

**FUNDAMENTALS FOR KNOWLEDGE SERVICES IN
TRANSFORMATION AND ASSESSMENT OF CHANGE**

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Caracas, September, 2007

Foundations of Learning Organizational Change

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General Index

- RESEARCH # 1

THE MANAGEMENT OF THE CHANGE IN KTO12 SCHOOLS

- RESEARCH # 2

WES© TECHNOLOGY TO OPTIMIZE THE PRODUCTIVITY
OF ANY ORGANIZATION IN THE KNOWLEDGE ECONOMY

RESEARCH #1 INDEX

THE MANAGEMENT OF THE CHANGE IN KTO12 SCHOOLS

INTRODUCTION

SUMMARY

CONCLUSIONS

BIBLIOGRAPHY

RESEARCH #2 INDEX

INTRODUCTION

SUMMARY

CONCLUSIONS

BIBLIOGRAPHY

**REVISION DURING THE YEARS 2005 TO 2007 OF THE DOCTORAL
THESIS “MANAGING CHANGE IN SCHOOLS” (1969 TO 1994)**

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Caracas, September, 2007

INTRODUCTION

Managing School Change

Review during 2005-2007 of the doctoral dissertation Managing School Change, Central University of Venezuela, Faculty of Economic and Social Sciences by Maria Elena Marroco, DSc.

The study problem proposes to solve the question: how to manage planned change in a traditional school towards an active education and assess the degree of change implementation and the levels of competence (efficacy- efficiency)

In this sense, we have understood educational change as Rogers and Piaget, and identified the aspired profile with their theories: humanist-cognitive education.

Analyzing other considered experiences of change actions, (Neil. Illich, Gordon, Weil, Bernard, Smith) we see that they resulting being particular alternatives, and besides they do not count with an assessment process.

We also found in other educational research works (1981-1990) an interest for the theoretical perspective to help educational practice but with only partial educational improvements.

We consider that we contribute theoretical elements to contribute to solve the study problem. As a result, we designed a strategy to manage change in a school as an organization that anticipates assessing its actions of education-assessment to active education in terms of the degree of implementation and improvement of the levels of results and the achievement of change in other schools.

The systemic and holistic mode of approaching it differentiates us from other intents present in other works of educational research to put in practice the theoretical perspective which poses to assess the comprehensive development of the student, personnel's preparation for significant learning and the adoption of active methods.

Our Strategy is a Work-Learning System, for organizational change in a school, towards humanist cognitive education. This makes possible in practice, the profile previously determined in the theories of Rogers and Piaget.

This means a change in the meaning of the concept of education, of educational theory and of focus about the process of teaching-learning corresponding to an active school.

This system is built not only in the educational context, but also within the theoretical focus of Organizational Development (OD) which poses planned change as its object of study. However we find that OD did not offer

in a direct way what we were searching as it has been centered in mini theories and does not have an assessment system.

It was therefore necessary to consolidate in a single focus the diverse fragmented theoretical approaches of OD and in second place propose an assessment system for planned change, which would allow us to assess it in terms of degree of implementation and improvement in the levels of efficiency-efficacy (competence) and in third place incorporate in OD a mechanism of learning about change management.

In this way the strategy has been built as a systemic body of theories in the form of a Model which represents as a theoretical construct the relationships that the theories observe in their interaction in practice; likewise we propose the theoretical ground that bases the assessment criteria of the Strategy in practice.

It is worthwhile saying that these contributions have not been resolved until now by OD.

The functioning model of the strategy sustains our theoretical criteria to WLSS blish the scientific character of the theory (Popper, 1991).

In this order of ideas, the application of the strategy allows us to present the similarities encountered and their interpretation, which allow us to arrive at the following theoretical formulation: The Work-Learning System is capable of carrying out change in organizations to “learn change” and “build an aligned work network” of the actions of an organization following institutional policies. Not the particular actions of the organization, but the pattern of its relationships or its system of work. This pattern in our case corresponds to the “Work-Learning System”.

Our model would be refuted or disproved when after applying the Strategy, the expected results regarding Synergy, Dynamics and type of Energy required to achieve the “Intention”, “Posture” and “Resonance” for the paradigm change are not present. In other words, change towards active education is not generated.

With this Dissertation a perspective for a new research work opens. About the application of the theory of learning planned change in non educational organizations, in their culture (values) habits, norms and organizational principles and in its efficiency in change (Capability and commitment to achieve).

SUMMARY

“Managing School Change”

(2005 review of the doctoral thesis “Managing School Change” Central University of Venezuela. School of Social and Economic Sciences. Graduate Studies. Social Sciences Area. Author: Maria Elena Marroco)

The research was undertaken with the objective of resolving the PROBLEM of how to manage the change from a traditional educational institution to an Active Education school, to evaluate the degree of change implementation and levels of competence (efficacy - efficiency). This change refers: a) to promote and asses the Comprehensive Development (C.D.) of the student; b) to develop the organization’s personnel to achieve significant learning in students; and c) to adopt the active methods in the teaching-learning process.

We have understood this change as per Carl Rogers and Jean Piaget; for that reason we have identified with their theories the desired humanist-cognitive education profile. Rogers maintained that the traditional concept of an educated person made no sense in modern society. He proposed significant learning (humanist theory) while Piaget proposed the Comprehensive Development of the individual and active learning methods (cognitive theory).

This scenario provided us with the necessity of analyzing the difficulties of the traditional school via a trial application (1969-1978), which corresponds with Clifton Chadwick’s description (1978). He describes the school as a knowledge center, where the student’s active participation is perceived as disturbing and his/her assessment refers only to knowledge.

Other experiences with change actions existed simultaneously with our efforts (A.S. Neill 1963; Ivan Illich 1977; E.A. Bernard 1975; Thomas Gordon, Lee J. Smith 1979).

The results of my trial and the particular and partial solutions of the other experiences led us to the statement of our problem.

In our theoretical discussion we delimit the characteristics of the change we aimed to achieve. That is from traditional education according to Jerome Brunner and B.F. Skinner to an Active Education according to Rogers, and Piaget. Therefore we propose changes in:

1. – the meaning of education;
2. - educational theory, as a process of instruction, to another theory that poses the comprehensive development of individuals in active interaction with their environment; and
3. – the theory of learning, which supposes in the beginning a methodology centered in teaching to reach another centered on learning.

The emphasis of our research is on finding the pertinent actions necessary to undertake the change of a school, modifying it in such a way that it achieves the Active School profile.

The first step is the identification of educational agents present in the initial situation and the desired profile for each one of them with the corresponding theories; these are, in addition of Rogers and Piaget, the theoretical positions of Peter Drucker (1990) on administration and management principles; C. Kepner and B.B. Tregoe (1982) on The Rational Manager; and P.H. Hersey and K.H. Blanchard (1977) on organizational behavior.

As a second step, it is required to determine the actions to achieve the desired profile represented by each theory and each educational agent.

The design of these actions will become our Strategy. This is accomplished however, within the field of Organizational Development (O.D.) due to the deficiencies found in educational theories on change management.

Likewise, in our theoretical discussion in O. D., we delimited the characteristics of the managerial process to delimit the problem of our study.

To that end we analyze:

1. The theoretical roots of organizational development that are found in Burke 1988; Dyer 1981; Walton 1988; Schein 1973; Pantin 1977 that provided us with an unconsolidated theoretical outlook and a non-systematic assessment of change. However, the aspects for us were a). - To consolidate Organizational Development's (O.D) diverse, fragmented theoretical aspects; and b) to propose an assessment system for the degree of implementation and the improvement of its competence to change.

2. The management process according to the following authors and their different perspectives on undertaking change, as focused on a) people; b) technology; c) processes; and d) the client: Argyris and Schön; Peter Senge; S.R. Covey; Mike Hammer; Tom Peters; James Harrington; T. Davenport and K. Albrecht respectively.

Nonetheless these authors offer only suggestions on undertaking these new focuses from the viewpoint of their experiences (with the exception of Argyris and Schön with their Theory of Action) and in general are centered on particular organizational aspects.

However our research problem goes beyond this, because as object of our research:

1. we propose the facilitation of organizational change by means of a Strategy and a Model of their functioning, which evaluates results with a purpose that transcends the exclusively experiential initiative;
2. we also address the establishment of the extent of change jointly with the strategy to evaluate its action without cause-effect relationships; and

3. we perform educational change on the entire organization, which presupposes the interrelationships among all its agents: people, technology and processes, rather than attempting change as improvements in isolated or individual ways.

With all this, we delimit the managerial process for planned educational change in the organization that we conceive as the interaction of processes, technology and people.

We propose our theoretical focus based upon the proposals postulated in the works of the following authors: Bennis 1972; Beckhard 1988; Margulies 1983; Dyer 1976; Huse and Bowditch 1982; Lippit 1961; Napier 1975; and Nadler 1982.

These theoretical proposals hold in common the undertaking of organizational development with the purpose of undergoing planned change, although each one separately is only an attempt at formulating a theory.

We also propose to accomplish planned change, but in our case we made the effort to determine in each theory the aspect, which it describes of our strategy.

This results in each theoretical perspective having to be integrated, consequently becoming a theoretical reference that transcends any one in individually. Every theory is integrated to represent an action structure, and each one, as part of this structure, holds a different meaning that is valued, not only in and of itself, but also for the manner in which it relates to the others. With this approach we designed a systemic body that made possible the integration of all theories into a unique theoretical referent.

Therefore, our theoretical focus consists in organizing the action of the strategy and interpreting its functioning as a system which we represent in the form of a Theoretical Model with the relationships that the theories present in their interaction in practice.

The analysis carried out of the O.D theories led us to the necessity of proposing an assessment criterion in that field. This is based on the theoretical propositions of K. Leithwood (1980), P. Lafourcade (1982) and M. Alkin (1969). These proposals have in common the assessment of change processes in educational institutions and their efficiency, but each one deals separately with the theoretical problem of change assessment.

We further integrate these two assessment perspectives with the same system and create a structure as part of the unique theoretical referent in the form of a systemic body.

This theoretical focus allows us to pose our questions:

1. - Can the action of the strategy be assessed?
2. - Can the results of change be assessed?

3. - Can change be achieved in other educational institutions with the application of the model?

Answering these questions by achieving the objectives will represent the results of our research. Their interpretation will result in our contribution toward the enrichment of the O.D.'s perspective.

Our thesis is that educational change from a traditional school to an Active School is achieved when the desired change is managed as both, a process of change in culture and a change in competence of the school institution. This is represented by all the educational agents with the strategy that assesses outcomes of the change in terms of degree of implementation and improvement of efficacy-efficiency (competence); furthermore, it evaluates the achievement of the desired change in other schools institutions with the application of the functioning model of the strategy.

For all of the above, our general objective was focused on constructing a strategy as a managerial system for planned change to evaluate its action, the outcomes, and the achievement of change from a traditional school to an active education school.

In this respect, it is the General Hypothesis of our work that is reached with the following objectives:

1. To evaluate the action of the strategy to implement planned educational change of a traditional school into an active education school.
2. To contrast the results of said practice of educational change in the school with the action of the strategy for adjustments.
3. To evaluate the action of the strategy for the improvement of levels of competency in change of the educational institution.
4. To contrast the results of school competence improvement with the action of the strategy for its permanent adjustment.
5. To evaluate the achievement of change in other educational institutions with the application of the model.

THE STRATEGY IS DESIGNED In educational change

It is defined as a "complex educational strategy" and the extent of the change is in the traditional school's values and principles for those of the Active School, which will be the new culture in the administrative strategy and the manner of performing work. The organization's theoretical focus will concentrate on social factors and the human perspective, and it is our position of analysis with the intention of improving the organization's aptitude to deal with change. Our Model is one of Action-Research. Our Method is Permanent Diagnosis, which regulates the planning of the action, and assesses the change process through the operative group as a learning unit. The assessment is presented with the degree of implementation of educational change.

This process allows us to:

1. - evaluate the action of the strategy and
2. - contrast the results for the adjustment of the strategy.

In the competence to change

This is defined as “intervention”. The extent of change is the improvement of competence levels in the action of changing. The theoretical focus of the organization is systemic. The Model refers to those factors to be accounted for in the diagnostic task. Our Method is a permanent diagnosis of personnel in the performance of their tasks in the form of a Work Team. The group nature of the work team is understood through Systems Theory where information is considered a fundamental resource. The assessment is presented in terms of results in the improvement of competence levels (efficacy-efficiency) in educational change.

This process allows us to evaluate the action of the strategy and contrast the results in order to adjust it.

In both cases the focus is on organizing the Work-Learning System© in the form of an evaluated process in educational change and in competence to change.

For the construction of the Model

The strategy is designed with two actions in the form of process:

1. - for educational change;
2. - for competence to change (efficacy-efficiency); and with the construction of a model with this double action.

TECHNIQUES FOR COLLECTING INFORMATION AT THE ASSESSMENT MOMENTS

are: a) Observation Techniques, b) Analysis of Results, c) Tests, and d) Questionnaires.

THE ASSESSMENT INSTRUMENTS FOR REGISTERING CHANGE are 44 Registry Forms that comply with the systemic Model for educational change, and for the Competence to change. These forms represent the electronic system.

THE METHODOLOGICAL OBJECTIVES are determined

1) by the “Desired Profile” for evaluating the degree of implementation of educational change. This consists of converting a) the Desired Profile of each educational Agent into objectives; b) establishing the Goals to be evaluated; c) establishing the indicators; and d) the Performance Standard.

