

Trinidad and Tobago

MINISTRY OF EDUCATION
and
INTER-AMERICAN
DEVELOPMENT BANK

SECONDARY EDUCATION
MODERNIZATION PROJECT

PROFESSIONAL DEVELOPMENT QUALITY SUB-COMPONENT

The Professional Development Desideratum

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This document provides a set of ideas in the form of papers and practical examples designed to engage those interested in secondary education in a discourse about the Ministry of Education's SEMP reform. The five sections of this desideratum include an overview of the reform, teaching learning and assessment, the conceptual and social underpinnings, professional development, and the National Plan for Pro-D

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Members of the Professional Development Consultancy Group

Preface

This Desideratum was developed as part of the work of the Professional Development consultancy for Years II and III of the SEMP reform. The work began in May, 2001 and concluded with the printing of this document in March, 2002.

This first printing of the Desideratum should be seen as an initial draft that will be modified, revised and further developed as the implementation for the SEMP reform is carried out in coming months.

As the professional development consultant to the SEMP reform for Years II and III, I would like to acknowledge the support I received from SEMPCU and the Ministry. I would also like to acknowledge the efforts of the authors identified in the various sections that make up this Desideratum.

In addition, many others contributed to the development of the Desideratum during meetings, interviews and focus groups. In particular, I would like to thank and acknowledge the work of: Carol Keller whose advice and guidance throughout was invaluable; Hyacinth McDowell who edited the penultimate draft; Ronald Nanton and the Publications Unit that printed the copies; and Janice Blackman and Joyce Barnett, my counterparts in the Ministry, who advised throughout.

Many others also provided feedback and assistance at different stages. These included: Ian Andrews, Nathan Belfour, Roland Maharaj, Evonne Lewis, Jagdeo Maharaj, Jennifer Sampson, Michael Warsh, Sally Siraram, Stephen Joseph, Kathleen Thomas, Glenford Joseph, Brenda James, George Gowrie, Diane Gonzales and Paula Daniel.

~ Dr. Marv Wideen

Table of Contents

The Pro-D Desideratum: An Executive Summary	7
The SEMP Reform	8
What is the Pro-D Desideratum (PDD)?	11
1. Overview of the Reform	13
1.1 Introduction	13
1.2 Educational Leaders in Trinidad/Tobago Talk about SEMP	13
1.3 The SEMP Reform	14
Suggested Activity #1: Examining and Working with the Core Values Embedded in the SEMP Reform	15
2. Conceptual Basis for the Reform	17
2.1 Introduction	17
2.2 Conceptual Framework for Professional Development in Education Reform	18
2.3 The Role of Assessment in a Learning Culture: A Summary	26
3. Teaching and Learning in the New Curriculum	29
3.1 Introduction	29
3.2 The 'Big Ideas' Affecting Teaching and Learning in the SEMP Reform	30
3.3 SEMP Curriculum Development: A Revolution in Rising Expectations	31
Suggested Activity #2: Illustrative Learning Plans for the New Curriculum	33
Suggested Activity #3: Inquiry Development in Science	36
3.4 A New Vision of Student-Centered Instruction and Assessment	37
Suggested Activity #4: Performance-Based Assessment	40
4. Professional Development for the Implementation of the SEMP Reform	43
4.1 What is Professional Development in the Context of the Ministry's SEMP Reform?	43
4.2 Designing Professional Development That Works	44
4.3 Professional Growth Programs	46
4.4 Teacher Preparation for the SEMP Reform	52
Suggested Activity #5: Multiple Intelligences	53
Suggested Activity #6: Small Group Cooperative Learning	54
5. A National Plan	57
5.1 Introduction	57
5.2 Linkage Model of Educational Development for Trinidad and Tobago	57
5.3 Towards an Integrated Framework for the Secondary Education Modernization Project	60
5.4 One Person's Experience in Dealing with Change	66
Annexes	
Annex A: The Role of Assessment in a Learning Culture	
Annex B: Becoming a Reflective Practitioner	

The Pro-D Desideratum: An Executive Summary

The Pro-D Desideratum is a set of materials and ideas to stimulate thought and discussion around the SEMP reform. It is intended as a resource upon which participants, facilitators and interested stakeholders can draw. We do not intend the ideas and materials here to be directives but rather interactive vehicles. We begin with some thoughts about SEMP itself.

Executive Summary

What is SEMP?

The Government of the Republic of Trinidad and Tobago through its Ministry of Education (MOE) has requested Inter-American Development Bank (IDB)

assistance to implement the Government's strategic plan to modernize and reform the secondary education system. This modernization plan, The Secondary Education Modernization Project (SEMP) seeks to improve the access to educational opportunities for all children in Trinidad and Tobago, and provide a system of education that reflects modern approaches to teaching and learning.

This plan rests on two related arguments: equity and economics. In terms of equity, it is clearly undemocratic to have an education system in which all children and young people do not have equal access to a sound secondary school education. This translates into increasing the opportunities and choices for all children to achieve to the best of their ability. It assumes that all children can learn and should be given that opportunity.

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The economic argument holds that those nations who have well educated people will be better positioned to benefit from the new global economy. Futurists argue that in the new post-industrial economy, information technology and education will play a much more central role than they did in the industrial society. It follows that a nation's ability to participate in the global economy will go hand-in-hand with higher levels of education and literacy among its citizens.

Futurists who speculate on the needs of the new global economy remain fairly consistent about the types of education required. The ability to memorize factual information and content seldom appear high on their educational agenda. Futurists most frequently point to intellectual skills, a deep understanding of fundamental subjects, problem-solving abilities and creativity as the types of education required.

Making the shift from a didactic system of education to a modern approach will require a major attitudinal shift at all levels in the educational system and for those outside the system as well.

Historically, major changes in education have always involved an intelligent combination of practical activity and conceptual understanding. The SEMP reform provides an opportunity to the people of Trinidad and Tobago to make a major change in education in the country. Such changes do not just involve the schools; they involve changes in thinking among parents, Ministry of Education support persons, administrators, and other stakeholders.

The 'big ideas' in teaching and learning.

What are the 'big ideas' that run through the practical side of the reform? The chart below summarizes some of the differences between the present traditional approach to learning and those that have been described as modern. The main changes involve:

The SEMP Reform	
From . . .	To . . .
▶ Educating the Elite ▶ Learning by Rote	▶ All Children can Learn ▶ Learning by participation
<i>The Teacher as . . .</i>	
▶ Sage on the Stage	▶ Guide on the Side
<i>Curriculum as . . .</i>	
▶ Catalogue of content	▶ Construction of meaning
<i>Assessment as . . .</i>	
▶ Testing	▶ Performance-based

The notion that all children can learn requires a new challenge on the part of teachers. With the policy decision to provide secondary school access for all children, a greater diversity of students will now be found in classrooms. Rather than focusing on the most able students, teachers now must recognize the potential in each child. This will require new teaching strategies to reach all children. Traditionally, the tendency was to teach to the average, select the best and provide a secondary education for them. Education catered to the elite. A modern view holds that all children can learn. Teaching then becomes a matter of finding ways of teaching all children to the best of their ability. Teachers take a human interest in finding ways to insure that every student in a classroom can move ahead.

The shift from a transmissive, rote learning to a participatory style is another 'big idea' in the curriculum. The teacher is no longer the 'sage on the stage' as one educator described it. She or he now becomes the guide on the side who sets challenges for students and assists them to reach those challenges. Accepting the principle that all children can learn requires a different type of teaching than the traditional approach where teachers stand at the front of the classroom and lecture to students. The modern teacher draws upon a variety of teaching models to reach the increasing diversity of students that now appear in classrooms.

Curricula have traditionally been catalogues of content to be learned by students and tested through examinations. The shift being proposed in the SEMP reform is toward the construction of meaning. Certainly, there will still be content in the curriculum. However, students will deal with that content in different ways. The notion of constructivism, a theory of how we learn, captures this shift. Proponents of constructivism argue that we learn by constructing meaning within identifiable content areas. Thus, the curriculum becomes a set of experiences for students where they can develop their own meaning around selected conceptual and behavioural themes.

Professional development involves a process of continuous growth through which individuals develop and restore their capacity to function effectively in their vocation and in society. It involves personal growth as one gains competence, technical proficiency and deepened understanding

Constructivism changes the way we think about curriculum and curriculum development. Traditionally, curriculum was seen as a body of content organized around what educational leaders thought young people should learn. Curriculum development became the process by which educational leaders identify the content and organize it so that it could be transmitted. The modern view finds the notion of curriculum shifting to a set of experiences for students that engage them in different ways of learning. Engagement replaces coverage, experience replaces memorization, and flexibility replaces rigidity. Curriculum development becomes a process where teachers are encouraged to adapt materials to suit the needs of students.

Another major idea in this reform falls under the area of student evaluation. Traditionally, students evaluation has meant testing students as to how well they knew the content. The shift occurring in this new reform is described by John Zuman as one in which teachers must now focus on alternative forms which depend more on how well students can perform given tasks.

What is professional development?

This modern view of thinking about learning, teaching, and curriculum parallels the proposed view of professional development in the SEMP reform. We define professional development in these terms:

We make a distinction between 'training', 'inservice' and 'professional development' to improve a teacher's ability. Training typically involves being led through activities or presentations designed to improve technical efficiency with regards to a specific aspect of one's vocation. Inservice connotes a program designed to improve a teachers' ability to teach more effectively. Professional development, on the other hand, which often includes training and/or inservice, implies engagement and volition on the part of the participant, covers more scope, occurs in a range of settings, and becomes a continuous process. While training and inservice typically involve outsiders sharing their expertise, professional development involves the participants as active agents.

Another important distinction needs to be made between individual and group processes. Essentially, professional growth is something that an individual or person does or does not experience. But clearly, one grows in terms of skill, competence and intellect relative to others with whom one interacts. The groups with whom one interacts become important facilitators of one's growth and development. The notion of school-based professional development illustrates this concept. School-based professional development aims to engage teachers in continuous inquiry into practice. It views the teacher as a 'reflective practitioner,' someone with a tacit knowledge base, who is constantly re-thinking and re-evaluating his or her own values and practices. That type of development best occurs in a collaborative culture in the school; one in which teachers are encouraged and supported to lead and learn from one another. The example of school-based professional growth applies to other workplace cultures as well as the cultural groups in the various Divisions within the Ministry of Education.

Professional growth is always about something and always occurs within a context. To this end, professional growth in the Secondary schools in Trinidad and Tobago today must be seen in connection with the SEMP reform that will eventually encompass all secondary schools in Trinidad and Tobago. The principles that underpin that reform typify the mod-

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ernization of education occurring around the world. Such modernization involves the important shifts in how we think about learning, teaching and curriculum. These were briefly described in the chart provided above.

The deep structure.

Several papers in the Pro-D Desideratum deal with the deeper structure of the reform. Grimm (Section 3.2) offers a three-paradigm model in which he contrasts transmission, transaction and transformation. In the transmissive paradigm, presentation, rote and knowledge transfer remain the consistent stock and trade. As we shift to the transactional paradigm, which is what SEMP is all about, a different type of pedagogy and new assumptions now pertain. The notion of transformation assumes that students actively take control of their learning.

The paper by Shepard (2000) provides both an historical and conceptual overview of how assessment has changed in the United States. Interestingly, her paper parallels the intended shift in the SEMP reform as she contrasts the traditional curriculum of social efficiency with what she terms the reformed vision of curriculum. Her reformed vision of curriculum and assessment bears many similarities to the SEMP reform.

