

# Differential developments of Taiwanese schools in organizational learning: exploration of critical factors

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## Abstract

Against the backgrounds of twin forces (grass-root and government) that have governed the reform movement in Taiwan since 1995, the present paper attempts to assess school development along the path towards learning organizations. Guiding the present assessment is a newly conceived model, which resorts to organizational learning processes and outcomes to construct a two-by-two typology, and four possible stages of development were postulated. From the distribution of a sample of 88 elementary and secondary Taiwanese schools, a bipolar concentration of schools in the relatively unchanged conditions and advanced stages of organizational learning were found. This suggested a sharp contrast between schools that prefer status quo versus those that actively search for new directions in meeting the rising challenges. Further exploration of factors that promote organizational changes revealed that external, intra-organizational and, to a smaller extent, the contextual factors all play some part in organizational learning. Additional interviews with principals of schools located in differential stages of development clarify how their perception and mentality shape their schools' development.

## Backgrounds

Against the background of the widespread grass-root demand for educational reform, illustrated by the so-called 4-10 parade, and the public promulgation of the white paper by the Taiwanese Government (Pan, 2002), there has been a strong movement toward deregulation freeing schools from the centralized supervision. Accompanying this movement is its parallel feature of shifting the locus of control to the school level. Subsequently, in the Taiwanese media and scholarly discourse (e.g. Yeung, 1999; Wei, 2002) there has been much writing on "school-based management", "teacher empowerment" and "organizational learning". The last topic is of particular interest and important to scholars and educators in Taiwan, as is elsewhere, not simply because it is a popular rhetorical term, but because it conveys a clear message that the school as an organization must continue to learn if it is to survive. Unlike education changes of the past decades, the current push for the indigenous reform to join hands with the globalized trend of change in unionism, is no longer transitional, temporary or ad hoc but is irreversible, permanent and the rate of transformation is going to be quickened. Restructuring of schools along the characteristics of "learning organizations" instantly assumes great urgency.

In making reference to the contemporary work in organizational learning, it is enigmatic to note that the nature of collective learning in organizational contexts is seldom studied. Very likely, this is the result of many who tend to focus on the style of learning (Claudet, 1999; Dixon, 1992; Perkins, 1992; O'Sullivan, 1997; Schlecty, 1990) rooted in the psychology of management development (e.g.

Honey and Mumford, 1986). Tracing its historical underpinnings, "learning" as a key activity registers parading paradigms in social sciences. The functional-structuralists view "learning" as a socialization process where individuals are inculcated with prevailing group norms. The symbolic interactionists see learning as an outcome from mental debates between oneself and significant others. The phenomenologists suspend their own beliefs in the world in order to expose the hidden rules of behaviors.

More recently, the preoccupation with the learning styles in the literature of organizational learning seems to be closely related to three issues. The first was concerned about maximizing the effect of staff professional development (Sadler-Smith *et al.*, 2000). The second was interested in increasing the efficiency or effectiveness of the organization (Bastiaens, 2000; Simkins, 1994; Stoll, 1999). And the third was hoping that transforming organizations could evolve into intelligent institutions capable of responding to constant changes (Salaman, 2001; Snell, 2001).

Without denying their unique contributions, there is a key question that remains unanswered, i.e. how do types of learning impact on improving organizational performance? If incumbents of the organization learn in incremental ways, the predictable impacts may be minimal. If they do not learn in any concerted fashion, the divergent pulls on the organization can mutually neutralize each other so that no obvious change is discernable. If they learn in isolation, the overall impact on organization is minimal.

It has also been argued that individuals who learn create organizations that learn (Marsick and Neaman, 1996). However, based on most existing definitions of organizational learning, and the general observation that



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individuals who learn do not necessarily create the situation for organizations to learn, any liberal extension or fixation on individual learning as a major feature of organizational learning is not warranted. Organizational learning (OL) in its own merit should be restricted to collective learning.

If learning is to serve the collective good, it must be organization-specific. Quite a few writings are undertaken without carefully placing learning in the context of the organization. Neither do they make any conscientious effort of relating learning with the ways new information is acquired or circulated within the hierarchical structure. Pursuance of learning without making specific reference to an organization's context is inconsistent with the general comprehension of the concept of OL.