2) We evaluate the levels of Competence with the “Commitment to Achieve”, to evaluate, in terms of results, the improvement of these levels. This consists of: a) presenting the commitment to achieve change in each

educational agent, these in terms of the results of the implementation of the conditions to be present in the organization of the educational institution; b) Establishing the goals to be evaluated; c) the Indicators; and d) the Performance Standard.

THE APPLICATION OF THE STRATEGY

For Educational Change:

As a process to learn to change with the Implementation Program, which consists in the learning of the new models of behavior as part of the Critical Tasks for all educational agents and of information for parents. This is done with the objective of creating the Mechanism of education – assessment– analysis–feedback; this is the responsibility of the operative group.

This program means having contrasted the results of intermediate-levels of change, corresponding to intermediate levels of expectation. This is the Innovation Profile in relation to corresponding intermediate action strategies.

The intermediate results of the change profile are due to unresolved obstacles within the organization. These obstacles with the corresponding competences of the educational agents and each action strategy are known as the Total Implementation Program.

The results of the change represent the performance level of the institution. These are represented by the new behavior of personnel within the new profile of the educated person and the new work culture in the manner of performing work. The latter is the result of applying the new behavior Models of Action, Thinking and Attitude that generate the personnel's congruency in Acting, Thinking and Doing and the performance of the Critical Tasks. These results represent the behavior within the new Culture in the manner of performing work.

The indicators to assess these concepts are those of J. Piaget and C. Rogers that describe the new profile in terms of Dimensions.

For competence in Change:

As a process to build the aligned Work Network of Technologies-Processes-People with the Technical-Administrative Preparation Program consisting of 1).- the systematic application of the new models of behavior in the educational agents as part of the Initial Plan, 2) the construction of the Organizational Agenda, the aligned plans and the Work Team as part of the Permanent Plan. This Action Plan is with the purpose of constructing the interaction of: a) this Plan, b) its assessment and, c) the outcomes.

The assessment is performed with the Value Standard of the objectives selected by an assessment team that insures that the objectives meet the

requirements of pertinence, efficiency criteria, representation of the results and levels of achievement.

Additionally, there is the standard of comparison of the student's quarterly grades that represent the levels of competence of the teaching-learning process.

The results of change show, as Productivity, the assessment of the Learning-Teaching Process Quality levels. This is due to the Achievement Conditions present in the Operative Cycle. The latter has been developed with the Tasks of all Educating Agents. These results make possible improving the level of competence of the organization.

The indicators are the results of the school institution in comparison and possible discrepancy with the Standard Value of the objectives that represent the conditions that must be present and two tables: 1.- Adjustment and 2.- Restoration.

For the construction of the Model

In this case, it is carried out with the representation of the relationships in the experience of the theories that describe the functioning of WLS© for change in culture and the level of competence in the school.

There are two models that operate in an integrated manner to form the Work Learning System©:

The Model for change of culture consists of:

1. an educational program;
2. its scope is for a change of culture (beliefs, values, habits) of the organization as a social system that "learns to change".
3. its dynamic for change follows the Education (Action) - Assessment (research) – Analysis – Feedback Model and
4. its Method is the Permanent Diagnosis by the operative group and
5. It's evaluated with the results obtained by the educational agents with the desired profile of an Active School.

The Model for competence to Change consists of:

1. a planned Intervention program (Action Plan) supported by behavioral sciences and encompassing the entire organization.

2. its scope is the improvement of competence levels with a comprehensive systemic focus for the new manner of functioning, due to the new managerial action that permits the organization to discover and resolve its difficulties.

3. its change dynamics assumes the relationship between the Action Plan, the results and the assessment as per previous diagnostic orientation, and
4. its Method is one of Permanent Diagnosis by the work team.
5. its assessment is performed with the results obtained by the educational agents in the Achievement Conditions with the Technical-Administrative Preparation Program.

The functioning of this system in its experience is represented by the corresponding model, consisting of the simultaneous interaction of the two previously mentioned models. This is organized as an electronic assessment system based on knowledge.

The analysis of data refers to the presentation and interpretation of

1. how to evaluate the action of the strategy,
2. how to evaluate the results of change in the educational institution and
3. the presentation and interpretation of how to evaluate the achievement of change in other institutions through the model's application. This analysis is the answer to the questions posed and to the achievement of the objectives in that sense.

The assessment of the model has the scope of Conjecture Subject to Refutation (Popper, 1991).

The educational institution in which the experience occurs (Colegio Marroco) was founded in school year 1978-1979, after nine years of planning (1969-1978) during which the trial process was begun with an counseling service in order to recognize the difficulties of traditional education.

The actors are the following Educational Agents: Parents, Students, Educators-Facilitators, Managers, the Organization (the entire personnel), and the Quality of the Teaching-Learning -Process.

Other institutions where the experience has occurred include the public school sector and other sectors (banking, industrial, commercial). The only assessment results included here are for the public school as it was at the time of writing (1992), the latest experience and the only one to be externally evaluated (by CENAMEC, National Center for the Improvement of Science Education).

The results refer to this assessment (Presentation of results)

1. Presentation of Data of Educational Change

The results of the assessment of the Parents (students' representatives) are presented with:

INDICATORS	DIMENSIONS
Enrollment increase and decrease in desertion rates	Perception of the institution for the formation of students as citizens of a democratic society and as mature individuals in the management of their reality

The transition between the starting point and these results are made possible by the Information for Representatives (Parents) Program on education according to today's social context: Mission, Purpose and Objectives of the institution as an Active School.

The results of the assessment of the Students are presented with:

INDICATORS	DIMENSIONS
Monthly average of student grades in Performance and Behavior.	Student as solver of intellectual, personal, and socio-ethical problems: Comprehensive Development

The transition between the starting point and these results is made possible by the student's learning of "active participation" for significant learning in class, extra-class, institution and social environment in order to achieve the objectives in the Study Plan.

The results of the assessment of the Teachers-Facilitators are presented with:

INDICATORS	DIMENSIONS
% of the teacher-facilitator's achievements according to his/her students' average monthly grades. This % is in relation with the average expected by the facilitator in Performance and Behavior.	Teacher-Facilitator who generates qualitative and quantitative changes in his/her students.

The transition between the starting point and these results is made possible by the educator's learning of his/her role as a facilitator. These are the Critical Tasks or Key Competencies that make possible new ways of performing tasks in and out of class, planning and assessment.

The results of the assessment of the School Managers are presented with:

INDICATORS	DIMENSIONS
% of the manager's achievements according to the results of the students of the teachers-facilitators under his supervision.	Systematized action manager for the achievement of the objectives in the Plan.

The transition between the starting point and these results is made possible by the Manager learning his/her role as developed in a comprehensive Manner in performing his/her tasks: observation in and out of class, of personnel and of the Improvement Management Plan.

The results of the assessment of the Organization (all personnel) are presented with:

INDICATORS	DIMENSIONS
Level of adaptability and efficiency of each manager as leader of his/her group.	Organization by participation and in consensual decision-making to reach the results present in the plan.

The transition between the starting point and these results is made possible by learning for organizational growth in the new form of performing tasks of Analysis and Description of Personnel Results as a participatory, consensus-seeking group, in their work practice.

The results in Quality of Learning are:

INDICATORS	DIMENSIONS
The monthly average of grades of the entire student population in Performance and Behavior	Learning Process for the Comprehensive Development of the student population in each of the study areas, in a harmonious and interrelated manner through systematized learning.

The transition between the starting point and these results is made possible by those responsible for the quality of the learning process, during management coordination meetings and of Managers as an operative group.

2. Presentation of data on change of efficiency.

Students, Educators, Managers, Organization, Representatives

Following are the results for the diagnosis assessment of October 1986 in comparison with the Standard Value determined by the Assessment Team on seven objectives chosen for the educational agents. Comparing the standard value with the real value achieved performs the assessment.

The standard values are: Values of importance of objectives between 4 and 5 points (scale 1 to 5)

Discrepancy between the real value and the standard value, between 0 and 3 points: Priority of attention according to the size of the discrepancy of: none, some, medium, large and extreme.

The results Marroco School of June 1989 are now presented and compared with the initial assessment of 1986. This is the representative condition as a performance standard for the assessment of competence level improvements within educational change according to capacity and commitment of personnel to improve the results of the educational institution.

Quality of Learning Process

The results are the comparison of the student population's average in the first month and the three following school year periods. This is the representative condition as a performance standard for the assessment of competence level improvements in educational change according to capacity and commitment of personnel to improve the organization's results.

The improvement of competence levels is made possible in both cases by interaction of the Action Plan, the results and the Work Team's assessment as done in meetings: the Institutional Agenda and the Management Improvement Plan.

3. Results of educational change and competence within change in a government educational institution.

During culture-wide educational change, the institution covers the levels and phases present in the Work-Learning System©.

In competence within change, the results are presented as both a comparison of grades per student for school year 1993-1994 against 1992-1993 results and as a comparison of passing students in both years.

4. Interpretation of Results.

The answers to the questions of the study are the following:

Answer 1

It was possible to reproduce the Work-Learning System© capable of evaluating the action of the strategy incorporating the concepts of Performance-Behavior within the new education. This is the Performance

Standard that serves to evaluate the Desired Profile; which contains the indicators offered by the theories that explain it (Rogers and Piaget; Peter Drucker, C. Kepner and B.B. Tregoe, P.H. Hersey and K.H. Blanchard) though dimensions of and in relation with the action of the strategy to be evaluated.

Answer 2

It was possible to reproduce the Work-Learning System© that was capable of evaluating the results of institutional educational change so that the results of each educational agent can be measured with the Performance Standard of the Active School Profile.

Managers, Facilitators, Students, Administrative Organization, Quality of the Learning Process and Parents

The personnel's percentage of achievement in relation to the desired 15.5 (on a scale of 0-20) and 77.5 (on a scale of 0-100) in Performance and Behavior:

MANAGERS: Percentage of achievement of personnel under their supervision in relation to the average expected, 15.5 in a scale of 0 to 20.

<p>PERFORMANCE AND BEHAVIOR:</p>

<p>1986-87: between 13.3 and 13.8 over 15.5 between 86% and 89%</p>

<p>1987-88: between 13.0 and 14.0 over 15.5 between 84% and 90%</p>

<p>1988-89: between 13.0 and 14.0 over 15.5 between 84% and 90%</p>

TEACHERS- FACILITATORS: Percentage of achievement of their students in relation to the average expected, 15.5 in a scale of 0 to 20.
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<p>BEHAVIOR: 1986-87</p>

<p>13/15.5 84%</p>

<p>1987- 88</p>

<p>13/15.5 84%</p>

<p>1988-89</p>

<p>12.5/15.5 81%</p>

<p>PERFORMANCE: 1986-87</p>

<p>14.3/15.5 92.0%</p>

<p>1987- 88</p>

<p>14/15.5 90.0%</p>

<p>1988-89</p>

<p>14.5/15.5 94.0%</p>

STUDENTS: Range of the average in Performance and Behavior of the school institution.

<p>BEHAVIOR: AVERAGE</p>

<p>67% of the student population</p>

<p>1986- 87 12.5 between 10.1 and 14.9</p>
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1987-88	12.7 between 10.3 and 15.1
1988-89	11.5 between 9.4 and 13.6
PERFORMANCE: AVERAGE	
67% of the student population	
1986- 87	14.1 between 12.3 and 15
1987-88	13.8 between 12.3 and 15.3
1988-89	13.5 between 11.5 and 15.5

ADMINISTRATIVE ORGANIZATION: Functioning, Participation and consensus	
LEVEL OF LEADERS	
ADAPTABILITY (Standard (3,3,3,3))	EFFICIENCY (Scale -24 to +24)
(4,3,4,1)	+15,
(3,3,4,2)	+23,
(3,3,3,3)	+10,
(2,4,4,2)	+9

QUALITY OF THE TEACHING-LEARNING PROCESS: Comprehensive development of student population.			
Monthly average at institutional level in Performance and Behavior.			
End of school year Elementary, Middle and High	1986-87 Between: 13.3 and 14.3	1987-88 Between 13.0 and 14.1	1988-89 Between 12.5 and 14.0
Kindergarten	-----	Between 11.5 and 19.4	Between 12.3 and 17.8

PARENT'S: Perception of the Institution		
Increase of the number of students enrolled and % of desertion per year		
Year	New Students	Desertion %
1986- 87	156	24%
1987- 88	173	15%
1988 - 89	223	15%

Answer 3

It was possible to reproduce the Work-Learning System© capable of evaluating the action of the strategy with the achievement conditions or key competencies that should be present in the organization. This is the performance standard that serves to evaluate the Commitment to Achieve Change for each educational agent. This contains the criteria and procedure offered by the theories that explain it through the conditions required and in relation to the action of the strategy to be evaluated. This is achieved through the required conditions and in relation with the action of the strategy to be

evaluated. A further assessment is made possible by comparing the student population's grades the three following quarters in relation with the starting month (Quality of Teaching-Learning Process)

Answer 4

It was possible to reproduce the Work-Learning System© that was capable of evaluating an educational institution's results on competence levels by comparing the Educational Agents' results with the performance standard of the achievement conditions present in the organization.

Comparison of discrepancies of each of the objectives with the standard, for the purpose of Establishing priorities of attention per objective

(on a scale of 1-5).

October 1986-June 1987-June 1989.

Agent: Teachers And Managers. Year 1989	
Objectives	Priority Of Attention
Climate, Attitude Towards Change, Change Strategies	None, no priority of attention because there is coincidence with the standard.
Identification With The Active School Objectives, Facilitator's Attitude Towards Active School, Coordination Mechanisms, Instruments Of Assessment.	Some, priority of attention because the discrepancy is less than one. ($X < 1$)

Administrative Organization	
Objectives	Priority Of Attention
Climate	None, no priority of attention because there is coincidence with the standard.