While the ideas contained in the Desideratum have focused on the schools and teachers, they carry obvious implications for all players. For example, it becomes crucial in professional development that facilitators (those who conduct workshops) 'walk the talk' or 'practice what they preach'. In short, if facilitators expect teachers to involve secondary students in activity and constructivist learning, then they themselves must involve teachers in reflective practice and multiple approaches in their own workshop activity.

What is the Pro-D Desideratum (PDD)

The idea of the PDD arose in 1998 during the professional development sub-component study. Many people expressed the view that the changes being proposed in the SEMP reform were of such a comprehensive nature that a set of materials describing the essential features of reform would be required. Such materials would not only assist stakeholders to understand the SEMP reform, but to examine their role in it.

Thus, the materials contained in this desideratum should be seen as a vehicle that can be used by a variety of stakeholders to learn about the issues involved in the SEMP reform and to engage others in learning about it.

Figure 1 on page 8 illustrates graphically how the five areas, which make up the desideratum, relate. We propose that all readers work through the overview section. That section offers statements and a position paper to address the most commonly asked questions about SEMP: What is it? How did it come about?

Groups can then make choices to examine other areas. For example, students in teacher preparation or Masters programs may wish to examine Section 2, The Conceptual Basis for the Reform which offers suggestions and papers to examine some of the more fundamental aspects of the Ministry reform. The question of diversity, for example, can become an issue in its own right.

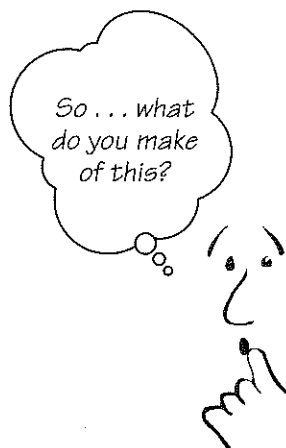
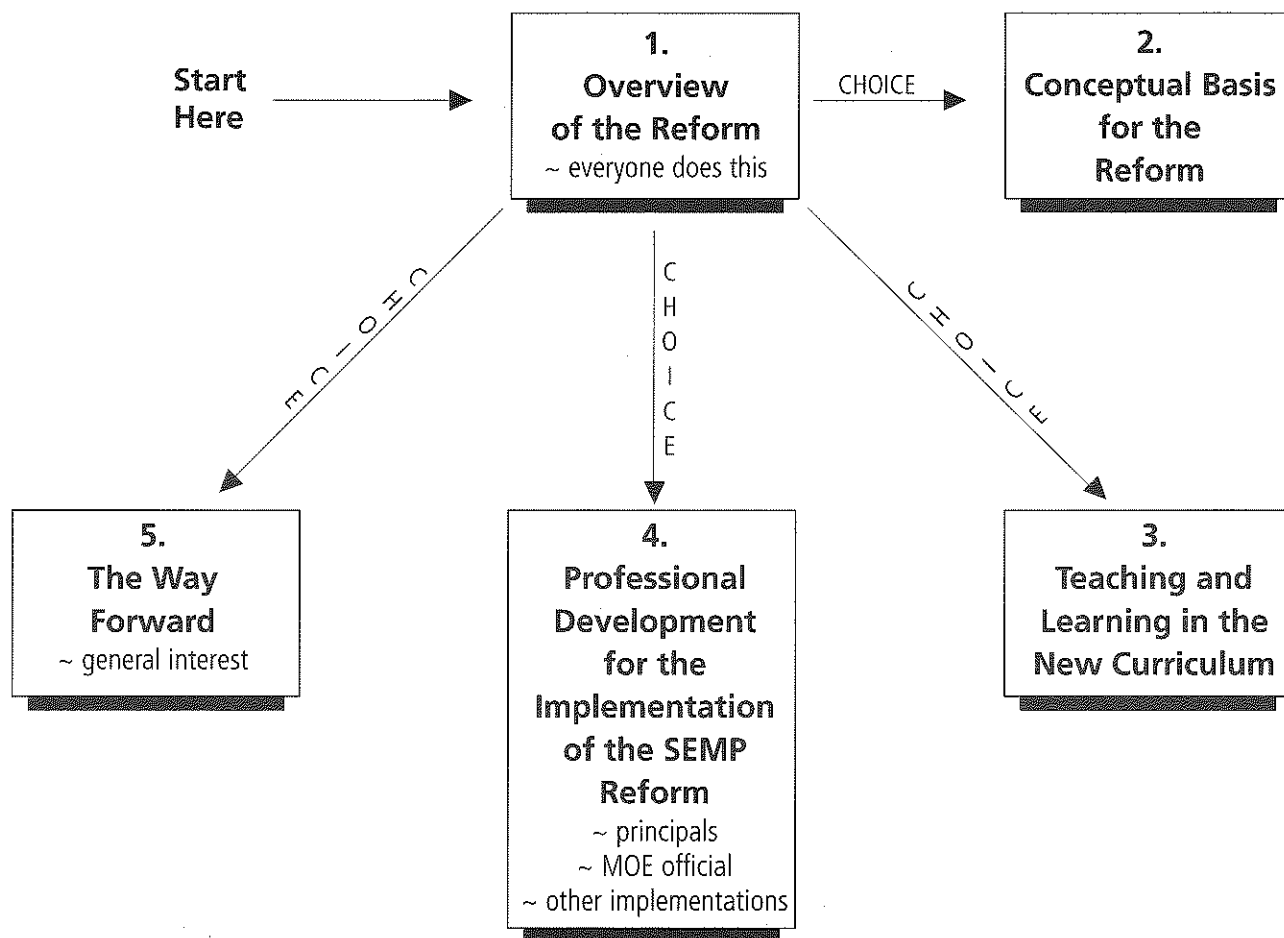
Those preparing to teach or planning to supervise teachers, and indeed many others, should choose to examine Area 3, Teaching and Learning. That section offers a discussion of the intended changes in curriculum, teaching/learning, and assessment, and provide examples to illustrate those changes.

Section 4, Implementation, provides principals, MOE officials, and other professional development leaders with models for professional development consistent with the Ministry reform. The proposed professional development plan guiding the reform follows in Area 5.

Before leaving this section, we summarize what we intend the desideratum to do and what we believe it should not be used for.

The desideratum is . . .	The desideratum is not . . .
▶ A set of materials for stakeholders to enable choices ▶ A combination of practical and conceptual ideas designed to stimulate thinking about professional growth ▶ A resource upon which Pro-D facilitators can draw ▶ An ever-changing resource that grows from year to year with experience ▶ An interactive vehicle drawing on best practices from teachers, principals and MOE persons	▶ A directive from policy makers ▶ A manual of activities to be used by any one group ▶ A template to follow ▶ A final orthodoxy meant to be imposed on Pro-D in the nation ▶ Some top-down model to be imposed on teachers and Ministry persons

Figure 1: The Five Areas of the Pro-D Desideratum



1.1 Introduction

Just what is the Secondary Educational Modernization Programme? In this first section we attempt to answer that question by drawing on the views of founders and opinion leaders in Trinidad and Tobago.

1. Overview of the Reform

The reform means different things to different people. To illustrate, we provide short statements from two Officials, Desiree Augustin and Maurice Chin-Aleong.

We then provide a brief statement on The SEMP Reform summarizing what has appeared in reports and has been repeated in conversations.

1.
Overview
of the Reform
~ everyone does this

1.2 Educational Leaders in Trinidad/Tobago Talk about SEMP

Desiree Augustin is a former English teacher who has been recently appointed as a curriculum officer. She describes SEMP as:

A reform that seeks to improve the ways in which our young people come to know about the world, recognizing that there is not one way of knowing, or that what they have come to know is not static or unrelated to their everyday lives; but that the education process is one that transcends the dimension of age and provides a pathway that would allow them to value life's experiences and use their knowledge to deal with life's challenges as they seek to fulfill their life's goals. For a teacher, the SEMP reform provides the opportunity for a Renewal of the spirit. It is a time to learn new strategies in order to interact with students. As an administrator, (Curriculum Officer), it is a time of excitement, exhilaration, to be part of the reform process, but it is also a time of tremendous responsibility as one recognizes that decisions taken and choices made have an impact on generations to come.

Desiree Augustin, Curriculum Officer

Maurice Chin-Aleong is the director of SEMPCU, the organization that coordinates all SEMP activity. He describes SEMP:

Secondary Education Modernization Programme (SEMP)

The SEMP is really a translation of educational needs from both private and social perspectives into the actualisation of educational development activities. Through these activities the nation is now poised to achieve universal secondary education, implement higher quality education programmes in all schools, witness a more equitable secondary school subsystem and finally, secondary school graduates educated and trained to contribute to development of a knowledge and skills-based democratic society.

The SEMP therefore is exciting to all its stakeholders. It is exciting in both its activities and its promises.

In this context three (3) components stand out prominently. The first deals with the design, development and implementation of a new curriculum. The interest and enthusiasm which this activity has created with it assurance of well-rounded school leavers cannot be overemphasized.

The second is a promise of a cadre of professionally developed school staff, teachers and Ministry of Education's support staff to manage the secondary level. Even now as we make some attempt to study the 'professional ecology' and the types of activities which teachers pursue and engage in to increase their job competencies, subject matter knowledge and personal growth, the mood is one of exuberance with the expectation of a buoyant and exciting Professional Development programme over the course of the next five years. In this context the reading of the Desiderata is a must. In a subtle way it supports the words of Bereday & Laureys — "The strength of an education system must largely depend upon the quality of its teachers" (George Bereday & Joseph Laureys, Year Book of Education 1963: the Education and Training of Teachers).

The third component deals with the matter of bolstering management capability of the Ministry of Education with a view to transforming the administration to a dynamic, forceful and pro-active institution geared to effectively managing the modernization and continuous renewal of the system of education and training.

While the SEMP may not be a guarantee for economic prosperity it is key to the future development and certainly an essential ingredient to an enhanced quality of life of present and future citizens.

1.3 The SEMP Reform

The Government of the Republic of Trinidad and Tobago through its Ministry of Education (MOE) has requested Inter-American Development Bank (IDB) assistance to implement the Government's strategic plan to modernize and reform the secondary education system. This modernization plan is called The Secondary Education Modernization Project (SEMP). It seeks to improve the access to educational opportunities for all children in Trinidad and Tobago, and provide a system of education that reflects modern approaches to teaching and learning. SEMP falls within a national strategic plan to develop the human resources of the country.

This plan rests on two related arguments: equity and economics. In terms of equity, it is clearly undemocratic to have an education system in which all children and young people do not have equal access to a sound secondary school education. The school system which historically served as a vehicle for upward mobility has limited the choices for many children. The equity argument translates into increasing the opportunities and choices for all children to achieve to the best of their ability. It assumes that all children can learn and should be given that opportunity.

The economic argument holds that those nations who have well educated people will be better positioned to benefit from the new global economy. Futurists argue that the

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new post-industrial economy will see information technology and education play a much more central role than they did in the industrial society. It follows that a nation's ability to participate in the global economy will go hand-in-hand with higher levels of education and literacy among its citizens.

Futurists who speculate on the needs of the new global economy remain fairly consistent about the type of education required. The ability to memorize factual information and content seldom appear high on their educational agenda. Futurists most frequently point to intellectual skills, a deep understanding of fundamental subjects, problem-solving abilities and creativity as the types of education required by those wishing to participate in the post-industrial society.

The SEMP reform involves building of new schools and improving facilities, a change in curriculum and new approaches to assessment. It also means strengthening institutions to support the reform. A strong program of professional development is also required for all players in order to support these changes. Making the shift from a didactic system of education to a modern approach in Trinidad and Tobago will require a major attitudinal shift at all levels in the educational system and for those outside the system as well.