In the context of the present undertakings, OL, at best, has been treated as an organizational attribute to explain other related intra-organizational phenomena or as an end-stage having the potential of contributing to further organizational improvement. At its worst, however, the half-baked concept of OL is susceptible to ambiguity of interpretation or misinterpretation. This will jeopardize a more systematic and unifying approach of moving this promising domain forward.

In retrospect, from this abbreviated literature reference, one cannot subdue the impression that OL as an entity for scholarly pursuit has moved further and further away from Senge's seminal work (1990), the refinement of which still awaits much in-depth exploration and realignment. Conventional wisdom suggests that sidetracking the main issue at the cost of going after the peripheral can be detrimental to the progression of the field.

### **Reformulation of Senge's work**

The five dimensions that constitute Senge's conception of organizational learning (1990) display a logical sequential order of how an individual's mental state becomes translated into public domains for team learning and organizational renewal. As argued elsewhere (Lam, 2001), these dimensions actually exist at various levels of development rather than congregating in the same plane-field. Apparently, conceiving some "mental models" and achieving "personal mastery" as private pursuit of new knowledge and information take time to mellow into the public domain framed in a domain of system thinking. Converting the abstract thinking

into "shared vision" among staff and further operationalizing the vision into concrete "team learning" represent some major leap toward institutionalizing collective learning.

Furthermore, in contrast to Senge's underlying assumption, but manifested in most organizational studies, fundamental changes are unnatural and unusual (Haveman, 1992). Legal and economic barriers, constraints on external information, legitimacy consideration, problems of collective rationality, fear of jeopardizing efficiency of organizational operations are some of the problems that reinforce individual and organizational inertia. The status quo will only be broken when external environment has reached what Gould (1980) calls "punctuational change", a scenario that most public educators equate to the recent school reforms.

This touches not only on the momentum of organizational change but on the purposes behind the transition as well. Earlier conceptual debate between "environmental imperative" and "leaders' strategic choice" camps ends with the recent comparative studies that lend empirical support to the latter (Lam *et al.*, 2002; Lam and Pang, 2003). Leaders' decision exerted far more influence than environmental conditions in fostering deliberate organizational change.

As for the purposes of change, "survival", "efficiency" and "effectiveness" are assumed to take turns in guiding schools toward "learning organizations". Intuitively, necessity of change imposed by the turbulent working environment and the selected correspondent internal adjustment in the earlier stage require incumbents in the organization to maximize resources so that organizational operation can be sustained. But over time, accountability for output and performance will be needed to justify its continued existence.

By integrating Senge's dimensions, process of information dissemination, and the motives for change, a three-dimensional model consisting of three distinct stages of organizational development – germination, transformational and perpetuation stages – can be conceived (Lam, 2001). Labeling school organizations by stages serves three specific purposes. It provides a ready reference for identifying schools in terms of their organizational development. Some may be in the earlier stage of development while others reach a more mature stage. It gauges upon the dynamic progression or regression of school change as its development is closely tied to leadership and informal influential staff (Adamson *et al.*, 2002). Additionally, it

also allows us to unmask complex forces at work that account for differential organizational transformation. From the functional perspective, deliberate intervention can then fall back on a more focused and reliable roadmap in re-engineering organizations in need of re-invigoration and self-renewal.

There is one problem that has yet to be resolved. When we subjectively match empirical findings with conceptual interpretation, we may find that the information processing and objectives of an organization may not fall neatly in alignment with the “stages” prescribed in the model. Some may approximate certain “stages” while others seem to be in close proximity with other phases of development. The presence of the hybrid types creates fuzziness and ambiguity of interpretations. This may call for a radical overhaul or complete revision of the model – a typical weakness associated with any static classification scheme.

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### **Toward the construction of a dynamic model**

In dealing squarely with the issue, we may directly approach organizations by scrutinizing the amount of collective learning with which they are involved and the achievement that they attained through such an engagement. From the dynamic workflow of the concerned organizations in the context of organizational learning, we can determine the extent members of the organization are actually involved in learning. In other words, we can estimate staff's perceived organizational learning “processes” (OLP) and “outcomes” (OLO), and derive their respective composite standard scores into “high” and “low” categories (i.e. above or below standard means) along the two dimensions that constituted the two-by-two typology.