Students	
Objective	Priority Of Attention
Climate,	None, no priority of attention because there is coincidence with the standard.
Attitude towards change	Some, priority of attention because the discrepancy es less than one ($X < 1$)
Identification with the Objectives of Active School	Medium, priority of attention because the discrepancy is greater than one ($X > 1$)

Parents	
Objectives	Priority Of Attention

Knowledge About Active School	Some, priority of attention because the discrepancy is less than one. ($X < 1$)
Attitude Towards Active School	Medium, priority of attention because the discrepancy is greater than one. ($X < 1$)
Identification With The Objectives Of Active School	Medium, priority of attention because the discrepancy is greater than one. ($X > 1$)

Quality of the learning-teaching process: Basic and Medium Levels.

Comparison of each quarter with first month, both in performance and behavior.

(Aspired value according to the decision of each school institution, scale 0 to 20)

Quality of the learning – teaching process in elementary, middle and high school.				
Comparison of each quarter with first month				
Performance and behavior				
Elementary, Middle and High school	October	1 st . Quarter	2 nd . Quarter	3 rd . Quarter
1986 - 87				
1987 – 88	14.0	13.8	13.8	13.8
1988 – 89	12.5	13.7	15.4	14.7
	13.6	12.6	13.6	14.7
Kindergarten				
1987 – 88	11.5	13.9	18.4	17.6
1988 - 89	14.2	11.8	14.8	16.1

Answer 5

Change was achieved at a government school institution (Instituto Experimental Docente Los Dos Caminos) through the Work- Learning System© model, with expected results along all phases of change. These results are observed with the improvement of the student population's grades in 1993-1994 after the implementation of the strategy, during the previous school year 1992-1993.

These results refer to the Quality of the Learning Process regarding the increase of school grades.

Comparison of public school grades in the 1 st . Quarter of school year 1992 – 93 with school year 1993 – 94.
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16 Sections and Results for Elementary School 94 subjects 52.1 % increase in student's grades during the morning shift and 67.7 % in afternoon shift.

Comparison of percentages of passing students of the same groups during the same periods.

62.5 %, increase in morning shift, and 68.7 %, increase in afternoon shift

These results are independent of those involved in elaborating the strategy as they correspond to a government institution that operates with different characteristics from those of the school (Colegio Marroco) where the strategy was designed. These results are evidence that the model works independently of the developer of the change program.

This work demonstrates that the Work-Learning System© successfully evaluates the action of the strategy and the planned-for achievement of change, obtaining the desired results and satisfying the general hypothesis. It also demonstrates the positive application of this model in another school in this case, a government public school.

These results opened new perspectives for further investigations about the applicability of the model in non-educational institutions; that is why they are of great interest nationally, continentally and universally.

For this same reason, we have applied WLS© in public and private, for and not for profit organizations since 1986 with equally satisfactory results. In these organizations, the agents are of a different nature from the educational agents, nevertheless WLS© equally achieves the aspired changes in culture and in competence in change.

This study also constitutes a significant contribution to educational theory, specifically the Theory of Learning Planned Organizational Change and for the theory of Organizational Development, with the consolidation of theories and basis for the assessment of planned change.

CONCLUSIONS

Change Management in Schools

(2005-2007 review of the doctoral thesis "Change Management in Schools." Central University of Venezuela, School of Social and Economic Sciences, Graduate Studies, Social Sciences Area. Author: Maria Elena Marroco. Year: 1994)

The results of our research allow us to postulate a Theory of Learning Planned Organizational Change© in a school institution.

We have formulated our theory following Karl Popper's critical focus (1963) with the purpose of discovering the weak points of rational action. It is the role of logical argumentation not to demonstrate our theory but rather to discover its implications in order to allow for an effective critique of it. It is a theory based on the trial and error, of conjectures and refutations.

The following is therefore Popper's proposed sequence for formulating theory:

Initial Situation.

The initial situation corresponds to the research problem's statement, which is to be explained by our theory.

Problem: how to manage the planned change of an educational institution toward active education. This is tantamount to a practical application of the theoretical principles of humanist cognitive education (J. Piaget 1975). It is also to assess the degree of implementation of change and the improvement of its levels of competence (K Leithwood, 1980: Pedro Lafourcade, 1982).

For that reason we identify with the corresponding theories, the initial situation and the desired profile of the school institution's educational Agents.

We also intend to explain how this change toward a new education can be undertaken in practice.

This was done not only within an educational context but also in the field of Organizational Development, because here planned organizational change is proposed as an object of study.

Our contribution to O.D. consists of the following:

1. To have created a theoretical construct (the Model of functioning of the Work-Learning System© Strategy) based on hitherto fragmented elements that gain in relevance and effectiveness when they are properly interrelated, such as we have done.
2. To have incorporated into this theoretical construct a system of evaluating degrees of change implementation and of achievement-centered organizations.
3. To have incorporated into O.D. the concept of learning about planned change management.

It is worthwhile noting that points 2 and 3 offer an answer to as yet unresolved O.D. problems.

The strategy's design comprised the creation of a series of integrated programs, in the form of our Work-Learning System©, for the achievement of planned change in a school institution from traditional education to active education and the achievement of the level of competence in change.

The results of the Implementation and the Technical-Administrative Preparation Programs proved they promoted the Comprehensive Development of Personnel, its preparation to generate significant learning and the adoption of active methods (J. Piaget 1975; C. Rogers 1972). Besides they also promoted the creation of certain conditions to improve the results of the organization.

The Innovation Profile which is part of the Implementation Program allowed us to represent the evaluation process of the results of change, meaning a recognition of obstacles and the process of evaluating actions necessary to overcome them, thereby becoming an instrument for the organization's use as a map of its own process.

This map is a contribution to O.D. as a means of evaluating change as a process and not as an event.

The application of this model proved change in another school, this one government owned and managed, achieving the expected results.

What is expressed above is what the Theory of Learning Planned Change should explain in the following.

Theoretical Judgment

The strategy's working model sustains our theoretical criterion in order to WLSSblish the scientific character of our theory. This model addresses both how organizations learn to change and how to build an aligned work network of Technology-Processes-People. This statement is the "Conjecture we subject to Refutation".

Having integrated the conclusions and analyzing their impact as a whole, has allowed us to elaborate a proposed Theory of Learning Planned Organizational Change. In our case certainty is not the goal; what interests us is articulating the theory and testing it in the hope of discovering in what ways we are mistaken.

This is based upon having reflected on the meaning of the results of change in another school institution different from that where the Model was developed.

The functioning model of the Work-Learning System© is our theoretical proposal for organizational learning that makes desired change possible and that meant in our theoretical dimension a change: 1. - in the significance of Education, 2.- of educational theory and 3.- of focus of learning.

In other words, this work demonstrated achieving through the strategy, the evaluation of its action and the achievement of the change as planned, reaching the objectives and satisfying the general work hypothesis.

This is our contribution to educational theory.

Similarities encountered in both institutions

The strategy's application allows us to present encountered similarities, which were:

1. - That the system generates synergy among the different agents of the organization:

A) When building the organization's Action-Evaluation-Analysis-Feedback mechanism so as to Learn to Change and

B) When the interaction of the Action Plan, the Results and their Evaluation takes place in order to create the aligned Work Network of Technology-Processes-People.

2. - It was also found that the system generates a dynamic of this synergy with a Type of Energy necessary for the change in culture in the organization; when learning takes place on the part of the personnel of the Thinking Models (intellectual tools), Action Models (basic managerial skills) and Attitude Models (certain personal qualities). This learning also allows personnel to reach its congruency in Doing-Feeling- Thinking.

Formulation of the theory of Learning organizational change

The interpretation of these similarities, allows us to arrive at the following theoretical formulation: The Work Learning System© is capable of promoting in the school organization the action of "Learning to Change" and constructing the aligned "Work Network" of Technology-Processes-People. This occurs:

A) When the System generates the synergy, in the organization, with the MECHANISM of Education-Evaluation-Analysis-Feedback, and the INTERACTION of the Action Plan, the Results and the Evaluation. The MECHANISM promotes in personnel a new model of behavior in their manner of working. INTERACTION makes possible to improve the Quality of the Teaching-Learning process. The Mechanism and the Interaction provide the system's synergy, evident by the achievement of the aspired results.

B) When the System generates the dynamic of the synergy with the new Models of Behavior and the Critical Tasks that make possible the same Intention", "Posture" and "Resonance in communication " among personnel in the organization. This means:

- To achieve the new Active Education profile, until all can establish a relationship between individuals and organization with the same perceptive and verbal code, which allows for the construction of a "Resonance in communication among personnel ".
- To achieve the Basic Conditions of Capability and Commitment of improving the results of the organization in its operative cycle and in the grade point averages of the student population.

Resonance is the communication of personnel in interaction with the organization; evidences the dynamic of the synergy.

C) When the system makes possible the Type of Energy proper of the Dynamic of the Synergy, with the awareness of personnel of this mechanism and interaction that represents

- The change in culture in the organization and its Aptitude of adaptation to the social dynamic.

Awareness of the mechanism and interaction evidences the type of necessary energy.

Operationalism

Operational analysis reveals our theory of evaluation of the results of change using the Work-Learning System©, and these results are represented with:

a) Personnel's behavior according to the new profile of Active Education

- Students who are problem solvers,
- Teacher facilitators of qualitative and quantitative changes possible of being assessed
- School directors as managers of systematized action
- Mature organization: swift, flexible and innovative

- Quality of learning: comprehensive development of the student population in Behavior-Academic results
- Parents perceivers of the institution for the formation of students as citizens in participative democracy

In relationship with the results of the organization

- Grade point averages

b) The results of the Quality of the Teaching Learning Process as Productivity:

- % of achievement in Behavior-Academic Results of the student population

beginning with the (7) achievement conditions.

The practical acquisition of these results makes possible in the organization the new forms of behavior in keeping with the values present in the new organizational culture in the manner of performing work. It also makes possible to improve competence in the efficiency and efficacy of the operative cycle, to maintain the learning of change ever more far-reaching (culture and competence), until the organization has inserted itself in the new societal production paradigm (the knowledge based economy).

Testing

Testing occurs according to a process consisting of:

1. Evaluating change with implementation degrees so as to construct: a. - the innovation profile with the achievement of the desired change of an active school; b. - the total implementation program with the competencies and obstacles for each implementation level and for each educational agent; and c. - the change implementation program with the desired profile, critical tasks and results.

2. Evaluating the results of the operative cycle's efficiency and efficacy level improvements with the determination of: a. - the objectives, b. - the evaluation of the plan in relation to the objectives' importance, c. - its discrepancy, d. - the objectives' attention priorities, e. - the adjustment potential, f. - the restoration strategy and g. - the Permanent Action Plan (Technical-Administrative Program)

Theoretical Contribution

Our theoretical contribution consists of:

1. Having discovered the functioning of the Work-Learning System© Strategy. That is the functioning of the two programs in interaction applied in

the practice of the school organization for change in the organizational culture of the school and competence in change.

2. Having identified the Pattern of relationships present in that functioning that promotes the Synergy, Dynamic and Type of Energy called Mechanism of Action-Assessment-Analysis-Feedback (A-A-A-F): and called the Interaction of the Action Plan, the Results and their Assessment (APRA).

We have seen that the Mechanism promotes in Personnel a new behavior in the manner of working and the Interaction promotes an improvement in the Quality of the Teaching-Learning Process. Both in an integrated way promote the synergy of the system, as evidenced by the results they achieve.

The Mechanism and the Interaction include the Models, the Critical Tasks and the Achievement Conditions that foster the dynamic of the synergy and a type of energy both necessary to achieve the desired change.

The follow up of the pattern is assured by:

- a) the “Operative Group” or Learning Unit who maintains the Mechanism (A-A-A-F) in order that the organization learns to change
- b) the “Work Team”, who maintains the interaction (APRA) for the alignment of the net.

3. Having proposed representing this pattern of relationships with a theoretical construct that is our theoretical Model of the functioning of the Work-Learning System Strategy (WLSS)

4. We have also seen that if personnel maintain the action-attitude and thought models, they make possible the new profile of Active Education with the “same verbal and perceptive code” for individual-organization interaction and “resonance” is WLSSblished in communication which evidence the dynamic of the synergy.

The generic definitions of these principles appear to belong to the field of Quantum Physics (Lynne Mc Taggart, The Field, pp.43).

The same “verbal and perceptive code” we understand, as the unified message of all of the organization’s personnel as to the values and principles they represent, and share as the culture of the organization.

“Resonance in communication” we understand as the coherence in communication when exchanging information to the point of synchronizing into a single unit without losing individual characteristics.

We also saw that if personnel maintain the Achievement Conditions, it makes possible the Basic Conditions of Capacity and Commitment of

personnel, in improving the results of the organization in the operative cycle and in the grade point averages of the student population.

5. On the other hand we also found that if the relationships in the functioning of the Work-Learning System@ do not correspond with the pattern established by the mechanism and interaction the expected synergy is altered.

6 We also observe that if the system is not maintained in the organization, it is because other priorities have been established, and in this case, one runs the risk of losing or destroying the synergy that guarantees its existence.

7 We could also notice that the system does not work when the new profile does not exist, because daily tasks are not carried out in interaction with the critical tasks. It would also not work when the seven conditions are not present as objectives to insure the basic organizational competences.

8. We found that it is important to distinguish the Work-Learning System's conflicts when the change implementation process is operating; from those very different ones that appear when the system collapses. This last instance occurs when something accounted for by the Work-Learning System is no longer enacted and the necessary relationships therefore disappear.