Professional development becomes central to support this change in thinking. These all require a new and informed vision of what it means to teach and to learn in and around the schools.

Suggested Activity #1:

Examining and working with the core values embedded in the SEMP reform

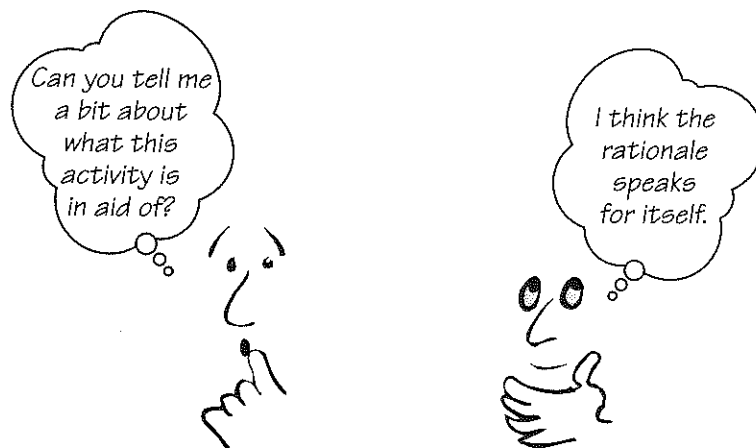
After an initial overview of the SEMP reform, its principles, concepts, and core values, the participants should be invited to select some core values and begin working with them in ways that illustrate how these aspects of the reform influence their work context. The following serve as examples:

- a) All children are capable of learning.
 - b) People learn when they are engaged in constructing knowledge and reflecting on its meaning.
- a) *All children are capable of learning*
- Ask participants to think about how 'failure' has affected their current views of learning. (Many possible links such as: "it's inevitable that some kids will fail" to linking the influence of 'failure' to reform efforts that do not take account of participants' perspective, and so on.)
 - Now engage participants in reflective writing about memorable learning experiences they have had.
 - Share experiences with others in small groups.
 - As a large group, begin to unpack the common features of all participants' experiences (frequently, people unpack themes of engagement, meaningful experience, reflection, etc.).

- Pursue the question of how many of these features are present in Trinidad and Tobago schools.
 - Brainstorm what can be done to bring these features into the work experiences of MOE support workers.
 - b) *People learn when they engage in constructing knowledge and reflect on its meaning*
 - Reflective Writing (Think-Pair-Share; 1-2-4 activity)
 - a) Describe a professional development experience you have had.
 - b) How and why did it impact your practice?
 - c) Share and discuss your writing with a colleague.
 - d) Two colleagues join two others, etc., to look for patterns.
 - e) Total group discussion of patterns, relating experiences to ideal pictures drawn in literature.
 - Ask participants to share the story of their careers. Specifically, have them share three features of their personal life that have affected their professional development. Examine the personal-professional link as it informs professional development activities. Brainstorm ways in which they can work with others to support the SEMP reform.
 - Develop a framework for a professional development approach that enables engagement, reflection, etc. and disables resistance and sabotage, etc. Brainstorm how to establish a focus around the person, purpose, perspective and context of MOE support workers who care deeply about T&T students and their learning.

Rationale:

This suggested activity is meant to be used with groups examining the SEMP reform and their role in it. It involves participants in a constructivist approach akin to the approach taken in the new curriculum. In this approach participants are asked to draw on their own experience as content for the session.



2.1 Introduction

Historically, major changes in education have always involved an intelligent combination of practical activity and conceptual understanding. The SEMP reform provides an opportunity to the people of Trinidad and Tobago to make major changes in education in the country. Such changes do not just involve the schools; they involve

changes in thinking among parents, Ministry support persons, administrators, and other stakeholders. Such changes do not just involve new teaching strategies and new techniques; they involve a depth of understanding of the deep structure that underpins the reform.

2. Conceptual Basis for the Reform

This section provides an opportunity to probe the deep structure of the reform by offering two papers for discussion.

2. Conceptual Basis for the Reform

The first paper by Peter Grimmett provides a conceptual framework based on three different paradigms.

Grimmett argues that curriculum, curriculum implementation, and professional development vary according to different ways of understanding and acting. He offers three different paradigms: transmissive, transactional, and transformational. He takes a heuristic stance in providing examples to illustrate each paradigm. He contends that the SEMP reform in Trinidad and Tobago seeks to move away from the transmissive paradigm.

The second paper, a summary of which appears as Section 2.3 (full text in Annex A) was prepared by Lori Shepard, a professor at the University of Colorado, U.S.A. This paper was based on her address to the American Educational Research Association when she was president of that organization.

Shepard illustrates how the scientific measures of accountability left over from early 20th century beliefs are not only ineffective measurements of students' achievements but have a negative impact both on student learning and teachers teaching. She suggests a transformed school culture with learning at its center in which teachers and students use assessment tools as an essential component in the learning process rather than as an end-product. She recommends possible assessment strategies to be utilized in the classroom accompanied with action research to assess their effectiveness.

2.2 Conceptual Framework for Professional Development in Education Reform ~ Dr. Peter Grimmer

This conceptual framework (Figure 1) attempts to show how educational programs can be implemented. It specifically comments on the Secondary Education Modernization Project (SEMP) in Trinidad and Tobago to suggest ways of understanding the professional development component of that reform. It shows how certain factors pertaining to educational programs change when enacted in different paradigms. The SEMP reform makes secondary education universally accessible to all students in Trinidad and Tobago. As such, it attempts to move schooling away from the conventions of the transmissive paradigm toward assumptions and actions consistent with the transactional and transformational paradigms.

Figure 1. Framework for Professional Development in the Trinidad and Tobago Secondary Education Modernization Project (SEMP).

FACTORS/ PARADIGMS	Transmissive	Transactional	Transformational
<i>Conceptions of Curriculum</i>	Curriculum as Product	Curriculum as Practice	Curriculum as Praxis
<i>Approaches to Curriculum Implementation</i>	Fidelity	Mutual Adaptation	Curriculum Enactment
<i>Strands of Professional Development</i>	Knowledge Transfer and Skill Development	Reflective Practice	Socio-Political-Cultural Focus
<i>Examples of Professional Development Approaches</i>	Expert Coaching Training	Peer Coaching Action Research	Discourse Committee Critical Action Research

Factors and Paradigms

Curriculum, curriculum implementation, and professional development vary according to different ways of understanding and acting, i.e., a paradigm. Miller and Seller (1990) suggest there are three different paradigms: transmissive, transactional, and transformational.

Conceptions of Curriculum

Grundy (1987) characterized curriculum as product, as practice, and as praxis. When curriculum is viewed as *product*, the function of education is to *transmit* facts, skills, and values to students. Specifically, this perspective stresses mastery of traditional school subjects through traditional teaching methods, particularly using textbook learning and a subject orientation. The movement is unidirectional from teacher to student (as "tabula rasa").

When curriculum is viewed as *practice*, the function of education is to engender a

dialogue between students, assumed to be capable of rational problem solving, and the curriculum. The purpose of this dialogue is to provide opportunities for students to construct knowledge by *transacting* with the curriculum and others. Specifically, this perspective stresses cognitive development and a sharpening of the intellect. Dialogue is, by definition, reciprocal.

When curriculum is viewed as *praxis*, education enables students to become *critically* aware of how they perceive the world and their acting in it. The purpose is to free them from the ideological distortions (e.g., the premise that some groups in society should be privileged over others) that might disempower or bias their minds toward an unreflective way of thinking. This is done by helping them experience how humans construct the world in which we live. These three perspectives parallel different approaches to curriculum implementation.

Approaches to Curriculum Implementation

Curriculum changes inevitably imply change of the role and responsibilities of the teachers who carry out the implementation. Thus, how we implement curriculum change becomes as significant to outcomes as its content (Snyder, Zumwalt, & Bolin, 1995). An assumption that actual use of a planned innovation will correspond to planned or intended use (the *fidelity* approach) usually guarantees that most planned education changes will fail.

On the other hand, the *mutual adaptation* perspective acknowledges that during implementation teachers make adaptations of the innovation to their own program, which to some extent alters the theoretical assumptions of the original design. The *curriculum enactment* perspective extends the mutual adaptation approach to acknowledge that teachers not only adapt curriculum but actually shape it during implementation according to their own theoretical constructs.

In reality, some teachers perceive their role as acquiring and mastering the best techniques of instruction as efficiently as possible, which leads to an *instrumental* approach. Other teachers understand their role as engaging in continual inquiry into persistent perplexities of pedagogy. This understanding leads to an *exploratory* approach. However, most teachers function *pragmatically* between these two points and adapt the curriculum in ways that fit with the practicalities of their classrooms. These three different approaches are largely determined by how the individual teacher views the knowledge content and instructional processes of the planned curriculum.

The Role of Teachers in Curriculum Implementation

Teachers subscribing to the *instrumental* approach look for prescriptions for practice. They respond positively to hard, top-down *fidelity* approaches to curriculum implementation. They see their role as one of installing what experts have deemed appropriate and expect curriculum developers to provide detailed teaching guides with accompanying materials and training in their use.

Teachers adhering to a *pragmatic* approach look less for prescriptions and more for adaptations that work for them and their students in specific classroom contexts.

They also expect an array of materials, activities, and strategies, but choose to use whatever works for them regardless of whether or not it coincides with the goals of the planned curriculum. They respond more positively to an approach that encourages them to adjust the curriculum to the learning needs of their students and the variations of their context.

Teachers who take an *exploratory* approach favour practices that emerge from their own classroom explorations. For them, the starting point of curriculum implementation lies in their students' learning needs and the specific context in which they teach. They see themselves *enacting* the curriculum according to the deeply held theoretical constructs that guide their interpretation of students and context.

Conceptions of Professional Development

We conceive of professional development in three different ways. The first, the *knowledge transfer and skill development* perspective, revolves around training teachers to use externally developed programs or around the updating of teachers in the latest research-based knowledge in the content areas. This approach makes teachers into passive recipients and leaves them little room for reflection on classroom context and its inherent problematic features.

The second, *reflective practice* perspective, involves changing the teacher's beliefs, values, and classroom behaviour. It uses classroom action research to examine how teachers' values and beliefs affect what they do with students and honours the knowledge teachers construct when reflecting in and on teaching.

The third, *socio-political-cultural change* perspective, focuses on the social context of teaching as a condition for development. Teachers examine the political, moral, and social constraints that impede student learning.

Approaches to Professional Development

The Knowledge Transfer and Skill Development Strand

This strand is exemplified by three models:

- 1) the Expert Model,
- 2) the Process-Product Model, and
- 3) the Training Model.

The Expert Model. This approach assumes that there are significant gaps in teachers' knowledge base compared to that of experts, usually university professors or college instructors (Sikula, Buttery and Greyton, 1996, p. 682). The knowledgeable expert is endowed with the role of selecting the area for educational growth. This approach promotes intellectual growth in teachers being "developed" at the expense of the development being connected to classroom practice or teachers' career development (Sikula, et. al, p. 682). This approach also emphasizes mastery of subject matter. It assumes that "professional skill involves more than doing something because it is customary and feels right" (Joyce and Showers, p. 96). It needs to be based on shared and examined professional knowledge" (Joyce and Showers, p. 96) that is derived from experts in the field.

The Training Model. The training model is frequently used in this strand. While the notion of training is abundant in the professional development literature (Joyce and Showers, 1980, 1988), both Freeman (1989) and Sikula et al. (1996) refer to this model as “expanding the repertoire” of teachers. The premise of this approach is that teachers can improve their classroom instruction by learning new skills that provide an expanded repertoire. Joyce and Showers (1980, 1988) identify two purposes for this approach: 1) training improves the existing skills by teachers and 2) training helps teachers to master new strategies. Sikula et al. (1996) suggest that the emphasis in this approach is on the acquisition of comprehensive, total group models of teaching, for instance, direct instruction.