OLP and OLO can be conceptually segregated. In their theoretical underpinnings, “process” was derived from the systems model (e.g. Campbell, 1977), which is concerned about individual actors and about the organic nature of organizations within which they function. The “outcome” grew out of the goal model which emphasizes the degree to which incumbents of the organization work to achieve established goals (Hoy and Miskel, 1996). Given that organizations work do not have the memory capacity as individuals do, outcomes of organizational learning are arguably stored in accomplished tasks or in

written records of one kind or another (Lam and Punch, 2001).

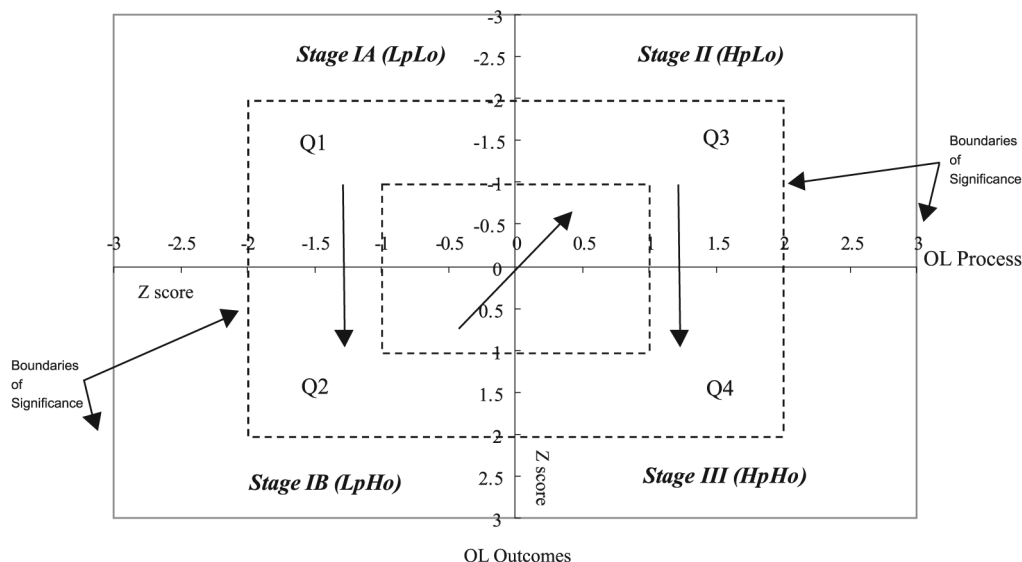
Measures of OLP may contain such items as “collective ability to adapt to change”, “pride in taking part in collective problem solving”, “satisfaction with group learning”, “pride in collective achievement”, “continue searching for ways to improve collegial coordination”, “beneficial effects of team work on personal viewpoints and experiences”, and “effectiveness in achieving group goals”. Assessment of OLO may include various types of performance indicators. Items probing “continuous revision of objectives and direction”, “establishment of partnership with parents in supporting student learning”, “experiment with diverse methods of enhancing teaching and learning”, “large scale revision of curriculum”, “efforts in bringing about innovative teaching strategies”, and “development of various manuals to improve administrative procedures” are included in the survey instrument.

Additionally, repeated parallel factor analyses data for diverse regions (Lam *et al.*, 2002; Lam and Pang, in press) yield strikingly similar results. All items that probe measures of organizational learning processes and outcomes are statistically distinct. They display high inter-item homogeneity as only one factor with reliability coefficients of over 0.80 emerged from each variable.

By criss-crossing the OLP with OLO in a graph, scaled by standard scores, four possible conditions emerge from this two-by-two model (see Figure 1). Employment of standard scores facilitate inter-school comparison as we avoid dealing with each school having its own means and standard deviations. Furthermore, as points beyond “+” and “2” SD signify statistical significance at 0.05 level, and points beyond “+” and “3” SD signify statistical significance at 0.01 level, standard scores offer convenient references when we try to determine if inter-school variations attained significant levels.