This means that the following are not assumed:

a). - the same "intention" when the "mechanism" and "interaction" patterns are altered. This means altering the "synergy".

b). - the same "posture". This refers to the non-adoption of task-performing behavior models as well as the absence of the first four basic conditions. This also means altering the "synergy dynamic".

9. And last of all we also found that if personnel maintain the Models, Tasks and Achievement Conditions, the Synergy Dynamic generates a Type of Energy, which makes possible the "awareness" of the Mechanism and of the Interaction on the part of personnel which means to become members of the Learning Unit and the Work Team to promote within them the qualitative change (culture) that the organization pursues. This is to develop their adaptive aptitude to the social dynamics.

"Awareness" evidences the Type of energy that the organization develops and makes possible to change it into a "learning unit" and a "work team" to make it flexible, quick, adaptable and innovative and above all capable of adapting to new modes of production, characteristics that define for us the Comprehensive Organization.

"Awareness" of change means that personnel forms part of the Work-Learning System©. It means not becoming distant from the "posture" or

“intention” of change, so as not to lose the leadership function that must be present and not to exit the system.

“Awareness” means the capability to reflect on the hoped-for change and the desire of the organization to Learn to Change and construct the work network of Technology-Processes-People.

“Awareness” of this fact makes the perception of reality different, as if moving in other dimensions, as far as the organization’s vision to be in congruence with this reality.

This “Awareness” takes place in each of the organization’s members: teachers, directors, students and administrative organization, who are responsible for the Comprehensive Quality of the Teaching-Learning Process.

Refutable Theory

Our model is refuted: when the strategy is applied, the results are not produced in the synergy, dynamic and type of energy necessary to obtain the desired “intention”, “posture” and “resonance”.

The model is also refuted if the results are not produced with the synergy dynamic for “awareness” of the qualitative change sought after by the organization.

It is also refuted if the “type of energy” needed for a paradigm shift is not created.

The strategy’s systemic nature allowed for the construction of an information and management technology expressed as a technological solution.

This is a computer program that allows for the assessment of all educational agents based on the assessments of students.

New research projects

These results create the possibility for new research projects on the application of the model for culture change and competence in change in non-educational organizations.

This work can also motivate a search for:

1. Other models for resolving the problem of educational change sought since 1956 and recognized as a need for humankind by UNESCO, the OAS among others and more than 190 countries at the Jontiem (1990) and Dakar (2000) educational summits.

2. Other problems worthy of study on the praxis of new educational and organizational learning paradigms.

3. New theoretical perspectives on dealing with the problems of educational change and organizational learning.
4. Higher levels of complexity that transcend the systemic and holistic character of the integrated systemic model we propose.

These conclusions take on a greater relevance because of the new realities of the future, which demand “Learning to Learn” and “Learning to Change” through the development of Human Beings as Comprehensive Beings.

This is where this study’s importance increases, for the problem of education increases each day because of the necessity to develop the processes and generic competencies that have nothing to do with the principles of traditional education.

The conclusions of this study provide an answer with our contribution of the Theory of Learning Planned Organizational Change© to the in-depth problems of late twentieth-century educational processes about the failure of traditional education and the need for a new education.

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THE WES© TECHNOLOGY: WORK EDUCATION SISTEM
TO OPTIMIZE PRODUCTIVITY OF ORGANIZATIONS

INDEX

INTRODUCTION

SUMMARY

CONCLUSIONS

BIBLIOGRAPHY

INTRODUCTION

Work-Education System (WES) © Technology to Optimize Productivity of Organizations

The research was carried out between 1994 and 2006 with the object of solving the problem of “how to optimize productivity in public, private, for and not for profit organizations with the Work-Education System© Technology, which represents the development of the application of the functioning Model of the Work-Learning System© Strategy (WLSS) and the Theory of Learning Organizational Change, for the new formation of personnel according to active education and a new managerial action.

What we achieved on this occasion is:

- Propose the scope of WES©, and we illustrate this in the manner of answers with the actions it develops, in the face of non-successful change efforts analyzed by different authors in the Harvard Business Review book ON CHANGE, whose content is still up to date.
- Delimit the nature of WES©, as we propose how we differ, with respect to some experiences in change efforts, annotated by different authors in the work Harvard Business Review: Bilbao : Deusto Editions, 2000.

We pose our problem beginning with a previous study to this research called “Managing School Change” (M. Marroco, 1994) where the Strategy, its Model of functioning and the Theory of Learning Organizational Change is developed, which is an approximation to a Management Theory.

In our Theoretical Focus we show the characteristics and benefits of WES© when we express our perspective on the subject of productivity and its relationship to the preparation of Human Resources which is approached in the following studies: PricewaterhouseCoopers (year 2000), Accenture (2004), McKinsey (2005), IBM (2005).

The emphasis of our research is to present the differences between the Work-Education System© (WES) and the Work-Learning System Strategy© (WLSS)

WLSS© is an Action-Assessment System, that consists of a Strategy, the theoretical Model of its functioning, with the Theory of Learning Organizational Change in the culture of a school (1969-1994).

WES© is a Technology (techno-science) that consists of the development of WLSS in any organization to achieve any change and optimize its productivity (1994-2006).

WES© Technology, means for our study problem, a step beyond:

- The propositions offered by the specialists who appear in the publications of Harvard Business Review 1986 and 2005.
- The Results present in the most recent studies (2005) included in the work. They only refer to “What ought to be and ought to be done” to improve the relationship between personnel development and financial performance with a success factor of no more than 20%.

This theoretical focus allows us to pose our questions.

The design of the Work-Education System Technology WES© consists in a first moment, till 1994, of the application on the Model and Theory in schools.

Between 1994-2006 it consists of the development of the application of the Model and Theory in diverse organizations and to achieve any change with a five element System grouped around Work and Education with a particular Pattern of relationships.

As part of the design we also describe the procedure for the analysis of results, the design of instruments for follow-up and assessment of the process and the determination of the methodological objectives.

We also include the Manual for the formation of change agents in the application of WES©.

The analysis of the Data refers to the Presentation and interpretation of WES Technology which is a dynamic system for managing and represents the development of the application of the Model of functioning of WLSS and of the Theory of Learning Organizational Change to achieve any change and optimize productivity in any organization. This analysis is the answer to the questions formulated and to the achievement of the proposed objectives of this study.

The treatment of the data refers to 10 case studies of consulting work carried out in the energy field in refining, production, gas, services, selected randomly among others carried out in banking, finance and service companies.

What is most relevant of the study is that WES maintains the Model in any organization, which represents the application of our Theory and its refutation (Popper 1991) in non-school institutions and to achieve any change.

The effectivity of WES© has been confirmed according to the results of this research, in the percentage of achievement obtained in each case study, which represent the improvement in productivity and this makes possible to pose new work as to how could the application be of the System as part of Technological and Web Content Solutions.

In our Conclusions we propose as a theoretical contribution having developed WES© and as a technological contribution, to have programmed its Structure which makes possible to imprint in the System its open character to the whole organization, and dynamic until it achieves the aligned Comprehensive Organization and promotes the achievement of any change sustainable over time.

The research is carried out with the object of resolving the problem: How to optimize productivity in Cost/Benefit terms in public, private, for or not for profit organizations with development of the application of the functioning model of the Work Learning System Strategy (WLSS) © (Marroco, 1994) that permits the construction of the Work-Education System Technology (WES) © for “a new formation of personnel according to active education” (J. Piaget, 1975, C. Rogers 1971), and “a new managerial action”.

We generally say, that a new preparation of Human Resources is required, because personnel have to attend on the job new needs that impact the productivity of the organization.

Attention of these needs requires a change in mentality of the organization, which is achieved through a new formation of personnel. For this the organization must develop the capability of permanent learning.

This proposal is due to the presence in society of the new realities, which justify present changes: continuous and civilizatory besides the challenges in another dimension (P. Drucker, 1999). These changes compel organizations to become swifter, more flexible and innovative to be more productive and competitive (A. Toffler, 1990).

This situation justifies the importance of our study problem.

At the same time we find that in the business environment, efforts at organizational improvements are not directed to an educational perspective rather they remain in a traditional perspective, to achieve a different preparation of the organization's personnel. This means they are directed only to the search for the best static practices, adjustments of processes, and Information Technology (IT) solutions.

1- Wes© Description

Because of all the above, we describe forthwith the Work-Education System (WES) with the actions that result upon applying in any organization, the functioning Model of the Work-Learning System Strategy (WLSS) ©.

WLSS© is an action system, that we represent with a theoretical model of its functioning, to learn how to change the culture of the school institution while the organization works.

WES© is a technology, understood as the application of the same theoretical model, to learn to change any organization and optimize its productivity.

We illustrate the actions in the form of answers that we include in the face of failed change efforts as proposed by various authors in the Harvard Business review article ON CHANGE (1998) whose content we consider up to

date. Besides I would also like to underscore also “after the fact” that these unsuccessful cases represent non-educational efforts.

We propose herewith the description of WES© which appear as answers to the failed cases described by the different authors. These are:

John P. Kotter asks, Why do transformation efforts fail?

Action 1 – We propose a new development of personnel with the learning of the Action- Thinking –Attitude models, the congruence in Doing- Feeling-Thinking and Critical Tasks; a new managerial action that includes achieving as a result certain achievement conditions, which are assessed with a pattern, as part of the Initial and Permanent Action Plans and thus not to fail in the desired change processes.

James C. Collins and Jerry L. Porras refer in the following article to “Building the Vision of the Company

Action 2 – We propose in order to be successful, the development of mature organizations, because they are swift, innovative and flexible in order to be capable of a) permanently assessing risk, b) generating added value and c) maintaining fluid relationships among personnel.

Jeanie Daniel Duck writes about “Managing Change”

Action 3 – We propose the application of a managerial system such as WES, which integrates active education with work in order to generate any change in organizations.

Tracy Goss, Richard Pascale, and Anthony Athos underline the importance of “Risking the present for a powerful future”

Action 4 – We propose Hyper-learning to transform the new way of developing personnel into the organizational development factor and high performance groups to transform the new managerial action into the new style of functioning determined by the key organizational competences to obtain something other than partial changes.

Organizational Competencies are (7) certain conditions that have proven to improve organizational results, through its capacity (4 conditions) and commitment (3 conditions) in the process to improve the level of competence in organizational change.

Norman B. Augustine approaches the theme “Reformatting an Industry”

Action 5 – We propose proactive work beginning with the organizational development factor and in a network beginning with the new style of functioning determined by the key organizational competences as an alternative to the requirements of the new realities marked with civilizatory changes, continuous changes and challenges in another dimension which permits reinventing an industry.

Roger Martin proposes “Changing the Mentality of the Organization”

Action 6 – We propose a change in culture of the organization with the new education to generate a new profile of personnel for a change in mentality of the organization.

Paul Strebel poses the following question: Why do employees resist change”

Action 7 – We propose the creation of a learning Unit for the adaptation of personnel to continuous change and a Work Team to promote the comprehensive quality of the process and thus overcome personnel’s resistance to change, make it sustainable and also achieve the alignment of the strategies with the Vision of the organization.

Robert H. Schaffer and Harvey A. Thomson write in their article that “Successful change programs begin with results”

Action 8 – We propose the improvement of levels of operativity in relation with the organizational development factor and productivity with the key competencies in cost/benefit terms and thus solve the problem of organizations to focus more on activities instead of results.

On the other hand I would like to point out that failure continues in the transformation of organizations in 2005. John P. Kotter, a world icon in organizational change, tells us something in this respect, in his article ON POINT in The Harvard Business review.

The lesson he proposes is that the most successful cases are those where the change process takes place with a series of steps that generally require a long time. However Kotter also points out that “critical errors in any of these phases may have a devastating impact”. He continues saying that “even the most capable people frequently commit at least one great mistake”.

The stages that Kotter proposes are: 1) to **establish** a sense of urgency, 2) to form a coalition that will lead the change efforts, 3) to create the Vision, 4) to communicate the Vision, 5) to prepare others to act according to the Vision, 6) to plan and create achievements in the short term, 7) to consolidate improvements and produce even more changes, 8) to institutionalize new approaches.

As we see, once again the action of change is placed outside of people. In what they must do and not in their development, which is in our opinion, is the only guarantee to achieve the conditions of change. The error begins with the principle that personnel is prepared to carry out the eight stages and not to realize that even though we are all sure they have the best preparation in their technical and professional competences, the traditional education in which they were brought up did not necessarily provide them with the development of their Generic Competencies, indispensable to perceive, intuit, create, reflect, communicate and thrive in environments of uncertainty and probability.

With the development of these competencies people would be capable of carrying out the stages that Kotter proposes or any others. They would be capable to learn new tools, organizational competencies and anything else that may be needed.

To this end we once again propose our Work-Education System©, and its scope which transcends and at the same time integrates the actions which result with the application of the model of the functioning of the Work-Learning System Strategy (WLSS). These actions are:

- A change in mentality of the organization, which appears with the new profile of personnel when a change in culture is achieved.
- The development of the capacity of organizational learning, with the incorporation of the model.

2- Previos Research 1969-1994

The Model of functioning of the Strategy is the result of the research findings of "Managing School Change" (M. Marroco, 1994).

This model was built for the change of traditional education to active education (J. Piaget, 1972 and C Rogers, 1975) in the school institution organization, and represents the Action- Assessment of this change beginning with a Theory of Learning Organizational Change (M. Marroco, 1994).

The applicability of the model was confirmed with the research results in the private school where it was developed.

The work also demonstrated the success of the Strategy and its functioning Model in a public school.