The trainer, or the “expert” in the case of introducing complex models, has to provide instruction, demonstration, practice with feedback and coaching (Sikula, et al. 1996). These features coincide with the work of Joyce and Showers (1980, p.380) who identified five components for training teachers in new approaches: i) theory; ii) demonstration; iii) practice; iv) feedback; and v) coaching for classroom application. Joyce and Showers (1980, 1988) urge that each of the five components contributes to effective training. However, when used together, each has much greater effect than when they are used alone.

Critique. Professional development packaged as training without reaching a deep-seated level of awareness in teachers, will likely amount to an accumulation of superficial technicalities. Grimmer and Neufeld (1994) maintain that the superficial adoptions of technical discourse only serve to fortify existing unequal relationships of centralized control that thwart the student-oriented ends of experienced teachers. Typically, this paradigm of professional development attempts to transplant packaged programs into the local situation, rather than grapple with the contextual difficulties associated with the curriculum. The knowledge transfer and skill development strand consists of service delivery models that are all too frequently imposed on teachers, making them into passive recipients, leaving little room for reflection. By contrast, the transactional and transformational strands of professional development represent a shift away from knowledge transfer and skill development to a focus on the purposes and understanding of the teacher, and on the contextual constraints of the system and the need to build collaborative cultures.

Reflective Practice

To focus on skill development and behavioural changes alone without reference to their grounding in or impact on teachers’ attitudes and beliefs is misguided and liable to prove ineffective. This strand is exemplified by approaches grounded in peer coaching and classroom action research.

Peer Coaching. This approach attempts to create conditions that evoke a capacity for reflection among teachers. Teachers work with other teachers to observe and be observed. These observations are debriefed after-the-fact with the purpose of assisting the other to improve his or her practice. Peer coaching is concerned with how teachers think in action settings, how teachers represent and explain practice situations—how they see certain events, as well as the significance they attach to these events. The observer always attempts to interpret events in accordance with the other

teacher's instructional purposes and assessment of student learning needs. The focus is frequently on the tensions that often arise when a teacher is concerned about the perceived integrity of the subject-matter on the one hand, and recognizing pupils' current understandings, purposes and interests, on the other. Thus, peer coaching is one approach to professional development that looks carefully at the ways teachers make sense of their everyday activities and learn from their practices. Another is teacher action research.

Teacher (Action) Research. Teacher action research—the systematic, intentional inquiry by teachers into their practice—has received considerable attention of late. Action research examines problems which are deemed problematic by practitioners. These problems are deemed solvable and require a practical solution. Practitioners pose questions and explore the problematic situation in order to understand how to act differently and more effectively. The aim is to improve practice. When practitioners get together to share their questions and tell stories about what is going on in their action settings, the discourse is characterized by supportive openness. Teachers become “critical friends” of one another's practice.

Action research is typically triggered by practitioners experiencing that some of their educational values are being denied in practice. They pose questions about why the situation has occurred. They attempt to imagine different ways of acting. They try these ways out in practice. They gather evidence on what they have done and how the students have responded. They then re-formulate the problem in light of what they have experienced, and continue to think of other possible ways of reaching students pedagogically. While it is possible to undertake action research on an individual basis, teachers typically get together to talk about their research and share their findings. In this way they teach one another many things about curriculum and pedagogy and the exchange often becomes a powerful experience of professional learning.

Critique. While the reflective practice strand of professional development has many benefits because it is seen as a process that generates understanding that is grounded in the teacher's life and work, it is nevertheless subject to criticism. One has to do with the question: How do practitioners themselves draw new and innovative meaning from experiences as a means of creating a body of knowledge or teaching lore? Another criticism of this paradigm is that by focusing on the person and not on the context in which teaching takes place, reflective practice places too much stress on personal responsibility for change and draws vital attention away from controversial questions about the context in which teachers work, and the ways in which it enhances or inhibits personal and professional development. The socio-political-cultural strand attempts to redress the balance by focusing on the work context of teaching as both a condition of and target for professional development.

Socio-Political-Cultural Focus

In this strand, the context in which teaching takes place is seen as absolutely vital. Teachers will have difficulty in freeing themselves from the political, moral, and social constraints that impede student learning and their own development when they find themselves in an intensified workplace where there is little time or encour-

agement for them to pursue such aims. Hence, the critical strand of professional development focuses on the context of teachers' work environment in order to understand (and sometimes to undermine) the conditions which foster or prevent teachers' refinement of their practice and student learning. And it attempts to emancipate teachers from those aspects of organized schooling which distort the reality of the teachers' work through discourse communities and critical action research..

Discourse Communities. In school-based discourse communities, teachers and administrators become connected in a lively and coherent fashion. Discourse communities typically frame themselves around specific curricular-instructional tasks and/or dilemmas. They provide opportunities for teachers to "learn new content in the context of work" (Lieberman, 1994) in an environment characterized by free and open discourse about the beliefs and values that constitute the normative basis for action in that work culture. Such learning communities could include administrative personnel provided that their presence would not bring attention to their hierarchical position in the formal organization. The learning process is initiated by teachers in response to a particular practical situation or dilemma that they face. Leadership emerges from and rotates among the various members of any given community according to the requirements of the task at hand and consists of facilitating the group process through sensitive and supportive focusing, questioning, and crystallizing of the collaborative discussion. One of the purposes of such leadership is to ensure that the wisdom of practice resident in teachers is valued and respected. Such wisdom is typically built up as teachers collaboratively tackle problems or dilemmas of practice. A further purpose, then, is to ensure that teachers' real practical dilemmas are elicited in the course of the discussion. Typically, teachers experience dilemmas when the practical situation is one in which the traditional instructional practices have been de-stabilized and rendered problematic by pupil resistance or pupil 'refusal to learn'.

Such dilemmas call for proposed changes. These changes may come from any member of the discourse community. They are suggested as ideas to try out, not as prescriptions to act on. When these proposed changes challenge the fundamental beliefs and values embodied in existing practices, they frequently arouse controversy within the community. Controversy is not, however, viewed as something to be denied, suppressed or ignored but is welcomed for its energizing and potentially transformational powers. An important leadership role, then, is one that enables the group to become comfortable with controversy, thereby releasing in them the power to address the issues without fear or favour. As a result of such dialogue, teachers return to their classrooms with provisional plans to be tested out in the crucible of the action setting. Discourse communities thus provide a workplace setting in which teachers actively develop their practice by appreciating learning from the learner's perspective. Engagement in such activities often goes hand-in-hand with critical action research.

Critical Action Research. This approach to professional development quests after a conception of knowledge that arises in the context of action or experience, and its consequences for practice. Teachers describe what is happening in the classroom and inform themselves as to why it is happening in the way that it is. The next questions to be posed confronts the situation: whose interests are being served? who is benefit-

ing from what is happening? In order to answer these questions, it will be necessary for an inquiring teacher to ask what kind of information they need to address them. When the situation has been described, and the crucial questions posed, it is imperative for an inquiring teacher to ask: How can I do it differently? That is, how can the situation be reconstructed in such a way that it benefits the people, i.e., the learners, for whom it is designed? Thus, in action research teachers describe, inform, confront, and reconstruct the action of their classroom teaching.

Critique. The socio-political-cultural focus brings many benefits, particularly to the climate and context within which education and learning take place. However, like the other two paradigms, it is also subject to criticism. It sometimes tends to become preoccupied with the social context to the neglect of a focus on individuals and knowledge. Moreover, when this approach is emphasized in professional development, teachers become very exploratory in their practice. At times, this can lead to a lack of cohesion, particularly when an appropriate professionally responsible culture has not been nurtured; at others, it can take on the form of ideological assertion when only certain views of the social context appear to be encouraged. Overall, this approach renders teachers easy to lead but difficult to control.

An Heuristic Framework

This framework serves as an heuristic for understanding professional development in the context of education reform. It builds on an examination of conceptions of curriculum and different approaches to curriculum implementation. The knowledge transfer and skill development approach to professional development contrasts with other perspectives emphasizing reflective practice and socio-political-cultural change.

Policy makers, who view the teachers' role in curriculum implementation *instrumentally*, tend to favour the *fidelity* approach because they want to ensure that the new curriculum is installed without variation. They lean toward the *knowledge transfer and skill development* approach to professional development.

Policy makers, who view the teachers' role in curriculum implementation *pragmatically*, tend to favour the *mutual adaptation* approach and concern themselves with determining how much variation should be permitted. They lean toward a *reflective practice* approach to professional development.

Policy makers, who view teachers as *exploratory* and responsible professionals in curriculum implementation, tend to favour the *enactment* approach which leads them inevitably to grapple with the question of whether, how, and to what extent, teachers and students can be trusted and empowered to produce socially desirable outcomes. They view professional development as providing opportunities for teachers to *examine the social, cultural, and political factors in the context of schools that facilitate or impede students' learning*.

Our recommended *modus operandi* depends on several premises:

- 1) The curriculum reform initiative in Trinidad and Tobago represents a movement away from transmissive curriculum;

- 2) Research had found that the fidelity approach to curriculum implementation does not work; and
- 3) The effectiveness of the knowledge transfer and skill development approach to professional development is unproven.

In sum, we propose that the transmissive paradigm will not work well in the education reform of Trinidad and Tobago. At the same time, we believe that many teachers in Trinidad and Tobago might not yet be equipped for the exploratory role that accompanies the curriculum enactment approach in curriculum implementation and the corresponding socio-cultural-political approach to professional development. Thus, we come out in favour of an implementation approach along *mutual adaptation* lines, and an approach to professional development framed around *reflective practice*.

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Study Questions

1. Critique assumptions of the dominant approach to professional development—the knowledge transfer and skill development paradigm.
2. Examine the transactional paradigm and assess the notion that the SEMP reform is a move towards the transactional paradigm.
3. Do you agree with Grimmett's contention that many teachers in Trinidad and Tobago might not yet be equipped for the exploratory role that accompanies the curriculum enactment approach in curriculum implementation and the corresponding socio-cultural-political approach to professional development.

2.3 The Role of Assessment in a Learning Culture:

A Summary¹ ~ Lorrie A. Shepard

In the paper appended in Annex A, Lorrie Shepard contrasts perspectives in classroom assessment. She provides an historical framework contrasting the traditional paradigm of social efficiency with the new emerging paradigm that blends cognitive, constructivist, and socio-cultural theories. She supports the kinds of assessment that can be used as a part of instruction to support and enhance learning

The historic contrast is illustrated in Figures 1 and 2, showing two sets of interlocking circles. The first set shows the measurement perspective that emphasizes social efficiency, and a traditional view of curricula and learning. The belief systems of many teachers, parents, and policy makers derive from these theories.