In the first condition, (Quadrant 1, LpLo), schools undergo few major changes compared with what they have done in their past. There are few signs of OLP and therefore no concrete “outcomes” from collective learning can be shown. Instead, most authority in school operations is still concentrated in the hand of the principals, and teaching staff are confined to their traditional role of classroom instruction. This is not to say that the staff are dissatisfied or disillusioned as many are conditioned to accept a clear demarcation of responsibility. On the other hand, the fine

**Figure 1**  
 A two-by-two typology of schools by organizational learning



division of labor upholds a typical top-down approach of management and the “zone of acceptance” enjoyed by the school administration is sizable. Stability is the sacred spirit that justifies open hostility to any school reforms. Strictly speaking, this state of affairs registers a “below the threshold of awareness” phase before a more conscientious stage arrives.

In the second condition (Quadrant 2, LpHo), schools have awakened to the notion of OL. While the schools have yet to embark upon collective learning process, the principals are highly anxious to demonstrate achievement or tangible outcomes for their schools. In this respect, leadership of the schools is preoccupied with the task of dictating their schools towards a more output-conscious organization. The observable indicators could include re-tailoring curriculum, refocusing of instructional objectives, production of policy, administrative manuals widely publicizing outreach activities. In the process of school changes, principals play a predominant role and claim all credits for the schools’ achievement. This may explain why group learning processes are low while achievement could be high. In this context, the conditions prescribed in Quadrant 2 may be equivalent to the “germination stage”.

In the third condition, (Quadrant 3, HpLo), the staff of the schools began to experience group learning in formulating diverse school policies, curriculum restructuring and information exchange on teaching and learning. Depending on the nature of social norms, the abrupt turn-around from vertical top-down decision making mode to

horizontal collegial consultative process has been most painful for both principals and staff, particularly in oriental societies (Hofstede, 1991). To the principals, the change of decision mode implies some loss of power and control and elevates their ambivalence about their role redundancy in the foreseeable future. To the staff, a wider involvement in school governance is both time-consuming and less job rewarding. They feel compelled to take part out of compliance to the externally imposed governmental initiative and less for self-gratification. Given this experimental phase, many collective learning groups have been organized and extensive exchange of information is taking place. Members of the schools are more or less beginning to conceive in system thinking for the first time but the learning curve takes time to bear fruit. In many instances, therefore, this phase of school development may be identified as the beginning of the “transformation stage”.

In the fourth condition, (Quadrant 4, HpHo), the school has reached a stage of maturity in terms of OL development. Here, collective learning in divergent groups within the school is fairly typical. The staff have ample opportunities to work together. At the same time, these collective learning processes have been highly productive, generating all kinds of “outcome” indicators. In the context of OL then, this stage of school development when OL becomes institutionalized can best be described as the “perpetuation stage” as internalization of change takes shape.

Through codification of schools by the actual engagement of OL processes and outcomes, we have attained a more dynamic perspective of how schools are involved in organizational learning. Given the ever-changing nature of external environment, internal school conditions and characteristics of individuals that make up the organization, we can be certain that school organizations will never stay in one condition (quadrant) for long. Whatever happens, one can be certain that the progression of schools from one stage of OL development to another is never assured. Both advancement and regression are possible.

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### **Purposes of the present undertaking**

There are two specific purposes of the present paper. First is to put to test the validity of the dynamic model so created. This is done partly by observing whether the sampled schools in Taiwan actually distribute throughout the hypothesized conditions. When a certain condition is not occupied, some justification may be needed. Validation is also done by in-depth interviews with principals of the sampled schools to see if their perceptions reflect their school situations as postulated by the model.

The second purpose is to identify key factors that facilitate or delay the progression of school organizational development towards becoming "learning organizations". This is done by a series of discriminant analyses, comparing and contrasting schools in one condition with those in another. The presence or absence of some crucial factors should provide clues to the reasons why some schools advance faster towards achieving "learning organizations" than others.