We visualize "active education" as a future and it is the one proposed by the UNESCO at Jontiem, 1990 and Dakar, 2000; It is also proposed by other organizations of a diverse nature such as the OAS and the OECD. It consists of promoting the Comprehensive Development of people as individual and social beings, which means a change in their development to become reflexive, creative, perceptive, intuitive and ethical beings besides being logical and analytical. This is the development of their Generic Competencies.

On the other hand the results of the research propose that its results open a perspective for further research, about the application of the model of functioning of the Work-Learning System Strategy in non-educational organizations for achieving any change.

3- Qualifying WES©

Next step we say that the present effort comprises from 1996 to 2006 and simultaneously we wish to point out that there are recognized

experiences in organizational change. Harvard Business Review. Ediciones Deusto S. A. 2000, gathers the proposals of different authors.

With this reflection we establish the nature of WES© starting from our coincidences and differences.

We coincide with the general consensus, that the success of organizations depends upon the preparation of its personnel and this includes the development of their Generic Competences. That is to improve or promote reflection, perception, intuition, innovation, and intellectual capacities. Others stand on the perspective that one must learn to learn, learn to reason and be able to pick up the institutions expertise.

Our distinction is to approach change (improvement) and organizational transformation (culture) a dynamic managerial system open to sustainable change of aligning the organization and is tridimensional with the Work- Education managerial System (WES), which represents a systemic and holistic approach that includes the functioning Model of the Work - Learning System Strategy (WLSS).

4- WES© Presentation

We herewith present WES©, by showing its features and benefits and by stating our perspective on the subject of productivity and the need to for developing the Human Resources. This subject has been expressed by qualified organizations that highlight that relationship such as: PricewaterhouseCoopers (year 2000), Accenture (2004), McKinsey (2005), IBM (2005).

The analysis of the above mentioned studies allows us to present WES© characteristics.

Price Waterhouse, 2000 says

- Knowledge Management and Theoretical Contents are needed to orient practice in organizations.

Answer: we propose our Work –Learning System Strategy (WLSS© which is a strategy consisting of two integrated programs: 1. – Change Implementation and 2. – Technical – Administrative Preparation. We represent the functioning of these programs with a theoretical model that proposes how organizations learn to change and construct an aligned work network of Technology – Processes – People through a new model of behavior of personnel in their way of working and an improvement in the quality of the Teaching – Learning process.

Accenture, 2004 says there is a lack of

- clear objectives and strategies for personnel
- interest for a new formation of human resources
- a focus of education – assessment to improve productivity

Answer: We propose WES© which is a Technology (techno-science) that consists of a System to manage, which offers a strategy for organizational change as its objective, focused on the development of people according to a new education, as an alternative solution to improve the financial results, in our case, cost/benefit.

The application of our theory with WES represents its operationalization, thus we define Technology according to the Oxford American Dictionaries. Here technology is defined as the application of scientific knowledge for practical purposes, especially in industry. Its origin is from the Greek “tekhnologia” meaning "systematic treatment".

McKinsey, June 2005 says There is no

- Improvement of up to 20% in productivity of a business unless there are presents simultaneously an intensive array of Information Technology (IT) and the best managerial practices.

Answer: Organizations can aspire to a % increase in productivity greater than 50%, as long as to best practices and IT capabilities, an effective system of developing human capital such as WES© is also incorporated.

IBM, 2005 says: Businesses do not respond

- to demands of their surroundings and therefore need to improve the competences and skills of their workforce.

Answer: It is necessary to promote businesses that are capable of moving in the most demanding, competitive and changing markets to generate higher percentages in productivity. To this end we propose WES© with the application of the Model to develop personnel while organizations become adaptable, flexible and innovative businesses as our Comprehensive Organization©.

5- Differences between WES© y WLSS©

Following we present the differences between The Work-Education System (WES©) and the model that integrates the functioning of the Work-Learning System Strategy (WLSS©).

- WES© is a technology understood as the application of a theory (techno-science).
- It consists in a dynamic System to Manage Change that represents the application of the theoretical Model WLSS© and the Theory of Learning Organizational Change.
- It is an open system for any organization. That is, it considers: 1) Management, 2) Functioning and 3) gaps (objectives) and particular and different indicators, proper to each organization.

Something else, is WLSS©, that considers only the Management, Functioning, Gaps (objectives and indicators standards), that are presumed the same for any school institution.

- WES© achieves any change desired by the organization.
- WES© Optimizes Operativity, and
- Optimizes Productivity, instead of only the educational change that the Strategy focuses on.

Instead of educational change, which only the strategy proposes.
En vez del cambio educacional que solo se propone la Estrategia.

We also wish to highlight the difference in change assessment:

- In the Strategy the assessment of results refers to the relationship between Performance of the school institution based on the performance of the students, and the new personnel's behavior in the manner of performing work. It also refers to the relationship between the organization's performance and the Achievement Conditions that must be present in personnel's (Operative Cycle) and in relation to the Quality of the Learning-Teaching Process (quarterly grades comparison)
- In WES© the assessment of results refers to the relationship between the Organizational Development Factor and the hard indicators of the business which represent its Operativity (capacity to operate); it also refers to the relationship between the Key Organizational Competences and the hard indicators of the business which represent its Productivity.

6- Questions, Thesis, and Objectives.

The development of WES© means for the problem of this study a step beyond:

- the proposals offered by the specialists which appear in the publications of the Harvard Business Review 1996 and 2005.
- the results present in the most recent studies (2005) included in this work. They only refer to "What should be and what should be done" to improve the relationship between personnel development and financial results for a success ratio of up to 20%.

Because of this the questions to be posed in this study are:

- a) Is WES© is a dynamic system to manage change, that represents the development of the application of the functioning model of the Strategy Work-Learning System and of the Theory of Learning Organizational Change.
- b) Is WES© an open system that functions in any organization?.
- c) Does WES© achieve any change an organization proposes and improves its results?.
- d) Does WES© optimize operativity in cost/benefit terms in relationship to the Organizational Development Factor?.
- e) Does WES© optimize organizations' productivity in terms of cost benefit, in relationship with the Key Organizational Competences.

The answers to these questions through the achievement of the corresponding objectives represent the results of the research and their interpretation allows us to pose our first contribution.

Our Thesis is: The WES© Technology is a dynamic System to manage that represents the development of the application of the functioning model of the Strategy Work-Learning System and of the Theory of Learning Organizational Change. Furthermore, it is also an open system that functions in any organization to achieve any change desired by the organization and optimize its results in Operativity and Productivity whether they are public or private, for or not for profit; all in cost/benefit terms. WES© does this by means of the Organization Development Factor which represents the new formation of personnel and the key organizational competencies.

Our general objective is to develop the WES© Technology as an open and dynamic system to manage change, achieve any change and optimize Operativity and Productivity of any organization.

And the following is our general work hypothesis, which is confirmed with the following specific objectives:

- a) To construct the WES Technology as an open and dynamic system to manage change. This means developing the application of the functioning Model of the Strategy (WLSS) and of the Learning Theory of Organizational Change
- b) To develop the WES© Technology, as an open system to manage change that functions in any organization.
- c) To achieve with WES© any change desired by the organization by means of the new development of its personnel according to the Active Education.

- d) To optimize with WES© the organization's operativity in cost/benefits terms in relation to the Organizational Development Factor.
- e) To optimize with WES© the organization's productivity in cot/benefit terms by means of the Key Organizational Competencies.

7. - WES© Design

The Design of the Work-Education System Technology comprises:

- A)** The Model of functioning of the Work-Learning System Strategy with the Theory of Learning Organizational Change.
- B)** WES© Technology
 - B.1** System to manage
 - B.2** Pattern of Relationships
- C)** Application manual for WES©

A) In a first moment 1969 and until 1994 the Model and the Theory were constructed in school organizations. (See figures 1 and 2)

Our Model was built upon discovering the functioning of the Work-Education System Strategy which is the application of the two programs in interrelation to achieve change in the culture of the school organization and competence in that change. Also having identified the Pattern of relationships that generates the Synergy, Dynamic and Type of Energy, to learn to change and build the work network. And finally, having formulated a Theory of learning organizational change with a refutable character (Marroco, 1994). We did the following:

Our theoretical contribution is the Work- Learning System is capable of promoting in the organization the action of learning to change and of building the Work Network of Processes, Technology and People. This occurs when:

- A.1)** The system generates the synergy in the organization with the MECHANISM Education-Assessment-Analysis- Feed back, and the INTERACTION of the Action Plan, Results and Evaluation. The MECHANISM promotes in the organization's personnel, a new f behavior in the manner of working. The INTERACTION makes possible to improve the Quality of the Learning-Teaching System.

The MECHANISM and the INTERACTION infuse synergy to the system. The synergy becomes evident with the achievement of results expected.

- A.2)** The system generates the dynamic of the synergy with the new Models of Behavior and the Critical Tasks that make possible the same “Intention”, “Posture” and “Resonance” in Communications within the organization’s personnel.

The communication’s Resonance sets in evidence the dynamic of the synergy.

- A.3)** The system makes possible the type of Energy proper to the Dynamic of the Synergy with the personnel awareness of the MECHANISM and the INTERACTION. This represents the organization’s Change in Culture and their Aptitude to adapt to social dynamics.

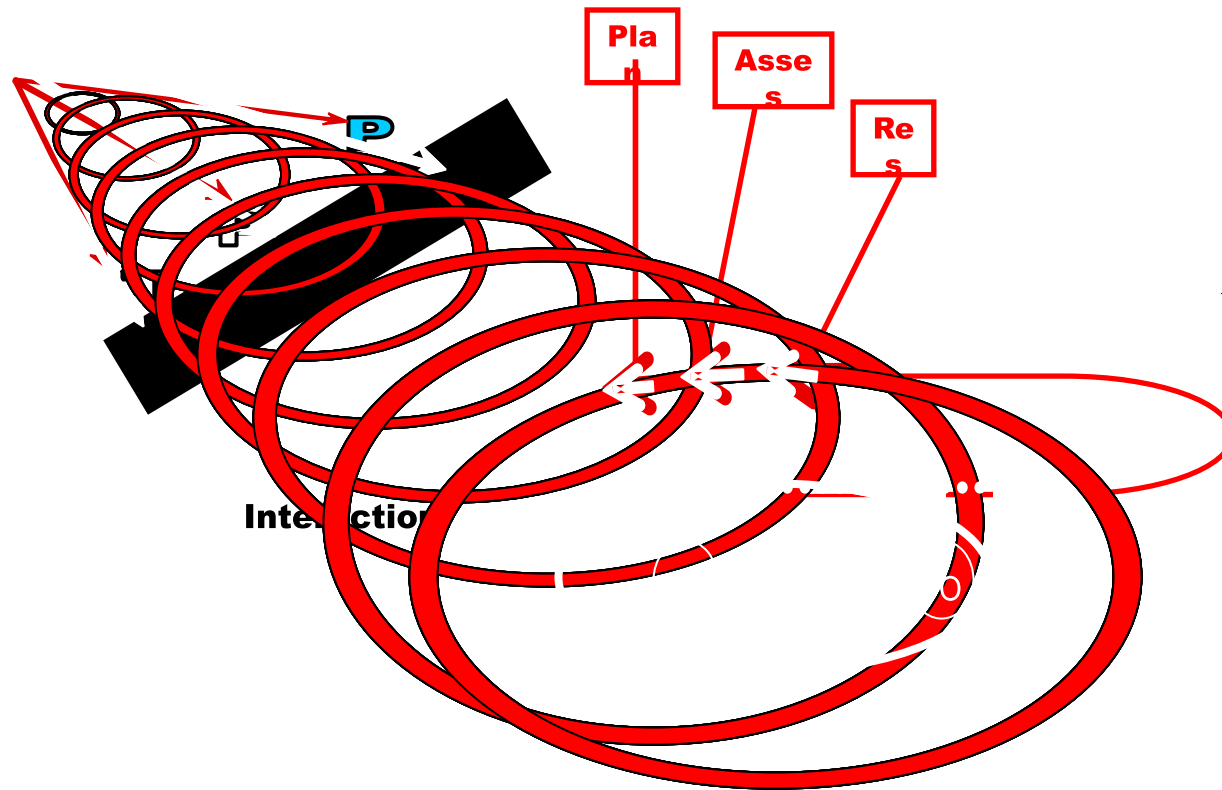
The awareness of the MECHANISM and of the INTERACTION sets in evidence the type of energy necessary to change.