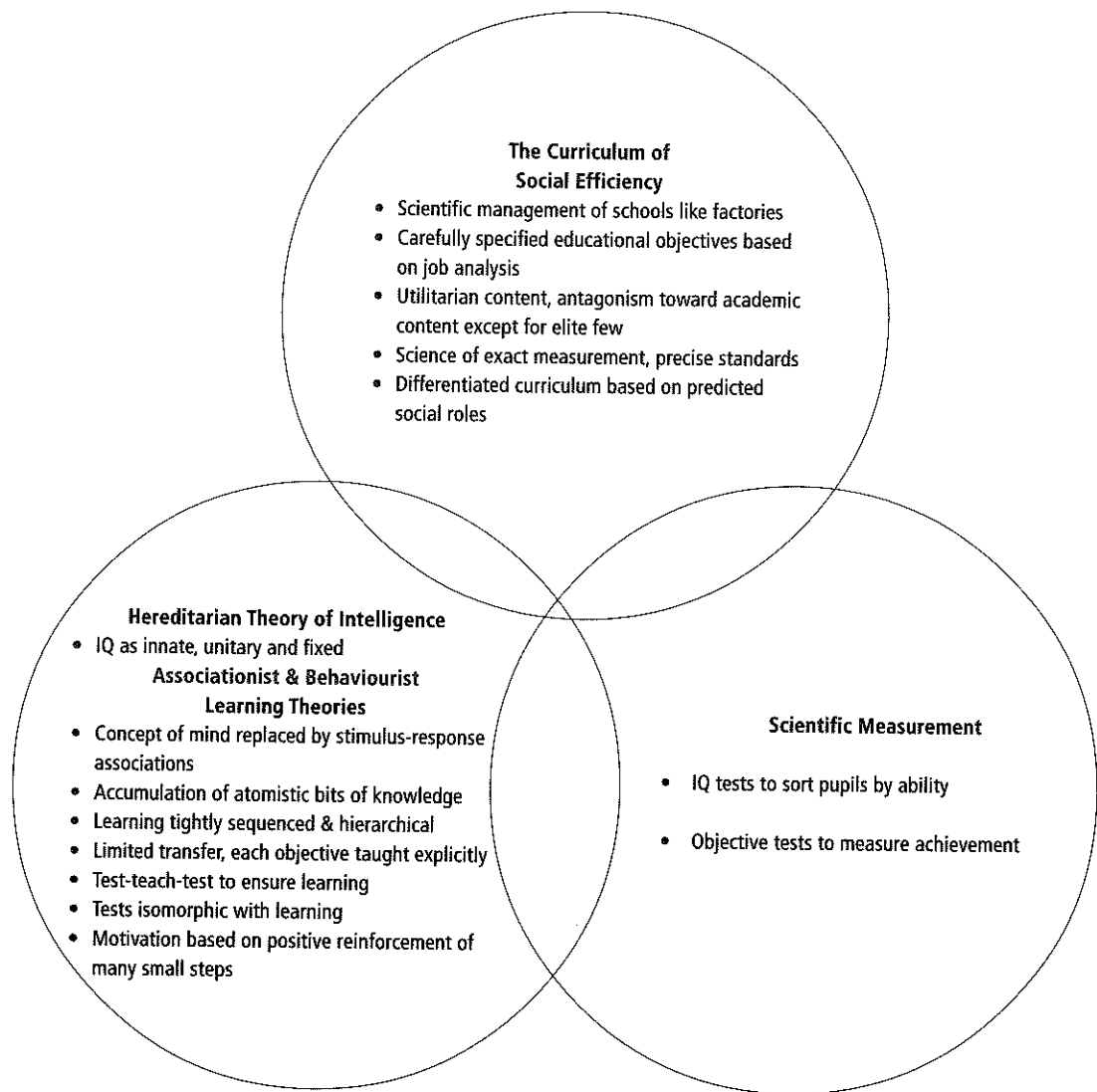


Figure 1. Interlocking tenets of curriculum theory, psychological theories and measurement theory characterizing the dominant 20th century paradigm.

¹ This summary is based on Presidential Address presented at the annual meeting of the American Educational Research Association, New Orleans, April 26, 2000 by Dr Lorrie Shepard. The full text of her address which is included in Annex A was published in the Educational Researcher, Vol. 29, No. 7, pp. 4-14.

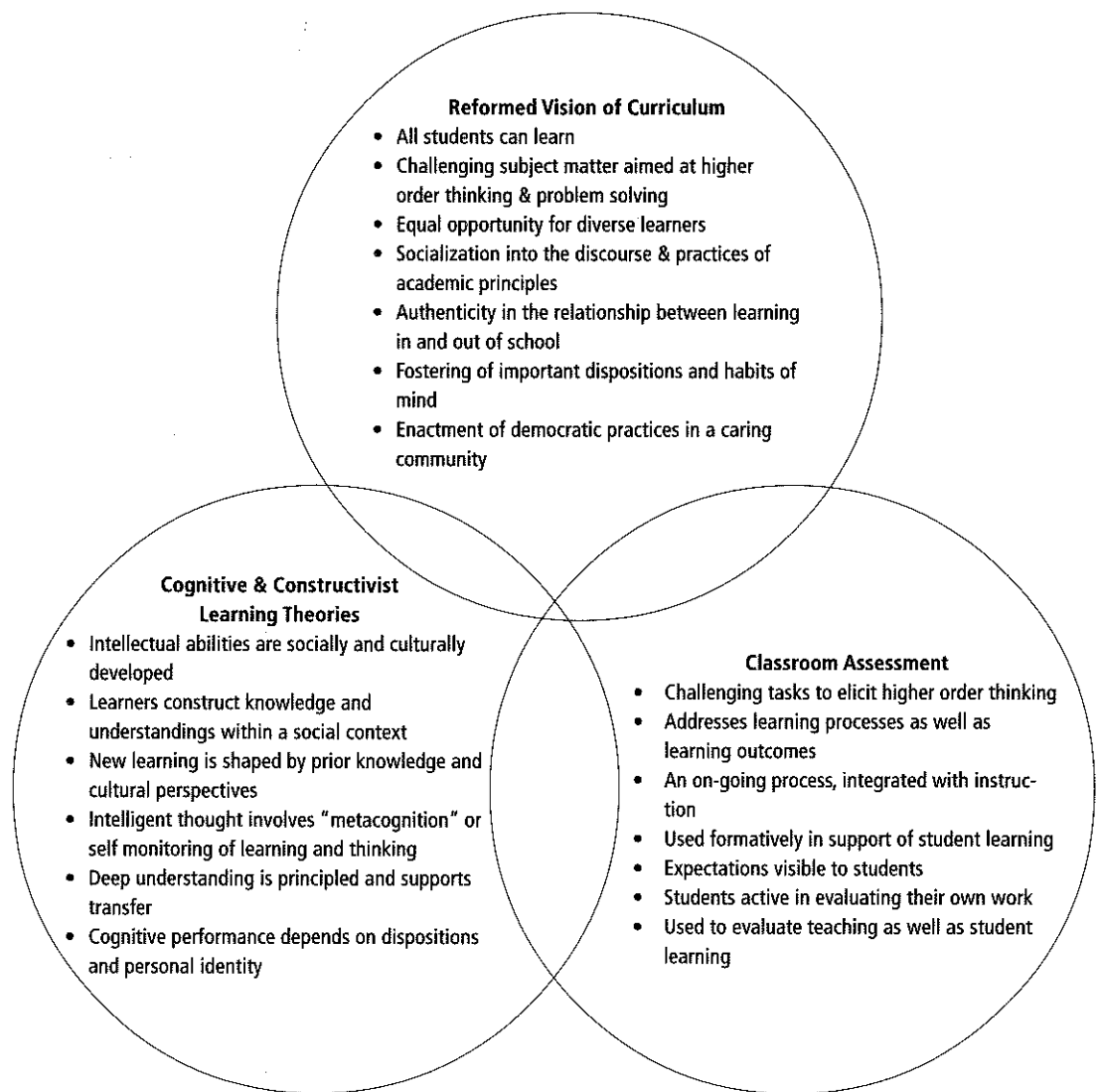


Figure 2. Shared principles of curriculum theories, psychological theories and assessment theory characterizing an emergent, constructivist paradigm.

Figure 2 provides an emergent, constructivist paradigm in which teachers use student understanding, feedback from peers, and student self-assessments to mediate the development of intellectual abilities, construction of knowledge, and the formation of students' identities. In the traditional paradigm, instruction and assessment are separate; in the emergent they are combined such that assessment supports learning.

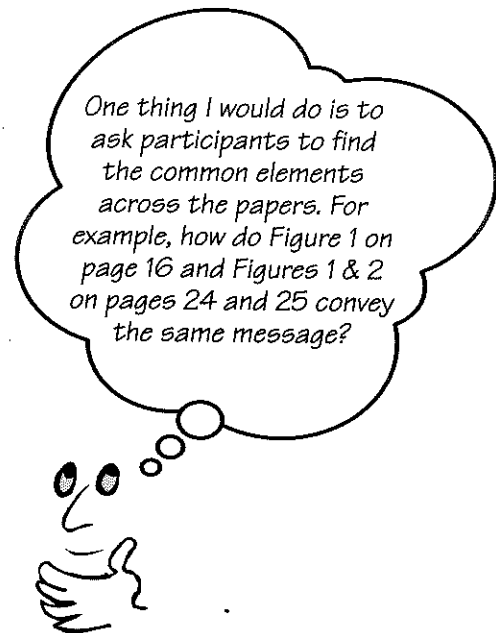
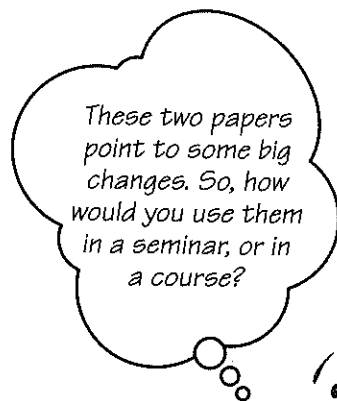
Shepard argues that in order for assessment to play a more important role in helping students learn, it should become more central to the teaching learning process. It should not be postponed until the end-point of instruction which has been the case traditionally where the emphasis has been on high stakes testing.

The shift from one paradigm to the other is quite compatible with the shift proposed in the SEMP reform. Shepard's assertion that "all students can learn" parallels the values emerging from the White Paper. It refutes the past beliefs that only the elite

students can master challenging subject matter. The diversity of learners expected in the schools in Trinidad and Tobago requires a different type of outlook on the part of teachers and parents which is shown in the emerging paradigm offered in Shepard's paper.

Shepard notes that to be compatible with and to support this social-constructivist model of teaching and learning, classroom assessment must change in two fundamentally important ways. First, its form and content must be changed to better represent important thinking and problem solving skills in each of the disciplines. Second, the way that assessment is used in classrooms and how it is regarded by teachers and students must change. Assessment must be used to build a learning culture.

The reader is encouraged to examine the full text of Shepard's paper that is included in Annex A.



3.1 Introduction

The need for improved teaching and learning lies central to the SEMP reform. That need arises from a more diverse student body entering the secondary schools as all primary school 'graduates' (irrespective of academic performance) gain access to secondary education. The need also stems from a new curriculum based on a con-

structivist, activity oriented approach. Teaching in this new curriculum involves shifting from a didactic, transmissive approach to a transactional type of teaching that prioritizes student-involvement in their own learning.

In this section, we provide an overview of the changes proposed by the new curriculum and the accompanying new approach taken in assessing students. We also provide some examples of new teaching and learning strategies. We start with a short overview that attempts to identify some of the 'big ideas' that will be picked up in the examples and the papers by Sargent and Zuman.

3. Teaching and Learning in the New Curriculum

3. Teaching and Learning in the New Curriculum

A paper by Bob Sargent follows that explains the basis of the new curriculum. We also include two teaching examples highlighting some of the differences that can be expected in the new curriculum.

In his paper, Bob Sargent reviews the curriculum development process describing how the Officers from the Curriculum Division worked with teachers to develop the new curriculum. He ends his paper with a caution about the crisis of rising expectations.

John Zuman's paper on the modern teacher follows along with two examples of alternative assessment. John Zuman argues that:

The modern teacher is less concerned with covering content and more concerned with developing intellectual skills. Zuman further argues that the focus must shift in evaluation from testing to continuous assessment.