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### **Methods**

To address these two specific purposes, a survey instrument was constructed for both elementary and secondary schools in Taiwan. The quantitative analyses of data intend to identify major patterns among Taiwanese schools in different stages of organizational learning. Discriminant analyses were employed to identify key-propelling factors that assisted schools' progression towards "learning organizations". This was followed by more in-depth interviews of principals selected from schools falling into four respective

conditions described in the model. Such qualitative supplementary investigation not only provided additional sources to verify the model but it helped reveal the psychological perception of school leadership in the period of organizational transition.

### **Instrumentation**

There were two stages of instrument development to accomplish the designated purposes of the study. In the first stage, the instrument for the survey was adopted from a previous study, which examined the forces that propelled organizational changes (Lam and Pang, in press). Essentially, it encompassed four parts: Part I probed into staff and school backgrounds. Part II examined the impacts of eight external environmental factors simplified from Lam's School Environmental Constraint Instrument (SECI, 1985). Part III assessed the effects of internal school conditions with items modified from the work of Leithwood *et al.* (1998). Part IV focused on the extent schools were engaged in organizational learning (OL) processes and outcomes. Almost all items were derived from the existing OL literature (e.g. Cohen, 1996; Lam, 2001; Preskill and Torres, 1999). Through this survey instrument, both patterns of school development and the effects of relevant factors could be ascertained.

In the second stage, interview questions were prepared for an additional sample of principals with their schools located in the four different domains of the model. The questions constructed probed into the attitudes and psychological states of these principals so that their inclination and leadership styles during the organizational transition could be brought to light.

### **Sampling and data treatment**

To establish some distribution patterns to verify empirical utility of the model, and to examine the inner feeling of school leadership in transition, two stages of sampling were executed. For the first purpose, some 88 schools were approached for supplying data. Of these, 51 were elementary schools and 37, secondary. All these were publicly funded schools as there were few private ones in Taiwan.

For the second purpose, follow-up interviews of 20 principals specifically selected from the four conditions were carried out to cross-reference their perception with the conditions that supposedly described their schools. Some 11 elementary school principals and nine secondary school heads consented to offer additional information.

Prior to the analyses of data, two corresponding sets of action were concurrently taken. On the one hand, items in the survey instrument were subject to review in terms of “face validity”, “Cronbach’s reliability” and “factor analyses”. Upon achieving statistically satisfactory coefficients, with the elimination of items of dubious nature or low inter-item reliability, information from the questionnaires was ready for formal treatment. On the other hand, individual schools’ scores in organizational learning processes and outcomes were separately converted into standard scores and they were plotted along the X and Y axes of the graphs. The subsequent distribution of the 88 sampled schools was displayed in Figure 2.

were in a stage of change experienced a hybrid type of experience – either high in outcomes and low in process or vice versa.

A second interesting feature arising from the school distribution in the model is that progression variations from one stage to another were extremely uneven. Some variations were statistically significant while others were not. For instance, there was a marked difference between schools progressing from Condition 1 to Condition 2 but there was no significant difference among schools moving from Conditions 2 to 3 and from Conditions 3 to 4. Comparison of those stagnant schools (in Condition 1) and those attaining mature state of learning organizations (in Condition 4) however showed great variations in many aspects. Additional analyses of data need to be undertaken to clarify the situation.

## Findings

### Distribution of sampled Taiwanese schools in the four quadrants of the model

From the location of the spread, the sampled schools in Taiwan display a bipolar pattern of distribution so that close to half of the schools ( $N = 39$ ) remained in Condition 1 and about another sizable batch fell into Condition 4 ( $N = 31$ ). There were only negligible numbers of schools that belonged to Condition 2 (Stage IB,  $N = 11$ ) and Condition 3 (Stage II,  $N = 7$ ) respectively. This suggests an interesting phenomenon in that a significant proportion of Taiwan sampled schools seemed to be stagnant in terms of organizational learning. Of those that underwent transition, they achieved great success in becoming “learning organizations”. Only 18 sampled schools that