Figure N° 1

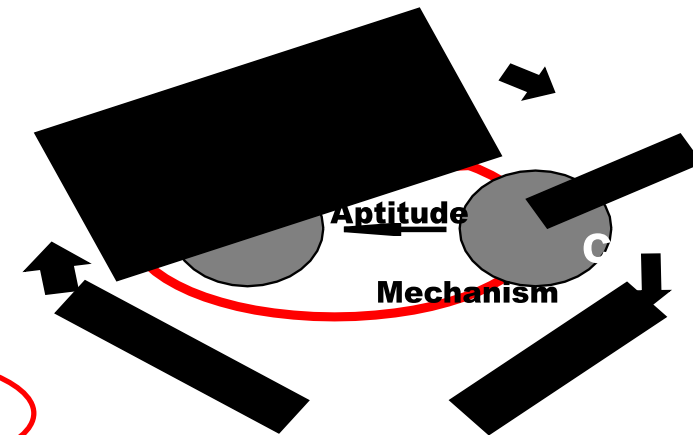
FUNCTIONING MODEL OF THE STRATEGY WORK-LEARNING SYSTEM ©

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Spiral as a cone



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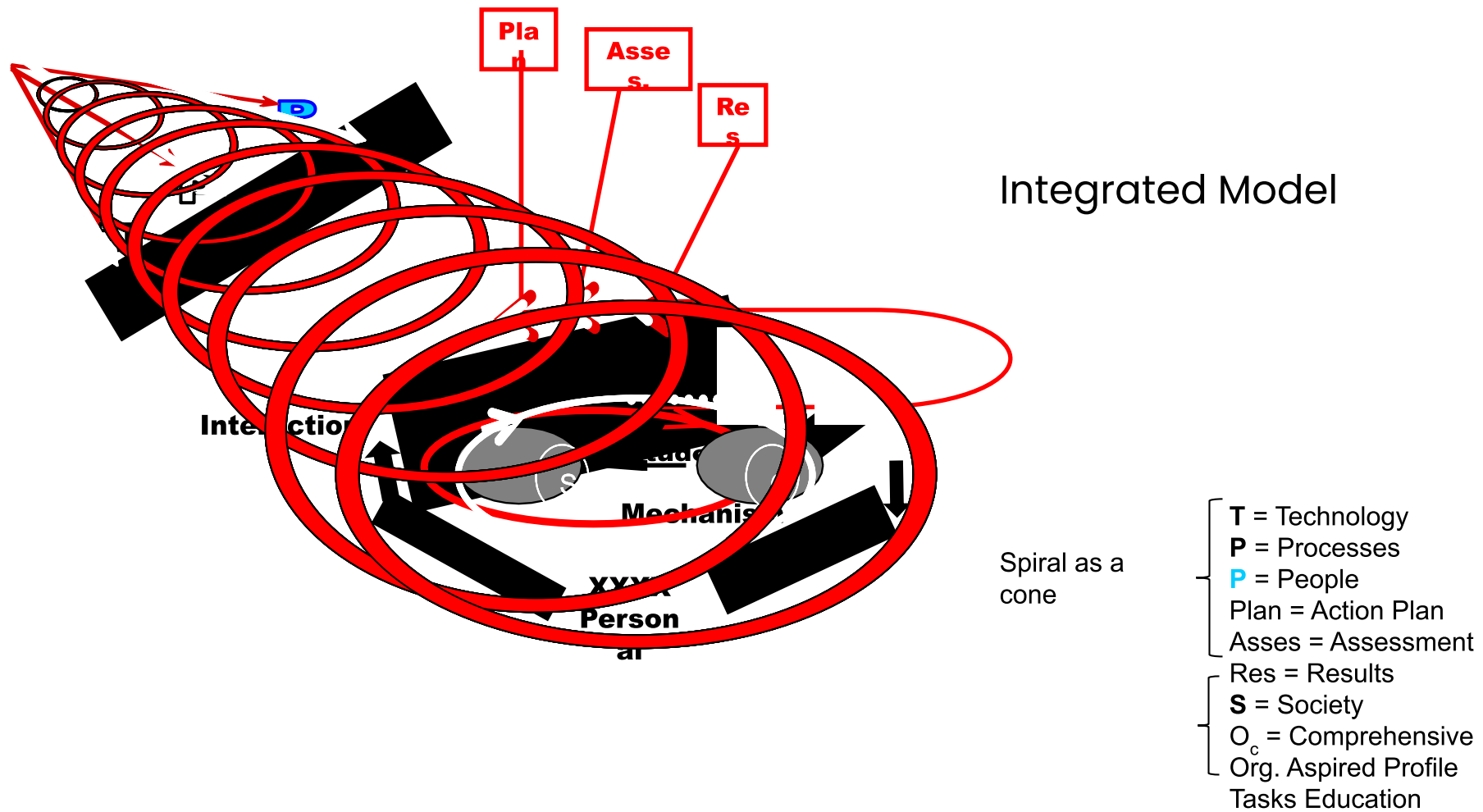
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Personal
al

- Spiral as a cone
- T = Technology
 - P = Processes
 - P = People
 - Plan = Action Plan
 - Asses = Assessment
 - Res = Results
-
- S = Society
 - O_c = Comprehensive Organization
 - Evaluación Perfil Aspirado
 - Educación Tareas

Figure N° 2

FUNCTIONING MODEL OF THE STRATEGY WORK-LEARNING SYSTEM ©

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B) WES Technology.

B.1) A system to Manage Change

B.2) A pattern of Relationships.

B.1) A system to Manage Change. We propose WES (Figure 3) that consists in a system with five elements grouped around:

Work understood as proactive and within an aligned network proper to the Comprehensive Organization.

Education Active as proposed by Jean Piaget.

The Work in the System groups the elements 1,2 and 3

- Element 1

Establishes WHAT to change in the organization. It means to establish what the GOAL of change is.

- Elements 2 and 3

Establish WHERE to change. It refers to the management of the organization regarding the personnel TASKS;
And the Functioning of the organization meaning the inter departmental relationships.

The Education in the System groups the elements 4 and 5

- Elements 4 and 5

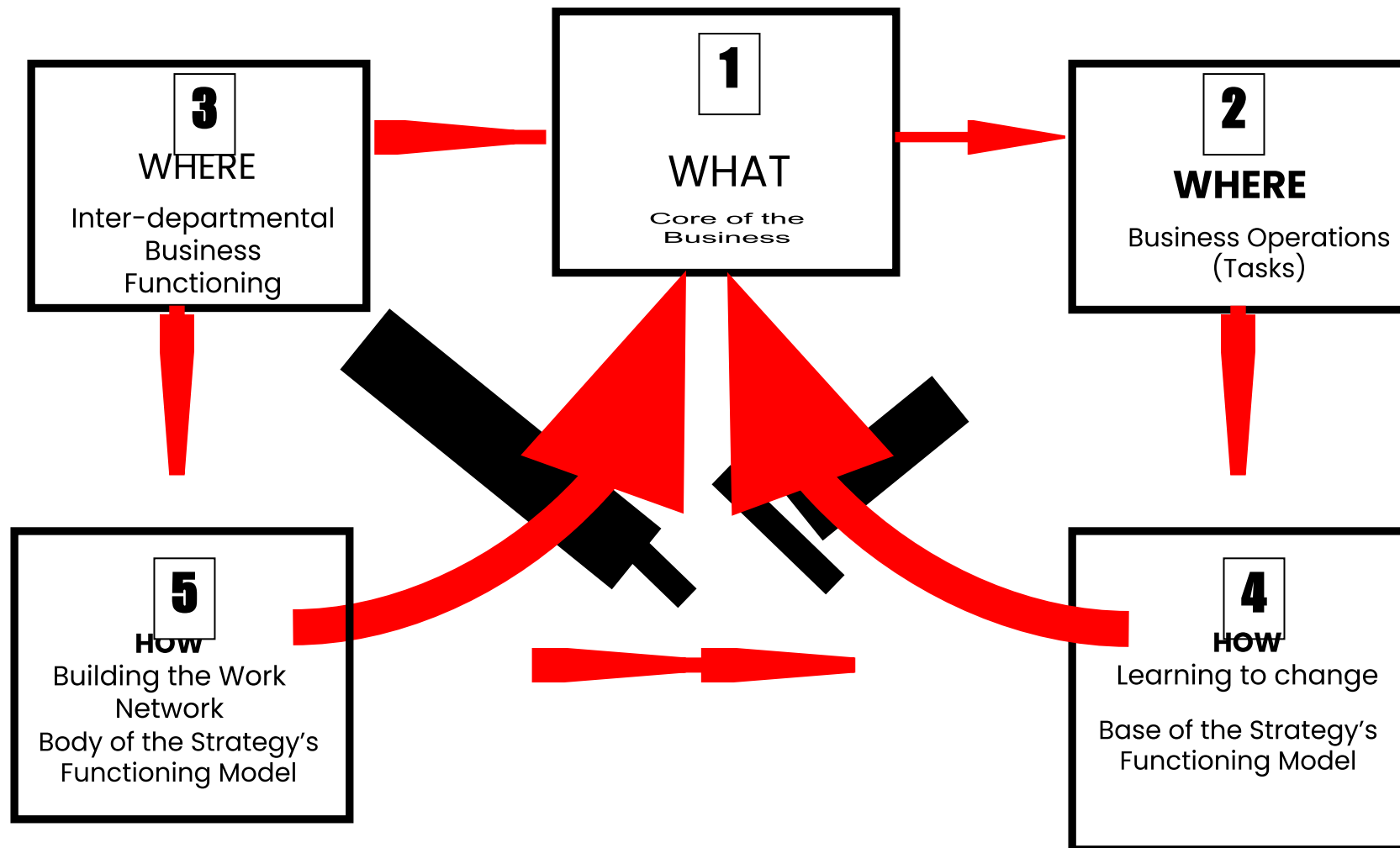
They represent HOW to change. It refers to the functioning Model of the Strategy which controls the practice.

The **base of the model** rests on element 4 and
the **body of the model** projects out over element 5.

The elements do not follow a sequential order.

Figure N° 3

DEVELOPMENT OF THE APPLICATION OF THE MODEL OF FUNCTIONING OF THE WES© SISTEM STRATEGY
TECNOLOGÍA WES© Work Education System©
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B.2) Pattern of relationships: Management and Functioning

We describe the application of the Model and the Theory as a dynamic system to manage (Figure 4) :

- With the number and arrangement of the arrows

There are six (6) arrows arranged in two groups. Additionally, there is one arrow with two heads representing the interaction of the two groups.

- With the direction of the arrows

The two groups are arranged in a circular fashion: Group 1 has to do with the OPERATIVITY of the organization. Group 2 has to do with the PRODUCTIVITY. The arrow that joins the two groups aims to represent the two groups superimposed as a volume.

- With the movement that the arrows develop

The movement of the arrows represents the Pattern of relationships that we establish among the five elements: **Education** (2 elements HOW) and **Work** (3 elements WHAT, WHERE/management, WHERE/functioning).

B.2.1) WES© in the management of the organization.

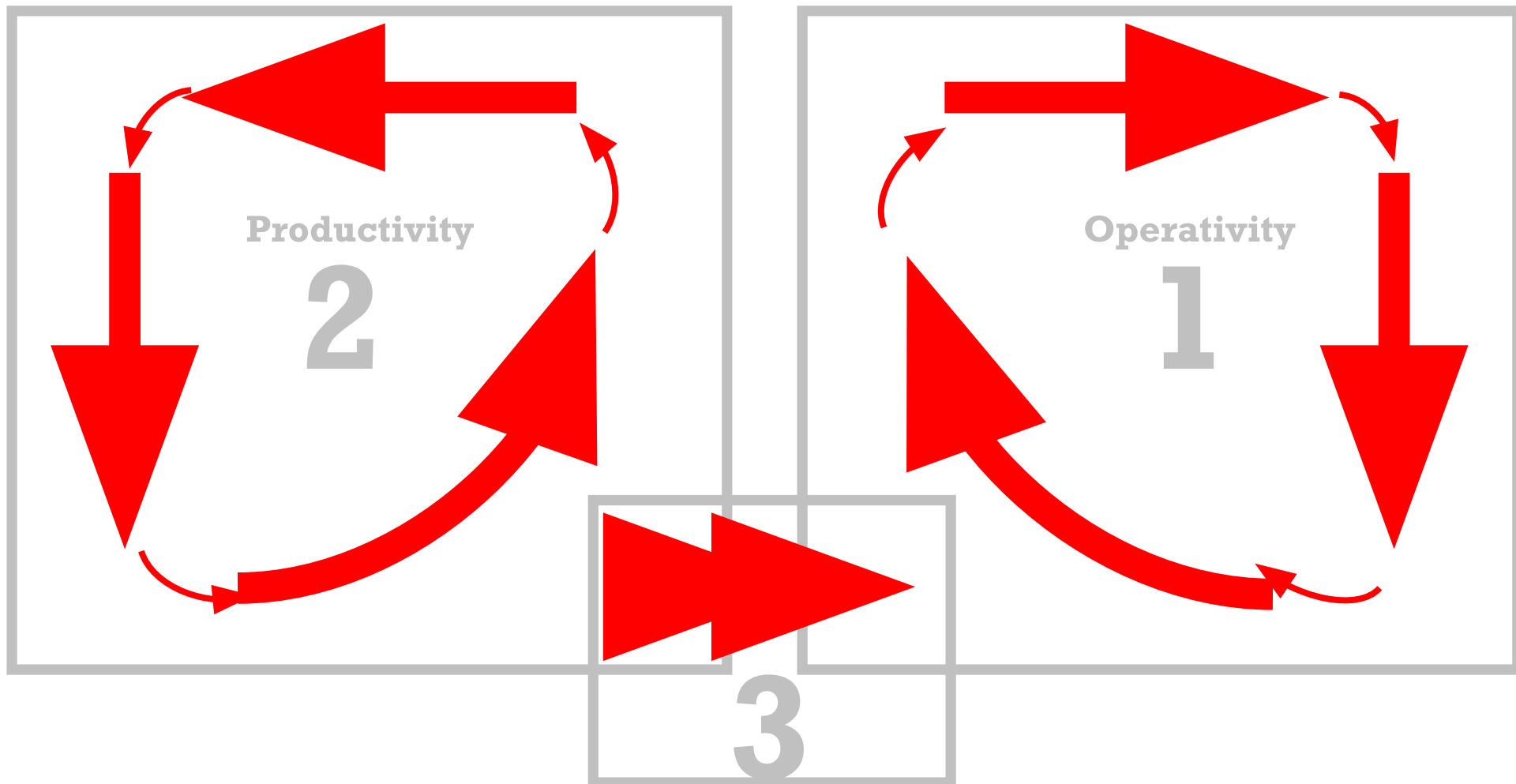
This corresponds to the arrows that we represent with the number 1 in Figure 4. They are present in the pattern of relationships of the system to manage change and refer to the Operativity (capacity to operate) of the organization.