3.2 The 'Big Ideas' Affecting Teaching and Learning in the Reform

School reform involves both a practical and a theoretical side to it. This section offers some of the 'big ideas' that run through the practical side of the reform. The chart below summarizes some of the differences between the present traditional approach to teaching and learning and that to which the reform aspires.

The SEMP Reform	
From . . .	To . . .
► Educating the Elite ► Learning by Rote	► All Children can Learn ► Learning by participation
<i>The Teacher as . . .</i>	
► Sage on the Stage	► Guide on the Side
<i>Curriculum as . . .</i>	
► Catalogue of content	► Construction of meaning
<i>Assessment as . . .</i>	
► Testing	► Performance based

The notion that all children can learn requires a new challenge on the part of teachers. With the policy decision to provide secondary school access for all children, a greater diversity of students will now be found in classrooms. Rather than focusing on the most able students, teachers must now recognize the potential in each child. This will require new teaching strategies to reach all children.

The shift from a transmissive, rote learning to a participatory style is another 'big idea' in the curriculum. The teacher is no longer the sage on the stage as one educator described it. She or he now becomes the guide on the side who sets challenges for students and assists them to reach those challenges.

Curricula have traditionally been catalogues of content to be learned by students to be tested on examinations. The shift being proposed in the SEMP reform is toward the construction of meaning. Certainly, there will still be content in the curriculum. However, students will deal with that content in different ways. The notion of constructivism, a theory of how we learn, captures this shift. Proponents of constructivism argue that we learn by constructing meaning within identifiable content areas. Thus, the curriculum becomes a set of experiences for students where they can develop their own meaning around selected conceptual and behavioural themes.

Another major idea in this reform falls under the area of student evaluation. Traditionally, student evaluation has meant testing students as to how well they knew content. The shift occurring in this new reform is described by John Zuman as one in which teachers must now focus on alternative forms which will depend more on how well students can perform given tasks.

3.3 SEMP Curriculum Development: Secondary Education Modernization Programme ~ R.A. Sargent

Introduction

The new secondary curriculum for Trinidad and Tobago represents a marked change in the approach to (a) the structure of teaching and learning, (b) the expectations of classrooms in action, and (c) a substantial change to the kind of curriculum guides provided to schools and teachers. The SEMP initiatives represent major transformative development in what standards and expectations will operate in classrooms, and the kind of information, guides and resources that will be supplied to support these changes.

Incorporating a primarily school-based approach to transformation and implementation of change in schools and classrooms that impacts positively on every child the SEMP brought in teams of teachers to contribute to the design and development of a new curriculum to meet the learning needs of students into the twenty-first century. These teams have been working progressively through Form One, Two and Three, and while the curriculum itself has not been fully operationalized in any school (lack of equipment, education and support materials have serious limitations), many teachers have been trying to implement the new curriculum and provide feedback to the design teams. This on-going formative commentary has been very important and results in more informed and better guides at each stage of the process.

It was recognized and understood from the outset that this could not be a top-down approach to curriculum transformations and that teacher ownership was critical to the success of the proposed changes. This remains a design imperative. Principals have been very supportive and have stated that their teachers must remain in the curriculum design and development process or it will not succeed. In fact, one Principal has warned that if her teachers are removed from any writing team she does not want the new curriculum in her school. This is a very powerful affirmation of the process that gives teachers more ownership of and partnership in the curriculum.

On another level the process of transforming the basis of teaching and learning through curriculum design and development, and the fundamental recognition that effective curriculum guides were essential to that process, helped sustain our momentum. It has been very important for the curriculum writing teams to know that various detailed and in-depth consultations about the necessary nature, purposes and structure of education supported their work, and that they could indeed meet the mandate to provide an effective process of teaching and learning relevant for the twenty-first century. Various consultations, stakeholder focus groups and an on-going dialogue about education informed all curriculum decisions. It is clear, however, that the new curriculum had to be designed to meet very clear and specific intended and essential learning outcomes that were part of the national policy framework and affirmed by the stakeholder groups.

The new curriculum thus had a guiding framework itself that included very clear statements about what it had to achieve for all children at all levels in the formal school system. This essential learning outcomes framework has been a critical key in formulating all curriculum guides, and contributed to the decisions to offer at Form One, Two and Three a substantial core curriculum consisting of eight compul-

sory subjects. These core subjects must all be designed and implemented to contribute to the student attainment of the six broad essential learning outcomes:

- Aesthetic Expression
- Citizenship
- Communication
- Problem Solving
- Personal Development
- Technological Competence

Details of each of these six overarching essential learning outcomes have been included in all subject area curriculum guides. It must be reinforced, moreover, that these are the “essential” learning outcomes and thus become the fundamental and primary basis for all eight core subjects in the new curriculum. In this sense we have a broad integrated framework where all core compulsory subjects have been designed with the same learning outcomes in mind.

However, the fundamental question remains: how is the new curriculum different from what was in place before? The answer is complex, and includes the fundamental recognition that the curriculum has been designed to meet a recognized, acknowledged and accepted mandate for education. These philosophical underpinnings and public accepted purposes of education form the whole basis of a transformation in curriculum development. While this does not, of course, define the differences in the curriculum guides, it does establish the fundamentally different basis of the modernized secondary education system. This new system provides a universal five-year education for all students based upon the first three years in a common core curriculum experience and two subsequent years in what appears to be a credit system with a combination of compulsory and elective courses.

At this stage it does not seem useful or appropriate to try and establish a comparative framework analyzing the previous curriculum in the light of the new. We should be prepared, however, to note the main characteristics of the new curriculum in design and how it should appear in action. The following table attempts to capture some of the main characteristics of the modernized secondary curriculum for Trinidad and Tobago.

The new curriculum will be child-centered and focused on the essential learning outcomes as required for each and every student in the new five-year secondary school system
The new curriculum will provide learning experiences that are student-centered by design and provide challenging, high standard opportunities for all students to attain mastery of the essential learning outcomes.
The new curriculum has a common core based upon eight subjects through Forms One, Two and Three that all students will take.
The new curriculum requires everyone of the eight core subjects to focus on helping all students gain mastery of the essential learning outcomes.
The new curriculum will provide an integrated and coherent experience for all students learning.
The new curriculum establishes the highest possible standards for student achievement and includes a major component of continuous assessment.

The new curriculum has an assessment and evaluation system that for the most part provides for a strengthened formative assessment process and continuous assessment procedures that reflect the students' abilities over time rather than dependence on summative evaluation and final examinations.

The new curriculum must be a problem-solving process of learning.

The new curriculum has been developed with an underlying philosophy that children learn best when they are constructing meaning and developing understandings in an authentic (real world) set of designed experiences.

The new curriculum has been developed to maximize all students' opportunities to learn in a cooperative and collaborative environment in which they are expected to share, respect the opinions of others, and work together as a team to achieve team goals and learning outcomes.

The new curriculum expects that all classrooms in action will be places in which students are actively involved in developing skills, constructing knowledge, and developing attitudes consistent with the personal, community, national and global needs for the twenty-first century.

The new curriculum is essentially forward looking and future oriented on helping all children prepare for the interdependent world of the twenty-first century information age.

The new curriculum is fundamentally equitable and all students will be provided with opportunities to learn and design experiences that enhance the growth and development of the whole child.

The new curriculum has been developed with multiple intelligences and the different types of learner clearly in mind, and supports the implementation of learning plans that recognize and respect individual differences and individual learning needs.

If this is not a substantially different kind of education guided by the new curriculum then perhaps Trinidad and Tobago need go no further down the road of educational change. On the other hand, if these are recognized and accepted as the basic parameters of the new curriculum, both in design and in action, then the educational system must continue to work to not only provide the kind of support and resources for these changes to take place, but must also seek to enhance the whole learning environment in schools so that students will have the kind of positive experience expected by the new curriculum.

Suggested Activity #2:

Illustrative Learning Plans for the New Curriculum

Illustration One : The Diamond Pattern Strategy

One of the most interesting, engaging and productive teaching and learning strategies that can be employed to get students thinking critically, solving problems, and making decisions in a collaborative team effort is called the 'diamond pattern method.' The beauty of this particular method is that it can be used with a variety of materials, ideas and subjects. In fact, any teacher in any subject area can use the 'diamond pattern method.'

The only criterion that applies to the 'diamond pattern method' is that we need to have nine or more different answers, items or ideas for solutions to a problem. For example, we could ask students to work on prioritizing a list of items that a political

party might need to conduct an election campaign, or perhaps make decisions about the relative merits of a list of nine or ten ideas that might solve a problem. Generating these multiple responses or lists of items is very simple and straightforward.

Why is this particular strategy useful or important? In an effective education students must begin to develop all kinds of skills, including the development of tools to think critically, solve problems, make decisions, and work collaboratively in groups. The 'diamond pattern method' builds all of those outcomes into one relatively simple process that any teacher can develop for any subject at any grade level.

The following illustrations explain how the diamond pattern method works in a particular lesson as a stand alone process. We subsequently try to show how the 'diamond pattern method' could be combined or incorporated into a much larger learning plan as part of a strategy that has students involved in a variety of activities. In this combined illustration the 'diamond pattern method' has been incorporated with a brainstorming strategy.

The 'diamond pattern' teaching and learning strategy should be repeatedly employed because it is an active process in which participants are required to work collaboratively to form a consensus opinion about a wide range of factors related to curriculum design and development. Students are required to think about issues, communicate their ideas effectively, solve problems, and ultimately make decisions in a collaborative working environment. These are all critical parts of the new secondary education outcomes.

The 'diamond pattern' strategy allows participants to manipulate a range of factors which contribute to the process of applying constructivist instructional systems design to the current secondary education modernization process. The collaborative decision-making process leads to the formation of understanding, analysis of information, and the reconstruction of ideas into new structures and relationships. By constructing the 'diamond pattern', participants in the activity are using a decision-making process and coming to an understanding of the interplay of various factors operational in a constructivist instructional design. In fact, the employment of the 'diamond pattern' strategy illustrates the nature of constructivist instruction.

Materials

- ▶ A set of nine or more information cards for each team or small group. These can be about anything from any subject area.
- ▶ A poster and pens, transparency and pens, or some relevant reporting system to facilitate group sharing at a later time.

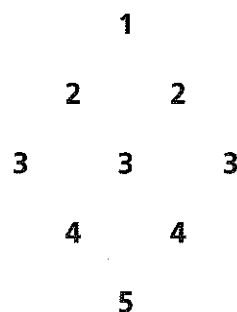
Procedures:

Step One

Divide the group into operational teams of approximately five (5) members each and distribute a set of cards or lists. The teams should be instructed to read the cards or lists.

Step Two

Each team should arrange the cards in the 'diamond pattern' according to the consensus opinion about the significance of the item in the particular area under consideration. The most significant idea, in the opinion of the team, should be placed at the top of the diamond, followed by two cards of high significance. The third level contains three cards of some significance, the fourth level has two cards of lesser significance, and the bottom of the diamond has the card the team judges to have the least significance.



Step Three

Each team must prepare ways to share their developed opinion and ideas with the rest of the group. They must prepare a visual representation either as a poster or transparency so that the decisions and consensus ideas are clearly communicated.

Each team should also be prepared to explain their decisions and listen to the opinions and ideas of others.