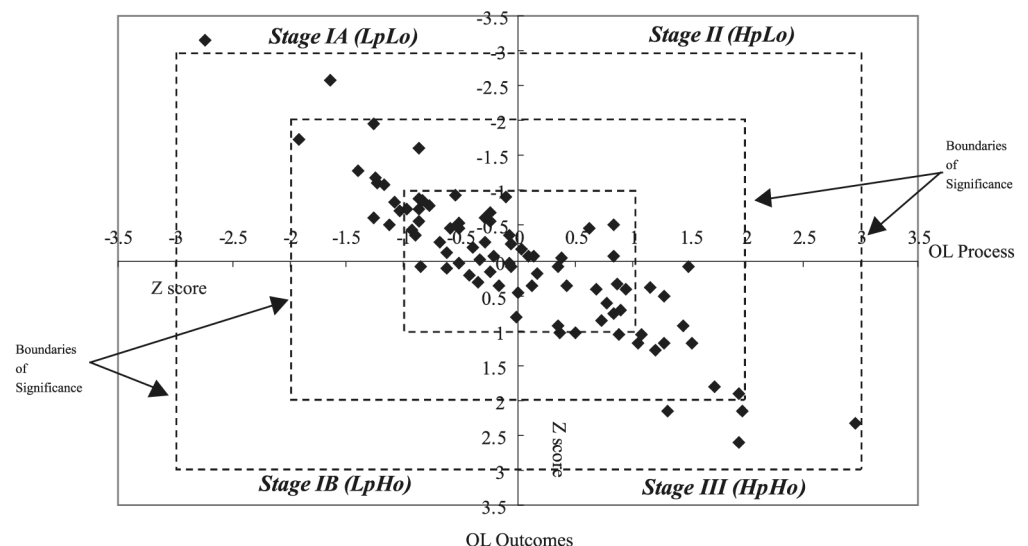
### Factors that seemed to promote school progression

To identify factors, which differentiated schools from one stage of development to another in terms of their organizational learning, a series of discriminant analyses, each time comparing schools from the two adjacent conditions, was carried out. The outcomes were summarized in Table I.

In comparing schools in Conditions 1 and 2 ( $N_1 = 39$ ;  $N_2 = 11$ ), we note that the discriminant indicator, Wilks’ lambda was 0.609, and the associated chi-square was 21.09 with a degree of freedom equal to 11. The variations between the two categories of schools were statistically significant at 0.03 level. Such a categorization was 84 per cent accurate.

**Figure 2**

Distribution of schools by levels of organizational learning



There were four factors which seemed responsible for developmental differences. These included external factors like funding adequacy, internal school conditions like transformational leadership and school structure, and contextual variables like sizes of the schools.

Apparently, for those schools that had a better fiscal management, funding should permit them to move away from the traditional practices and attempted new approaches of reaching reform goals, even though they had yet to get used to collective learning. If this fiscal capacity was reinforced by leaders who were ready for fresh experimentation and flexible school structure and if the sizes of the schools were not overly large and complex, school inertia would be broken and this left the principals with greater freedom to guide the change.

For principals in charge of schools that remained relatively unchanged (i.e. Condition 1), some typical responses from their interviews with the research teams were extracted as below:

I have not restructured school to meet the current reform. I am keeping a close contact with my fellow principals in other schools who are in the same boat to continue monitor the situation.

Devolution has greatly complicated school operation. What should be decentralized and what needs to be under central control remains unclear. I will wait for while before I invite all staff to establish new rules of the game.

The responses registered the confused mindsets of some principals who seemed to be overwhelmed with the rapid transition of

events. In the state of bewilderment, the cautious attitude of delaying any action seemed to be a logical outcome. Others took a more parental attitude of trying to shield their staff from over-committing themselves in works with which they were unfamiliar. As a result these principals ended up doing what they were supposed to delegate to their subordinates. No noticeable departure from the past practices was to be found. These schools still constituted the majority of the sample.

As for those schools in Condition 2, where principals had been doing most of the work and goading the schools along, we got the following comments:

When I find that the school culture has not adapted well to the reform, I will take charge – this is the responsibility of a leader.

A principal will not create new committees simply to meet diverse demands from reform, unless the committees are mandated by the government.

My staff should not be overburdened with administrative work.