- WES is an open system to manage change.

In this case, WES proposes change within the managing model particular and different of any organization, as an open model that we propose to evaluate with the Operativity level in relation to the Organizational Development Factor.

Figure 4

WES© TECHNOLOGY



Legend: Productivity = Effectiveness of productive effort

Operativity = Effectiveness of operational effort

- WES© achieves the desired change in any organization because it makes possible the following: a) A “mentality change” of the organization and b) An Organizational Learning Capacity. WES achieves this with:

- ✓ A new personnel profile proper of the new education, when the change of Culture occurs.

This new personnel development becomes the Organizational Development Factor and becomes the driving force to achieve any goal any organization desires.

- ✓ With the application of the Functioning Model of the strategy when it integrates (HOW to Change) in the organization’s management.

This occurs and can be observed through the Individual Creative Contributions They show the personnel’s New Development that act upon the weaknesses (gaps) found in the operational tasks. (WHERE TO CHANGE).

Thus we resolve the situations causing the gaps which we evaluate the with the respective client’s indicators to reach the Goal of change required (WHAT TO CHANGE).

WES© Is a dynamic system to manage Change that represents the WLSS© Development of Functioning and of the Theory of Learning Organizational.

- WES©, aided by the permanent Mechanism Action-Evaluation-Analysis-Feed Back, is capable of developing a Synergy and its Dynamic in addition to a type of Energy necessary, to improve the organization’s operativity in Cost/Benefit terms and in relation to the Organizational Development Factor. This Factor represents the new Personnel’s Development that makes possible proactive work. .

When Personnel:

- ✓ Assume the same Intension and maintain the above mentioned Mechanism operating.
- ✓ Assume the same Posture with :
 - o The new Comprehensive Development Profile according to the Active. Education
 - o The Qualitative change: from an organizational Culture of Aptitude to a Society in permanent change, an organizational change of mentality, and the development of an organizational learning capacity.

All of the above is the result of the Hyper-Learning of certain managerial abilities, some Intellectual tools and the development of certain personnel qualities that determine the Organizational Development Factor and make possible the staff's awareness of the process and thus become members of the Learning Unit that guarantees the sustainable change.

- WES© evaluates the organization's operativity level in cost/benefit terms and in relation to :
 - ✓ The Organizational Development Factor.
 - ✓ The Deviation Impact Analysis
 - ✓ The staff's Adaptation to continuous change
 - ✓ Business Profitability. Operativity.

B.2.2) WES© in the Organization's Functioning.

This corresponds to the group of arrows with the number 2 (Figure 4) which is present in the System's pattern of relationships and refers to the Organization's Productivity.

- WES© is an open system to manage change. In this instance, WES© proposes a change in the particular and different Functioning manner of each organization. As an open system we propose to evaluate it with the increase of Productivity levels in relation to the new style of Functioning which is determined by the Organizational Key Competencies.
- WES© improves the Comprehensive Organization's© results. Because it makes it possible to optimize the development of mature organizations which are

more flexible, innovative and with faster response time.

- ✓ This is achieved through the Basic Organizational Conditions which become present when we generate the development of the capacity and commitment to continuously improve the results of the organization.

This “new managerial action” produces a new “Style of Functioning” that includes certain “Key Organizational Competencies” which will make possible to reach any Goal in the organization.

- ✓ By applying the strategy’s Functioning Model when we integrate the HOW TO CHANGE in the Organization’s Functioning.

These occur when the Group Creative Contributions begin to appear. They represent HOW the new managerial action look after the short comings (deficiencies) that appear among the interdepartmental relationships (WHERE to change).

This is how the organization resolves the reasons causing the “gaps” or “short comings”. These are in turn evaluated with the respective performance indicators so the organization reaches the Goal of Change to which we are also committed. (WHAT TO CHANGE).

- WES© is a dynamic System to manage that represents the Development Application of WLSS© Model of Functioning of the Theory Learning Organizational Change.

This also occurs because WES© is capable of developing with the aid of the following items: The Interaction of the Action Plan, Results , and the Evaluation (APRE); the Synergy, the Synergy Dynamics and Type of Energy necessities, to optimize Productivity in terms of Cost/Benefit, and in en relation with the new stile de Functioning. All of these are the result of the New Managerial Action which also enables them to work in networks.

When personnel

- ✓ Assume the same Intension because everyone maintain the Interaction.
- ✓ Assume the same Posture which means that the organization has reached the following:
 - o The Basic Organizational Conditions of Capacity and Commitment to achieve better results continuously for the organization.
 - o The development of mature organizations (Fast -Flexible- Innovative) (Comprehensive Organization©)

This is achieved by means of the development of the Key Organizational Competencies that determine the new stile of Functioning and that make possible working in networks until they become aware of the process and become members of the of the Comprehensive Work Team as a high performance team responsible for aligning actions with the Organization's Vision, Mission, Values and Objectives.

- Likewise, WES© evaluates Productivity in cost/benefit terms and in relation to :
 - ✓ Organizational Key Competencies.
 - ✓ Deviation Impact Analysis.
 - ✓ Comprehensive Quality of the Process
 - ✓ Business Profitability. Productivity.

C) Manual for the application of WES

C) Next we shall illustrate the contents of the Manual for the application of WES©. This work comprises three volumes that contain ten chapters:

- How to build the Comprehensive Organization©
- How to improve the Comprehensive Organization© results
- Change Process Control.
- Construction of client reports
- Personnel Tasks
- Work Sessions to learn the new Model of Behavior.
- Work Sessions about the Work – Education System©.
- Support material for the Work Sessions
- Theoretical referent of the models of behavior for the user.
- Modeling Norms for the new behavior in performing work.

Analysis of the data is la answer to the questions asked before and to the objectives achievement proposed in this study.

The data review refers to ten study cases performed by our consultants in the fields of energy, refining area, petroleum production, natural gas and services chosen at random among other jobs performed in private financial institutions, public financial institutions (Venezuelan Investment Fund) and other service organizations.

WES© develops the application of the Strategy's Model of Functioning and the Theory Of Learning organizational Change in seven of the ten study cases. The System's dynamic character operates with the two movements to improve Operativity and Productivity in cases 1 and 5.

In cases 2, 3, 4, 9 and 10 the system operates with the movement to improve Operativity only. This means reaching the new personnel development as Organizational Development Factor with the corresponding Synergy, Dynamics, and Type of Energy that make possible the personnel adaptation to continuous change.

In the first group, cases 1 and 5, we do the same except that additionally we do the development of the Key Organizational Competencies that make possible the Comprehensive Quality of the Process to improve the organization's productivity.

In the same manner we assessed some individual change in the organization where we only used some elements of the system, Cases 6 and 8 or an Organizational Design action, Case 7.

WES© always maintains the same dynamic relationships among its elements. That is, by means of the development of the Model Application and Theory of Learning Organizational Change. WES© is also an open system regarding management, functioning, objectives and particularly indicators because we use the client's own to reach the different goals of change, which appear in the 10 case studies.

Next we present the Results showing that any change that the organization desires can be achieved with WES and that there are improvements in the bottom line according to the objectives chosen by each organization measured with their own indicators

Results in cases 1 and 5 are presented as a function of personnel development with the new education that becomes the Organizational Development Factor and also in relation to the Achievement Conditions that correspond to the Organization's Key Competences (OKC). In cases 2, 3, 4, 9 and 10 Results refer to the improvement of results in Operativity only in relation to the Organizational Development Factor (ODF).

The ODF and the OKC make possible to resolve the gaps that have a negative impacts thereby improving results measured with the organization's own performance indicators. This represents the optimization of Operativity

and Productivity which we emphasize with the percentage of achievement proper to each organization.

Next we include the interpretation of the evaluation results regarding Operativity and Productivity of ten organizations with use of the WES Technology. This way we can answer the following questions:

The questions to be answered are:

- a) Whether WES© is a dynamic system to manage that represent the application development of the Strategy's Model of Functioning and the Theory of Learning Organizational change

Answer: Yes, WES© is a dynamic system to manage change that represents the development of the Model Application and the Theory because it generates the Synergy, the Dynamic, and the Type of energy expected and make possible that personnel of any Organization achieve the same Intention, Posture and Awareness of each particular change process.

This is evidenced with the % of achievement of objectives in all cases:

In cases 1 and 5 it was observed that the elements of WES©: WHAT, WHERE, and HOW in their relationship generate the Synergy, Dynamic and Type of Energy which make possible the new development of personnel . This becomes the organizational development Factor. It also makes possible to generate the achievement Conditions which become the Key organizational Competences.

In cases 2,3,4,9 and 10 the Pattern of relationships also works related among WHAT, WHERE, and HOW, but in this case, we only want to reach the organizational development Factor to improve the operativity.

In cases 6, 7 and 8 our interest is focused in only the use of some element of WES. In cases 6 and 8 we only use the strategy of learning (HOW) for the new development of personnel. In case 7 we built the element WHAT as a design object.

- b) Is WES an open system?

Answer: WES is an open system because it works in the management and functioning of any organization.

The 10 study cases correspond to a random sample and each one is an organization with very different characteristics. One is a very small refinery and another is the biggest in the world. One is gas

extraction, processing, transmission and distribution organization. Another is a service organization.

- c) Does WES© achieve any change the organization proposes and improves its results?

Answer: WES© achieves any change because it makes possible the new profile through the new development of personnel, which become the organizational development Factor.

It also makes possible the Basic Conditions that need to be present to improve the results of the organization through the Achievement Conditions, which become the Key Organizational Competences.

The organizational development factor and the key competences allow in case study 1 an increase in the % of capture margin and service and use factors, a reduction in costs per processed barrel, and a decrease in the failure index and maintenance costs.

In case 5 the development factor and key competences allow the reduction of inventory, accidents, maintenance costs, and increase in transmission and distribution capacities above plan and to the clients satisfaction.

In case 2 the development factor allows an increment in the % of refining capture margin, a greater % of service and use factors, no accidents and a reduction in maintenance costs.

In case 3 the development factor allows a reduction in maintenance costs, a reduction in accidents, an increment in the % of reliability and an increment in the % of availability of gas process plants.

In case 4 the development factor allows a reduction in maintenance costs, no accidents, no incidents and an increase in operational reliability and availability of the plant.

In case 9 the development factor allows a reduction in the safety index vs. those planned.

In case 10 the development factor allows an plant availability an a reduction of opportunity losses vs. the previous year.

- d) Does WES© optimize operativity in Cost/Benefit terms in relation to the organizational development factor?

Answer: WES© optimizes Operativity in Cost/Benefit terms in relation to the organizational development factor.

This appears in cases 1,2,3,4,5,9, and 10. In these cases the levels of operativity are represented by business indicators corresponding to an increment or reduction of values as desired.

These values appear related to the % of personnel with the new development proper to the new education and which are the organizational development factor.

- e) Does WES© optimize productivity in organizations in cost/benefit terms in relation to Key Organizational Competences,

Answer: Yes, WES© does optimize Productivity in cost/benefit terms in relation to the Organization Key Competences as shown in cases 1 and 5.

In these cases the levels of Productivity are represented by business indicators corresponding to an increment or reduction of values as desired.

These values appear related to the achievement conditions which become Key organizational competences.

These results are evidence that the application of the model in non-school organizations is possible, because they represent the application of and our Theory of Learning Organizational Change subjected to refutation in the ten study cases.

The results also show that we obtained the objectives proposed in our research and satisfied the general hypothesis of the research work.

The effectiveness of WES has been confirmed according to the results of the research confirmed by the percentage of achievements obtained in each case study because they represent the improvement in Productivity. This allows us to undertake new research roads such as, the application of the system as part of IT technological solutions to obtain the same results.

CONCLUSIONS

The results of the research allows us to propose the Work-Education System Technology (WES)©, to optimize productivity in any organization.

In the first place we explain as the initial situation, the statement of our study problem: “how to optimize productivity in public or private, for and not for profit organizations with the Work-Education System Technology (WES)©, which represents the development of the application of the functioning model of the Work-Learning System Strategy (WLSS)© and the Theory of learning organizational change for the new formation of personnel and a new managerial action.

To this end, we describe the scope of WES© with the actions it carries out, and qualify its nature with our coincidences and the differences with respect to recognized experiences in organizational change. Following that we present WES© with its characteristics and benefits and last of all we point out the differences between WES© and the theoretical model of functioning of the Work-Learning System Strategy (WLSS)©.

Our contribution is:

1- Having developed WES©: the actions it performs, our difference and its characteristics and benefits:

The actions it performs and/or promotes are:

- A new formation of personnel and a new managerial action (Action1)
- A Swift-Flexible-Innovative Organization: Comprehensive Organization© (Action 2)
- A System to manage (Action 3)
- Hyper-Learning and the Formulation of High Performance Groups (Action 4)
- Pro-active and Net Work (Action 5)
- A new education for change in mentality of the organization (Action 6)
- Learning for the adaptation of Personnel to continuous change and the improvement of the comprehensive quality o the process (Action 7)
- The development of the Organizational Factor And Key Organizational Competences (Action 8)

Our difference with recognized experiences in change actions: It is a dynamic System to Manage, open, for sustainable change and alignment in the organization, to optimize productivity levels of the organization.

Its characteristics and benefits:

- WLSS© is the theoretical referent with the Strategy, the Model and the Theory of Learning organizational change.
- WES© is a Technology (Techno-science)
- That proposes the improvement in productivity above 50%
- Through a new formation of Personnel

2- Having developed WES© with the following Vision:

- a) A holistic vision of organizational approach, present in the five elements of the System.
- b) A systemic vision of configuration with a pattern of relations among its elements according to the Theory of learning organizational change.
- c) A vision of reality, which is chaotic, of probability and random.
- d) An educational vision for the approach of change.