Step Four

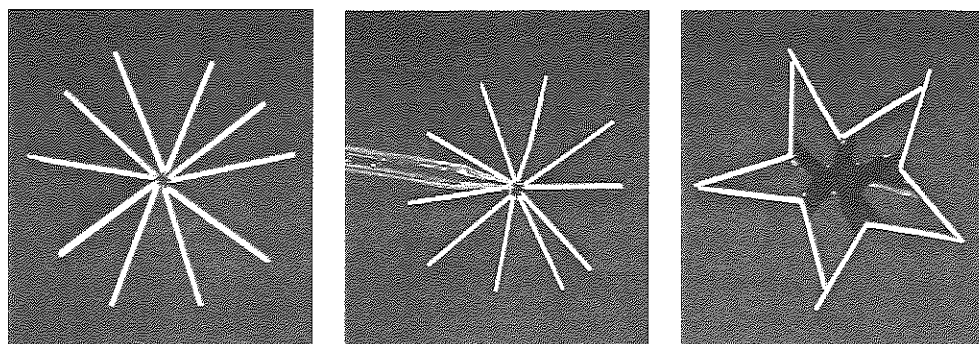
The teaching and learning strategy could potentially end with the whole class discussion seeking to formulate a single response. This form of closure demands collaboration and cooperation and an ability on the part of participants to negotiate a consensus outcome acceptable to a much larger group. It also serves to solidify new knowledge and understanding about the nature of ideas, methods of communication, respectful listening, teamwork, and the construction of meaning and understanding.

Suggested Activity #3:

Inquiry Development in Science

This activity provides workshop facilitators and teachers with an opportunity to engage workshop participants or high school students in science inquiry. The activity can be also done as a home activity for fun.

The activity begins with a 'discrepant event' which is shown in the picture below. In the first slide, five toothpicks are broken and arranged as shown. The second slide shows a drop of water being dropped in the center. The third slide shows what happened.



So why did the toothpicks move in such a queer manner? What is happening here? The following steps are suggested:

- ▶ Ask the students/participants to describe the events as they saw them. Encourage close observation.
- ▶ Encourage them to offer theories to explain what they saw. Record these theories on the blackboard.
- ▶ Ask them to think of ways to test these theories. (Perhaps at this stage they might pair and share and return to the main group to share their perceptions).
- ▶ When the activity has run its course, the students/participants should undertake an inquiry into the inquiry with a partner to discuss what they have been doing for the last while. (Note: an activity such as this can be completed within a period. But often it can continue for several more.)

The role of the teacher/facilitator determines what paradigm of learning is involved. The approach taken by the facilitator is vital. Using it as a demonstration to illustrate some principle about wood or water places it within the transmissive paradigm, to use Grimmer's conceptualization. Allowing participants to develop theories and experiment to find out which theories best explain what is happening can make the activity a transactional paradigm. If the facilitator refrains from providing some 'right' answers and can move the discussion to a level where students/participants begin to see themselves as generating strong theories that they have confidence in, it introduces them to the prospects of transformation.

*The goal of
instruction is
student
learning, not
coverage of
content*

3.4 A new Vision of Student-Centered instruction and Assessment

Division of Educational Research and Evaluation. John Zuman, External Consultant

The traditional teacher worries about covering all of the prescribed content, whereas the modern teacher is most concerned about whether all of her children have achieved the defined learning objectives. This distinction cuts to the heart of the new paradigm that is the base for the educational reform effort in the secondary schools.

The traditional curriculum is content-driven, and teachers are required to show that they have covered the topics enumerated in the syllabus. Every year the number of topics grow, and teachers find it increasingly more difficult to present them all. The teacher's presentation becomes increasingly superficial, and student learning suffers.

The new curriculum shifts the focus away from content and toward the building of students' skills. This shift embodies a change in focus from lower level learning, which primarily consists of the recall of factual knowledge, to higher order skills. Rather than asking students to memorize a lot of facts, the teacher in the new curriculum focuses on helping students to analyze and synthesize information, to reflect, make comparisons and draw conclusions, to utilize existing information to develop new ideas, to solve real problems by applying analytical tools, to apply technology to problem solving, to observe, analyze and understand the students' natural environment and their place in the community, as well as the larger world, to express themselves creatively in their speech, writing, movement, music and visual art, and to be able to communicate with people with many different cultures and languages.

It is not that there is no content in the new curriculum. It is impossible to divorce process learning from content. But content serves as the medium for the development of skills. The goal is not to include all content, but to use the study of particular topics of interest to help students develop higher order skills. This embodies the shift from emphasis on content knowledge to emphasis on the development of students' skills. As we shall see below, this change in focus has profound implications for student assessment.

Evaluation of student progress is based on achievement of defined learning objectives

One essential component of the shift from the traditional instructional approaches to the new curriculum is in how we define what to assess. In a traditional approach, students are evaluated on the basis of what they know: what facts they can recall. In the new approach, students are evaluated on the basis of what they can do: solve a problem, compose a poem, design an experiment, write an essay, draw a map, etc.

The curriculum is defined in terms of specific learning objectives: the skills that students need to demonstrate that shows they have mastered the objective. The nature of assessment changes from measuring what students have memorized to what they can actually do. This approach is called performance assessment, since it generally involves students demonstrating, or performing, the application of a particular skill or set of skills.

Performance assessment involves the development and application of assessment tasks, which are much more than traditional multiple choice or fill in the blank type of examinations. There are many types of performance assessment tasks, including both written and practical activities. Later in this document the elements of performance assessment tasks are presented, along with numerous examples drawn from different subjects of the new core curriculum.

Continuous student assessment guides and informs the instructional process

Another fundamental change in the introduction of the new curriculum and modes of assessment is how the results of assessment are used by the teacher. In a traditional approach, the goal of assessment is to provide a mark in order to rank students, typically at the end of a term. In this new approach, assessment becomes an integral part of the instructional process. The results of performance assessment tasks let the teacher know to what extent students have mastered the defined learning objectives, whether additional time is required for practice or clarification, and whether some students require remediation or additional tutoring in order to achieve the defined objective.

Assessment in the new approach is not just summative, but is diagnostic and formative in nature. Results of assessment help the teacher to guide instruction, to monitor student progress, and to ensure that no students are falling behind. For this reason, this approach is termed continuous assessment, since it is conducted as a normal and regular part of the instructional process throughout each term and during the entire school year.

The application of continuous assessment makes real the mantra often heard when describing the goal of the educational reform: "All children can learn". Continuous assessment provides the teacher with the tools necessary to identify students who may be struggling. It becomes the teacher's responsibility that in fact all students do learn.

When the focus is on coverage of content, the teacher is evaluated on the basis of how much material has been covered. However when the focus is shifted to student learning, the teacher is responsible to ensure that all children progress. The teacher becomes accountable for the results of his/her work with students, and for that reason early employment of continuous assessment for diagnosing problems is imperative in order to avoid student failure at the end of the term and year. It is the teacher's responsibility to ensure that all students achieve defined learning objectives, and to take the necessary steps to help all students succeed academically.

There are no 'dull' students in your class, only students who may not have received the instruction that they require to be successful. Students learn in different ways, so one strategy will probably not work equally well for all. While some students have highly developed receptive language skills and are able to understand concepts by listening to what the teacher says, many students learn better by doing, by getting actively involved in the learning process. This is why the new curriculum focus is called a student-centered approach to instruction. Continuous assessment is one integral component of student-centered learning.

Teachers need to use results of assessment for remediation, not ranking. "All children can learn."

Implications of student-centered learning on instructional practice

The implications of the student-centered learning approach outlined above include the coverage of less content, spending more time on a particular topic, allowing students to explore problems in much more depth, and a much greater focus on skills and higher order thinking (analytical, synthetic, creative, critical).

Another key implication is for the role of the teacher. In a traditional program, the teacher is the source of knowledge, and class tends to be organized so that students are passive receptors of the teacher's knowledge. The teacher lectures, using the proverbial 'chalk and talk' method. In a student-centered approach, the teacher is the guide and facilitator of student learning. She/he does not necessarily provide answers, but asks good questions that encourage students to investigate, solve problems and to generate their own questions. She/he sets the parameters of the learning process, always making sure that students are working toward defined objectives.

Implications for assessment and marking

One major implication for evaluation is the focus of assessment of higher order thinking skills, and not recall knowledge. Another implication is that results of assessments are used not just to give a mark, but to guide how much time to dedicate to a particular topic, and to ensure that all students are consistently achieving and experiencing success.

This implies redefining the nature of assessment: 1) moving from examination to formative evaluation, or what is termed continuous assessment; and 2) redefining the nature of summative assessment, so that end of term assessments are much more than just recall-type examinations.

The implementation of continuous assessment and de-emphasizing of examinations also imply changes in the marking system. Teachers will give marks for weekly assignments, projects, and participation, which will count heavily in the term and final marks. If we believe that the daily learning process is the most important part of the students' educational experience, then we must give it value and importance in the way that marks are assigned.

The new marking system places a weight of 60% on continuous assessment, and 40% on the end-of-term assessment.

For many teachers, giving marks throughout each term for assignments, projects and participation is not new. However the goal is to standardize the assessment procedures nation-wide, so that all teachers in all schools in Trinidad and Tobago apply assessment procedures that are consistent with the new instructional approach.

Suggested Activity #4:

Example 1: Mathematics — Form 2, Term 1

General Objective

Show mastery in solving everyday problems involving integers using the basic operations of addition, subtraction, multiplication and division.

Activity

You have entered a contest sponsored by FIFA to design the seating arrangements for one of the new stadia built for the FIFA Under 17 World Championship. You are required to present an aerial view of the stadium showing the seating arrangements for 15,000 spectators. The drawing should include sectional seating arrangements, the number of rows and seats for each section and the number of seats in each row. The stadium is oval in shape and should be symmetrical in layout. In keeping with safety regulations there should be no more than 1,500 seats per section.

Criteria for Assessment

A) Problem-solving strategy

- | | |
|------------------------------------|----------|
| 1) arrangement into sections | 4 points |
| 2) number of seats in each section | 4 points |
| 3) numbers of rows in each section | 4 points |
| 4) number of seats in each row | 3 points |
| 5) symmetrical layout of diagram | 2 points |

B) Answering the problem

- | | |
|---|----------|
| 6) does the seating plan accommodate 15,000 spectators? | 8 points |
|---|----------|

Total 25 points

Scoring Rubric

1) Arrangement of sections

- | | |
|---|--|
| 4 | draws diagram using 15 or more sections |
| 3 | draws diagram using 10 to 14 sections |
| 1 | draws diagram using 5 to 9 sections |
| 0 | draws diagram using less than 5 sections |

2) Number of seats in each section

- | | |
|---|---|
| 4 | accurately calculates and identifies the number of seats allocated to each section |
| 3 | makes minor mistakes in calculating and identifying the number of seats allocated to each section |
| 1 | makes significant mistakes in calculating and identifying the number of seats in each section |
| 0 | does not calculate the number of seats allocated to each section |

- 3) *Number of rows in each section*
 - 4 accurately calculates the number of rows in each section
 - 3 makes minor mistakes in calculating the number of rows in each section
 - 1 makes significant mistakes in calculating the number of rows in each section
 - 0 does not calculate the number of rows in each section
- 4) *Number of seats in each row*
 - 3 accurately calculates and identifies the number of seats in each row
 - 2 makes minor mistakes in calculating and identifying the number of seats in each row
 - 1 makes significant mistakes in calculating and identifying the number of seats in each row
 - 0 does not calculate or identify the number of seats in each row
- 5) *Symmetrical layout of diagram*
 - 2 the diagram is symmetrical in layout
 - 1 the diagram is somewhat symmetrical in layout
 - 0 the diagram is not symmetrical in layout
- 6) *Answering the problem*
 - 8 the seating plan accommodates 15,000 spectators
 - 6 the seating plan accommodates > 14,900 but < 15,000 or > 15,000 but < 15,100
 - 4 the seating plan accommodates > 14,800 but < 14,900 or > 15,100 but < 15,200
 - 2 the seating plan accommodates > 14,600 but < 14,800 or > 15,200 but < 15,400
 - 1 the seating plan accommodates > 15,400 or < 14,600

To obtain a scaled score, total the marks obtained and multiply by four.