Decentralization has created excessive work for my staff. I am trying to shoulder as much as I could myself. I do not wish to establish teams to resolve problems and I believe our existing structure works well.

Obviously, the paternalistic fear that the schools and the staff would not be able to rise to the challenges had compelled principals themselves to bear the major responsibilities for change. These comments reinforced the findings that leaders themselves were willing to try out new ideas and approaches by themselves when funding and sizes of the schools allow them to do so. The so-called

**Table I**

Discriminant analyses of factors differentiating Taiwanese schools in various stages of development

Factors	N1	N2	Wilks' lambda	F	df1	df2	Significance
<b>Condition 1 (LpLo) vs Condition 2 (LpHo)</b>							
Funding	39	11	0.88	6.37	1	48	0.01
Structure			0.83	9.25	1	48	0.00
Leadership			0.81	11.23	1	48	0.00
Size			0.92	4.46	1	48	0.04
<b>Condition 2 (LpHo) vs Condition 3 (HpLo)</b>							
Leadership	11	7	0.83	5.22	1	16	0.05
<b>Condition 3 (HpLo) vs Condition 4 (HpHo)</b>							
Structure	7	31	0.80	8.96	1	36	0.00
Leadership			0.84	6.73	1	36	0.01
<b>Condition 4 (HpHo) vs Condition 1 (LpLo)</b>							
Resources	31	39	0.94	4.60	1	68	0.03
Policy			0.84	13.30	1	68	0.00
Culture			0.49	70.65	1	68	0.00
Structure			0.42	93.88	1	68	0.00
Leadership			0.40	99.45	1	68	0.00
Size			0.91	6.14	1	68	0.01

“flexible structure” was not really a newly reconstituted working environment for staff but conditions which allow school leaders maximal range of freedom in doing what they believed to be important for their schools.

In both situations, principals still dwell in the roles of the past assuming that their staff were not for the emerging challenges. The coping strategies were either to wait for clearer signals from the government or to shoulder extra work on their own. Immobility or minimum team commitment to the new tasks were the logical outcomes of schools in Conditions 1 and 2.

The comparison of schools in Conditions 2 and 3 ( $N_2 = 11$ ;  $N_3 = 7$ ) indicated that variations between the two groups were small. Indeed, the discriminant indicator, Wilks' lambda, was 0.227. The associated chi-square was 15.59, with 11 degrees of freedom, suggesting that the two categories of schools were not statistically significant even though the classification was 100 per cent correct.

Only one factor seemed to distinguish schools of Condition 3 from those in Condition 2, i.e. transformational leadership. Apparently when the principals were ready to delegate their decision-making power to their subordinates and were psychologically ready to put up with the initial phase of inefficiency in group decision, we would find that the schools would have entered the beginning stage of organizational learning (Condition 3).

For search of empirical evidence, principals in Condition 3 were interviewed and some of their typical responses were decoded as follows:

To encourage more of my staff to take part in decision making, I'll provide unlimited moral support and even incentive grant to consolidate team spirit.

To enlist more staff to be involved in collective decision-making, I will appeal to my superior to issue “merit” certificates (for those who volunteered). As well, I'll start informal group meeting with tea parties so that teachers will feel more at ease with each other. This will be a critical phase of transition as meetings become more formalized later on.

For my staff to recognize that school reforms is a collective responsibility, I will try to emphasize the roles of my staff as a group and de-emphasize my own leadership role.

There is an unmistakable common tune across the interviewed elementary and secondary principals that for the spirit of reforms to be permanently integrated into the school culture, groups of staff needed to be committed to restructuring and to a new set of roles. Incentives, support and suppression

of over-dependence on school leadership are some of the important strategies that should be applied to the staff during the transitional period. Principals all saw the need to modify their dominant roles so that their staff had room for growth and development.

When we compare schools in Conditions 3 and 4 ( $N_3 = 7$ ;  $N_4 = 31$ ), the discriminant indicator, Wilks' lambda, was 0.566. The associated chi-square value was 17.35 with a degree of freedom equal to 11. The two categories of schools were again statistically not significant even though the classification was 87 per cent correct.