3- this Vision is the context that explains the actions, why the differences, the characteristics and benefits that WES© Technology offers:

- Actions that respond to the global sense of each organization.
WES© works in any organization.
- Concerted actions within a systemic context to achieve the desired results in each case.
WES© proposes to achieve any change.
- Actions oriented to building today, the future in environments of uncertainty, proper to highly competitive markets and in permanent change.
WES© operates within the principles of a knowledge economy, where information is power and the value of human resources are an intellectual asWES that is of greater value than natural resources.
- Learning for the new formation of human resources with the new profile of an educated person.
WES© fulfills the goal which corresponds to the binomial education-productive world that is "Learning to change"

And in this way we propose to optimize Operativity, Competitiveness, and Productivity in organizations.

We also explain, what our work shows we obtained with WES© Technology and this is the improvement of productivity levels; and in this way we achieve our objectives and satisfy our work hypothesis.

This is based on the analysis of the results of ten case studies. These results with WES© Technology, proved in all cases, to improve the productivity level of each organization in Cost/Benefit terms in relation to the Organizational Development Factor and the Key Competences.

The following are the similarities found in the different case studies with the application of the Technology, and these are:

WES© achieves any change when it promotes in any organization:

- 1- The Organizational Development Factor that surges from the new formation of personnel.
- 2- The new style of functioning proper to the new managerial action.
- 3- Hyper-Learning as a promoter of the Organizational Development Factor.
- 4- The Key Organizational Competences that determine the new style of functioning.
- 5- To “adapt ones self to continuous change” and improve the Operativity in Cost/Benefit terms to be assessed according to the percentage (%) of achievement in the client's indicators.
- 6- To obtain the “comprehensive quality of the process” and improve the organization's productivity in Cost/Benefit terms to be assessed according to the percentage (%) of achievement in the client's indicators.

Herewith we propose our assessment system of the results with WES© Technology, which correspond to the relation between soft and hard results.

Soft results correspond to the assessment of the Organization Development Factor, which is the new formation of personnel in its Generic Competences. These are intuition, perception, creativity, reflection, motivation, leadership, communication, and negotiation. And at the same time these results are identified with:

- a) The new behavior of personnel in the manner of working., therefore,
- b) The organization's change of mentality and also
- c) An improvement in the quality of Organizational Learning

These are also “soft” results that correspond to the evaluation of the

new style of Functioning that shows as a result of the new Managerial Action these are the Capacity and Commitment to improve results permanently. These results are identified with:

- a) The conditions of achievement, which become
- b) Key Organizational Competences proper to the
- c) The Comprehensive Organization©

The hard results correspond to the indicators proper to the particular business of each organization.

We have done testing following the outline of the “Case Studies” through the sequence of relating the need to overcome the strategy to resolve the situation and the result obtained.

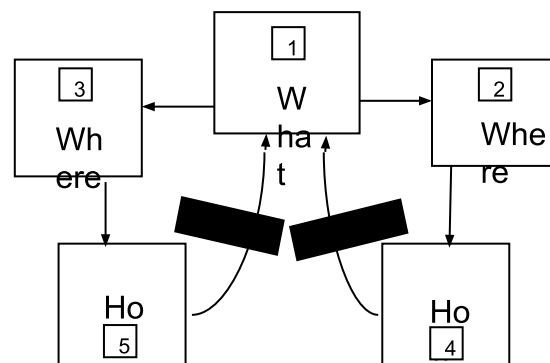
Testing occurred through a consulting process at 10 different organizations during 1996 to 2002 following the Manual for WES© Technology.

Our technological contribution is:

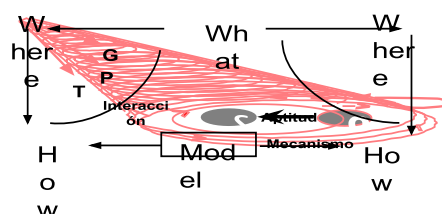
- 1- Having programmed the Structure of WES© which makes possible
 - Give the system its character:
 - o Open and
 - o Dynamic
 - And promote:
 - o Any sustainable change over time and
 - o The alignment of the organization

The programming of the Open and Dynamic character of WES©

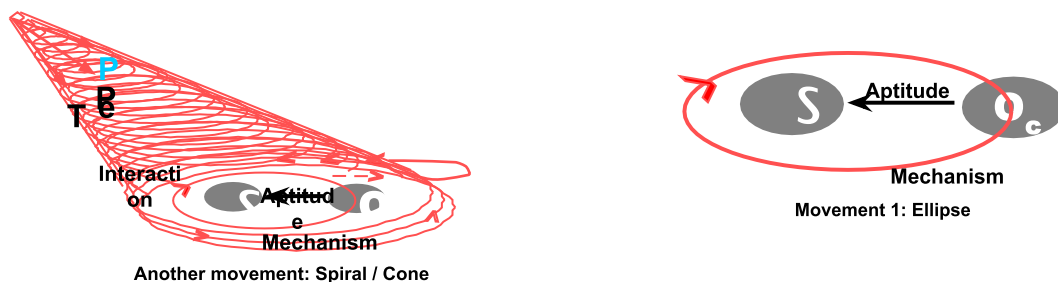
There are five elements in interrelation, which develop two movements that involve all the elements of the system



The movements correspond to those that the Comprehensive Systemic Model carries out in the action of organizations to Learn to Change and Build the Aligned Work Network of Technology-Processes-People (T-G-P).



We represent movement one as an Ellipse that we integrate with the other movement that we represent as a Spiral, which forms a cone.



The Ellipse represents the Mechanism that the organization develops permanently, with the Action of personnel **Education**, its **Assessment** according to the new profile, the **Analysis** of results of this personnel and again the education or **Feedback** to continue assessing personnel and successively the same over time (**E-A-A-F**).

The Cone Spiral represents the Interaction that the organization develops permanently between the Initial and Permanent **Action Plan**, the **Assessment** of Plan objectives according to a Pattern, and the **Results**, which are the Conditions to improve the achievements of the organization (**A-P-R-A**).

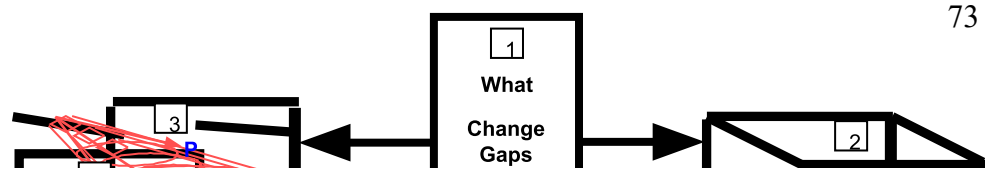
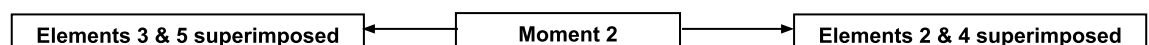
The two movements, Mechanism and Interaction, represented respectively by the Ellipse and the Cone Spiral, are the interrelated actions and the dynamic character of the WES© System.

This interaction promotes the Synergy, Dynamic and Type of Energy necessary for the movement of the five elements.

In a first moment Elements 4 and 2 move one on top of the other. Hyper-learning of **Education** promotes the new formation of personnel, which becomes the Organizational Development Factor (element 4), which attends the management of the organization (element 2).

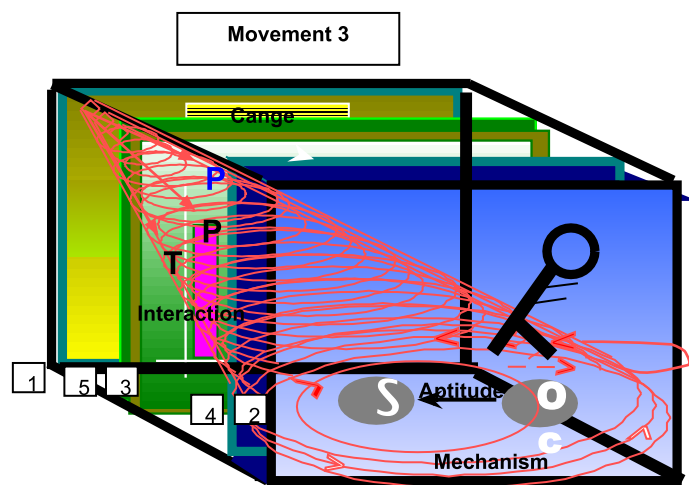
Almost simultaneously Elements 5 and 3 also move one on top of the other.

The Key Organizational Competences represent the new style of functioning which results from the new Managerial Action present in the **Action Plan** (element 5), which attends to the functioning of the business (element 3).



Progressively two planes are constructed: one formed by elements 4-2 as a unit and the other formed by elements 5-3 as a unit. These two planes become superposed on element 1 which represents the Core of the business with its goal of change, gaps and indicators.

What we see is that the five elements of the System become aligned, forming a cube as they superpose each other, thanks to the fusion of meetings as Learning Unit and Work Team, who are responsible for maintaining in the organization the Mechanism and the Interaction, thus generating the Synergy, Dynamic and Type of Energy necessary to achieve the Comprehensive Organization© fast, flexible and innovative, highly competitive and productive.



The open character program of WES©

The system works in any organization.

On the one hand, each organization develops a Synergy, Dynamic and Type of Energy that are proper to it and different from others.

On the other hand, all organizations learn the same things: how to move in an uncertain, chaotic environment and with all kinds of needs, starting with people who not only have at their disposal the rational resource, but also the development of certain competences such as intuition, perception, creativity, communication, motivation, and negotiation, which means assuming a holistic vision (the organization as a Social system).

WES© therefore, is a system that promotes a diversity of aligned behaviors, with different shades of interests which are oriented by valid needs in each situation.

And yet on another hand, these behaviors are all of the same nature, because they obey the goal of the new education, responsible not only of acquiring knowledge, but of developing the profile of the educated person demanded by today's social reality: probabilistic, of chance and uncertainty. This characteristic provides the open character of the Work-Education System, oriented to any organization.

WES© is a System for Sustainable change because

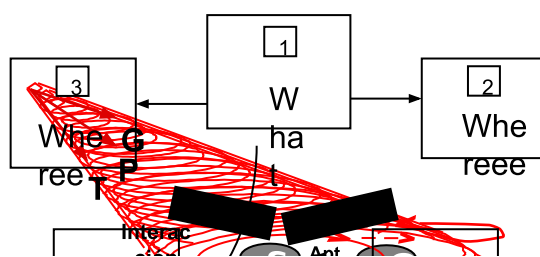
The Learning Unit is a Critical Task responsible for maintaining in the organization, WHAT (Mechanism) to solve the reason for gaps, in the Management of the business (WHERE), and thereby increase the profit of the organization (WHAT).

The Learning Unit as part of WES© assures the sustainable character of change.

WES© is an aligned System

The Work Team is one of the achievement conditions responsible for maintaining in the organization, HOW (Interaction) to solve the reason of the gaps in the Functioning of the business (WHERE) and therefore increase the profitability of the business (WHAT).

The work team as part of WES© assures the alignment of the Strategies, with the core of the business, which includes the Goal of change, the Vision, Mission, policies and Values of the organization.



This ends our explanation of the dynamic and open character of the System, which promotes sustainable change and the alignment of the organization. It is also a three dimensional system.

Other added value obtained from the study is:

2- The design of a WES© Technology Manual (1995-96) as part of the research, to prepare change Agents on the procedures to follow to standardize the integration of the system in any organization.

The Manual has also been enriched with the experience of its application, lived during eight years with the ten case studies that we show in the results Analysis of this study. This has made possible the following achievements:

- To organize the different parts of the Manual according to the fundamental aspects for the formation of specialists.
- To convert WES© into practical procedures considered basic for interested specialists to learn to become change agents.
- To construct standardized formats which assure the registry of pertinent information, so that WES© produces the expected results in operativity and productivity.
- To use a clear simple language that assures only one meaning to the message.
- To create a Glossary of terms corresponding to the Theoretical framework that explain both, WES© and the Model.

Lastly and also a product of this research, WES© Technology has become an assembly of Organizational Products in the form of “technological solutions”.

These Technological Solutions are presented as software or web content. They are Learning Experiences and are accompanied by Coaching.

These solutions are useful to promote:

High performance in the installation of new IT processes,
Information Technology, specifically Empowerment of Human
Networks.

Improvements in Organizational Productivity by tackling “change
and transformation processes” and competency processes in
businesses.

High Organizational Performance beginning with Human
Development of Personnel, Educational Skills, Organizational,
Personal and Group Assessments.

Improvements in Educational Quality through a permanent
process of organizational assessment.

High Personal Performance with Work Sessions for Managerial
Learning.

We offer the Organizational Improvements through Consulting
accompanied by Coaching.

These Solutions serve to promote the Productive Qualities of
Organizations starting from the development of their Strategic Management.

These Conclusions are greatly relevant if we consider the need to
revert the percentages of failure in change and transformation processes
which we can read about today on the Internet, the Gartner Reports and
Harvard Business review among others.

Since the 19th century, efforts to improve productivity in organizations
have been either hard technologies or psychological practices. What is
relevant of this study is to have created an educational alternative in the
context of today's Knowledge Economy where the human being is called upon
to be the protagonist of generating progress, greater profits, and social well
being.

Our posture is that to be productive one has to be competitive and this
means to satisfy the need to face market challenges to survive as businesses.

The results with WES© indicate the high percentages of achievement
in productivity in the ten case studies and the key to all of them has been the
different formation on the job of human resources.

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