of decisions in he institutional administration. It is constituted in the process managerial key to negotiate, to address, to rationalize and to justify actions and resources	- DIRECTIONAL PROGRAMS - DIRECTIONAL SPECIFIC OBJETIVES - STRATEGIC PROJECTS	STRATEGIC FUNCTION
III	FUNTIONAL PLAN Instrument where each unit of the organization according to their nature and philosophy of concrete administration their goal and tactical actions	- FUNCTIONAL STRATEGIC PROJECT - FUNCTIONAL SPECIFIC OBJETIVES - TACTICAL GOALS - TACTICAL ACTIONS	TACTICAL FUNCTION

IV	OPERATIVE PLAN Instrument conformed by the group of activities that the institution estimate to execute in a certain year to obtain a wanted situation. It should precede to the budget	- ACTION PROJECT - OPERATIVE SPECIFIC OBJETIVES - GOALS - OPERATIVE ACTIONS - REQUIRED RESOURCES - EXECUTE UNITS - OFFICIALS RESPONSIBLE	OPERATIVE FUNCTION
V	CONTROL AND EVALUATION OF THE INSTITUTIONAL ADMINISTRATION	- ADMINISTRATON INDICATORS - ACTING INDICATORS	FEEDBACK FUNCTION

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