Two internal school factors seemed important in moving schools from Condition 3 to 4. These included structure and transformational leadership. In other words, favorable internal school environment such as flexible working arrangement, and enthusiastic leaders for change, nurture organizational learning to take place. It should be noted that schools in Condition 3 had already embarked upon some type of organizational learning processes. What they needed then was to convert the collective learning process into tangible outcomes. The presence of favorable working conditions and encouraging principals in schools seemed to provide the much-needed signals to materialize the learning processes.

For principals in Condition 4, we secured the following responses from the interviews: To consolidate collective learning, I'll invite interested staff to plan and design new approaches and provide opportunities for them to share with their colleagues. I'll let them feel that public presentation is a great honor. I stress a lot on outcomes but leave the process for the staffs themselves to work out themselves.

We've worked closely with neighboring schools to solidify networking and team learning.

We've routinely utilized our Wednesday (staff development day) to share new insights about teaching and to engage in self-reflection in order that we benefit our utmost from team learning.

To develop consensus about the necessity for reform, I'll ensure that the financial resources are maximally utilized so that no staff would feel that their welfare were sacrificed. This would eliminate their fear for uncertainty. I'd then take time to prepare for meetings and hold heart-to-heart discussion with each panel chairs and department heads to reach common perspectives. Whenever appropriate, we will mobilize parent association and experienced staff to add weights to collective learning.

Principals at this stage of school development seemed to be totally committed to



organizational learning. What seemed to vary among them were specific strategies adopted to reach this common goal. An interesting cultural phenomenon with the Taiwanese principals was that they were mostly concerned about the welfare of their staff. Perhaps, the level of "teacher empowerment" has reached its height so that principals were afraid to trespass into a territory where they were not welcome. Networking with outside groups such as staff from other schools, community and parent associations may be sought as a counter-balance to voices of their own staff if organizational learning runs into unforeseen obstacles.

An interesting phenomenon arising from the comparison of school development by stages was that while not all transitions were statistically significant, schools in the stagnant state did vary greatly from those in the advanced stage of organizational learning. When we subject them to the discriminant analysis, we note that the discriminant indicator, Wilks' lambda, was 0.372. The associated chi-square was 71.55 with 8 degrees of freedom. The two groups were statistically significant beyond 0.000 level. The classification of the two groups was 93 per cent accurate.

In total, six factors were found to be responsible for differentiating the two groups of schools. These included external factors like perceived policy clarity, resource adequacy, and ideal internal school conditions, notably, flexible school structure, supportive group norms, capable transformational leaders, and relatively simpler and smaller organizations of the schools. Evidently, when the staff are clearer about the nature of government policies, and when the schools, notably principals, can utilize resources to appease the anxiety of their subordinates and the conditions of the schools are rendered favorable for change, organizational learning will take root. By comparison of these two extreme conditions, the incremental effects of environmental, intra-organizational and contextual factors had been magnified. These re-emphasize the fact that persistent influence of some underlying factors does take time for their effects to be fully brought to light.

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## Conclusion

In testing the validity of a dynamic model for Taiwanese schools, the constructed typology provides a convenient way of distinguishing differential stages of school development in terms of organizational learning. The present

attempt, hopefully, should be considered as one of the first steps towards a better understanding of factors fostering organizational learning in a more holistic perspective.

Aside from the interactive effects of favorable factors, the mentality and strategies adopted by principals in pushing their schools along the path toward "learning organization" seem critical. When they decide not to move, nothing will happen. But when they feel the need to change, leadership plays a dominant role in advancing their schools to the next stage of development.

In providing a more dynamic frame of reference to analyze organizational learning, some limitations should be acknowledged. For one, additional exploration of the staff's perception and mentality may add new dimensions to our understanding as to how they support or sabotage their school development. For another, the limited selection of factors – external, internal and contextual – employed for discriminating schools from one stage of development to another may not encompass all the crucial forces that propel schools' momentum for change. Further exploration of factors identified in the current literature seems to be in order. Given its long history of research and scholarly pursuit, organizational change in the context of collective learning takes on a new urgency as we are confronting more turbulent environment, more demanding public, more complicated problems and quickened pace of school reform.

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