Benchmarks, Grading and Interpretation of Scores

90 - 100	A	Excellent work
80 - 89	B	Good work
70 - 79	C	Satisfactory work
60 - 69	D	Fair work
59 and below	R	Remediation needed

Example 2: Science — Form 2, Term 1

Specific Learning Objective

- Students — explain the process by which air is inhaled and exhaled
— explain the gaseous exchanges that take place in the lungs.

Background

You have been studying the process by which air gets in and out of the lungs, and the gaseous exchange taking place in the lungs, as part of your Science class. You are aware that anything that interferes with the breathing process can be life threatening.

Activity

You are a paramedic and you have been asked to talk to a group of students about the breathing process, and how breathing would be affected in one of the following situations which can result during an accident.

Situation 1 — someone with a puncture to the chest wall

Situation 2 — someone with a torn diaphragm

You have decided to prepare a diagram of the lungs to assist you in your presentation. Prepare a diagram and write what you would say to these students so that they would understand how breathing takes place, what gaseous exchanges take place in the lungs and what would happen in one of the situations above. You should include appropriate names for respiratory organs on the diagram and in your writing.



This section speaks to those who will be responsible for assisting teachers to implement the reform. This section aims at a number of stakeholders and carries both research findings and practical material for assisting those stakeholders to work effectively with teachers, administrators, MOE Officials and others to implement the SEMP reform. This bears the title, **What is professional development in the context of the Ministry's SEMP reform?**

4. Professional Development for the Implementation of the SEMP Reform

Three papers deal with professional development. **Pat Holborn's** paper, *The Reflective Practitioner* (see Annex B) describes in practical terms how reflective practice can take place. An abridged version of **Birman, Desimone, Porter and Garnet's** paper bears the title *Designing Professional Development That Works*. **Elmer Froese** describes the notion of professional growth plans that he pioneered. Pat Holborn and Elmer Froese both have many years of experience in working with teachers in a style of professional development that parallels the SEMP Reform.

4.
Professional
Development
for the
Implementation
of the SEMP
Reform
~ principals
~ MOE official
~ other implementations

4.1 What is Professional Development in the Context of the Ministry's SEMP Reform?

Professional development involves a process of continuous growth through which individuals develop and restore their capacity to function effectively in their vocation and in society. It involves personal growth as one gains competence, technical proficiency and deepened understanding.

We make a distinction between 'training', 'inservice' and 'professional development'. Training typically involves being led through activities or presentations designed to improve technical efficiency with regards to a specific aspect of one's vocation. Inservice connotes a program designed to improve a teachers' ability to teach more effectively. Professional development, on the other hand, which often includes training and/or inservice, implies engagement and volition on the part of the participant, covers more scope, occurs in a range of settings, and becomes a continuous process. While training and inservice typically involve outsiders sharing their expertise, professional development involves the participants as active agents.

Another important distinction needs to be made between individual and group processes. Essentially, professional growth is something that an individual or person does or does not do. But clearly, one grows in terms of skill, competence and intellect relative to others with whom one interacts. The groups with whom one interacts become important facilitators of one's growth and development. The notion of school-based professional development illustrates this concept. School-based professional development aims to engage teachers in continuous inquiry into practice. It views the teacher as a 'reflective practitioner', someone with a tacit knowledge base, who is constantly re-thinking and re-evaluating his or her own values and practices. That type of development best occurs in a collaborative culture in the school; one in which teachers are encouraged and supported to lead and learn from one another.

other. The example of school-based professional growth applies to other workplace cultures as well as the cultural groups in the various divisions within the Ministry of Education.

Professional growth is always about something and always occurs within a context. To this end, professional growth in the Secondary schools in Trinidad and Tobago today must be seen in connection with the SEMP reform that will eventually encompass all secondary schools in Trinidad and Tobago. The principles that underpin that reform typify the modernization of education occurring around the world. Such modernization involves three important shifts in how we think about learning, teaching and curriculum. The first principle centers on equity and the view that all children can learn. Traditionally, education involved selecting the best and providing an education for them. Education catered to the elite. A modern view holds that all children can learn. Teaching then becomes a matter of finding ways of teaching all children to the best of their ability. Teachers take a human interest in finding ways to insure that every student in a classroom can move ahead.

Accepting the principle that all children can learn requires a different type of teaching than the traditional approach where teachers stand at the front of the classroom and lecture to students. The modern teacher draws upon a variety of teaching models to reach the increasing diversity of students that now appear in classrooms. The image of the teacher has moved from the 'sage on the stage' to the 'guide on the side'.

The third principle involves how we think about curriculum and curriculum development. Traditionally, curriculum was seen as a body of content organized around what educational leaders thought young people should learn. Curriculum development became the process by which educational leaders identified that content and organized it so that it could be transmitted. The modern view finds the notion of curriculum shifting to a set of experiences for students that engage them in different ways of learning. Engagement replaces coverage, experience replaces memorization, and flexibility replaces rigidity. Curriculum development becomes a process where teachers are encouraged to adapt materials to suit the needs of students.

4.2 Designing Professional Development That Works

Summarized from Birman, B.F., Desimone, L., Porter, A.C., & Garet, M.S.

A group of researchers in the United States studied the literature and analyzed survey data related to professional development. They identified three structural and three core features that they believe describe exemplary professional development. The six factors comprise the following:

- ▶ **Form.** Was the activity structured as a 'reform' activity (study group, teacher network, mentoring relationship, committee or task force, internship, individual research project, or teacher resource center, for example) or as a traditional workshop or conference?
- ▶ **Duration.** How many hours did participants spend in the activity and over what span of time did the activity take place?

- ▮ **Participation.** Did groups of teachers from the same school, department, or grade level participate collectively, or did teachers from different schools participate individually?

In addition to the structural features, they identified three cores that include:

- ▮ **Content focus.** To what degree did the activity focus on improving and deepening teachers' content knowledge in subject areas?
- ▮ **Active learning.** What opportunities did teachers have to become actively engaged in a meaningful analysis of teaching and learning? For example, did they review student work or obtain feedback on their teaching?
- ▮ **Coherence.** Did the professional development activity encourage continued professional communication among teachers and incorporate experiences that are consistent with teachers' goals and aligned with state standards and assessments?

Two factors, form and active learning, are particularly relevant to the SEMP reform:

Form. These researchers argue that recent literature on professional development emphasizes the importance of changing its form. Traditional approaches which rely on transmission through presentation have been found to be less effective than, what they term, reform approaches. They criticize traditional formats for not giving teachers the time, the activities, and the content necessary for increasing their knowledge and for fostering meaningful change in their classroom practice. Reform activities, in contrast, which take different forms are thought to be more responsive to how teachers learn and have more influence on changing teaching practice.

Active Learning. The examination of these researchers found that teachers whose professional development includes opportunities for active learning report increased knowledge and skills and changed classroom practice. Active learning encourages teachers to become engaged in meaningful discussion, planning, and practice as part of the professional development activity. Active learning includes opportunities to observe and be observed teaching; to plan classroom implementation, such as practicing in simulated conditions and developing lesson plans; to review student work; and to present, lead, and write—for example, present a demonstration, lead a discussion, or write a report.

They use a group of grade six teachers in Texas, 6th in the Physical Science Enhancement and Math integration program offered by a local university, as an example of a new form of professional development that involved active learning. During a six-week summer institute, teachers kept journals, model classrooms helped teachers learn new strategies, and instructors videotaped teachers in the classroom and provided feedback. In addition, the project encouraged participants to form a support network during the school year. Finally, the activity leaders spent about 200 hours in the teachers' classrooms during the following school year, observing and offering guidance. These two programs illustrate the importance of active learning in professional development.

4.3 Professional Growth Programs ~ Elmer E. Froese

The challenge faced by schools and educators in today's global society is unprecedented. Massive social changes place education at the centre of virtually every issue. Consequently, reform and restructuring initiatives in many nations have led to significant changes in structure, process and professional training.

The concept of a professional growth program (PGP) represents a strategic shift in professional development and inservice education programs. The PGP concept is a major paradigm shift from a summative supervisory model to a growth model predicated upon formative assumptions. It is symptomatic of fundamental change in teacher and administrator professional development.

A focus upon professional growth does not signal a departure from professional accountability or evaluation. It does not diminish the authority, influence or power of supervisory personnel. It does, however, shift processes from the exercise of positional power toward what has been characterized as transformational power. In essence, the developmental and supervisory activities derive from professional objectives and goals. Accountability frameworks and evaluative strategies within a professional growth conceptual context are inextricably linked to achievement of educational goals and the efficacy of behaviour and activities that achieve these goals.

Professional growth programs draw upon research evidence supporting learning, build upon work done by educators in leadership development and focus upon professionally mature collaborative relationships. Within these parameters, the operative question is always, "How can I (we) do better?" The response is focused upon enhancing the understanding, skills and competency of each professional both as an individual and collective exercise. Professional knowledge and trained educators are causing a shift from authority of position to power of professional influence and collegiality.

Assumptions Fundamental to Growth

A Professional Growth Program is based upon beliefs widely held by educators. These beliefs derived from research and effective professional practice undergird the mission statements and educational objectives of staffs and the educational institutions which they serve.

Educators within a professional growth program generally subscribe to the concept of self-directed learning . . . *"a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying human and material resources for learning, choosing and implementing appropriate strategies and evaluating learning outcomes"*.¹

As is the case with student learning and teacher professional development, so it is for administrators. Individual educators can best judge their own learning needs and are

¹ Leadership Development Program, January 1998—from Malcolm Knowles (Self Directed Learning: A Guide for Learners and Teachers, Chicago: Follett 1975)

professionally capable of self-initiated learning. Such activity reflected in personal professional growth plans and modeled by supervision, is the highest level of professional accountability grounded in fundamental pedagogic assumptions.

Professional educators committed to growth generally subscribe to the following fundamental assumptions:

1. Each professional educator wishes to grow in effectiveness, competence and confidence.
2. A supportive environment of peers, superordinates and fellow staff induces formative process.
3. Reflective learning and professional growth require valid objective data and non-judgmental feedback.
4. Organizational culture should demonstrate certain principles:
 - ▶ Effective learning for students is the major goal.
 - ▶ People are regarded as able, valuable and responsible persons and are treated accordingly.
 - ▶ Fairness is central to all process.
 - ▶ Collaboration and mutual trust elicit confidence in formative process.
5. Growth planning is an introspective reflective self-initiated process.

Administrator's Role

The necessity for effective administration and leadership is a given. Educational Studies² drawing on current experts on administrator evaluation connect effectiveness with three broad areas. Edgar Kelly (West Michigan University) sees attainment of school goals and purposes as central to supervision and evaluation. Kenneth Leithwood (OISIE) focuses upon principals and administrators' ability to assess needs and problems and focus on solutions. Richard Andrews (University of Washington) views educational leadership as most important. *"Be all things to all people and be good at each"* is a daunting conclusion one could reach.

Growth Focused Supervision

The era of an inspector, principal or supervisor who sat at the back of the room, watched and wrote a judgmental report, is functionally over and being displaced by educators who have come of age professionally.

The research on learning organizations using clinical supervision with objective observation data and collegial interaction has given professional educators a potent knowledge base. Schools and school systems can now pursue formative growth

² Guide to the Process of Evaluating School Principals—Monologue #2, Connecticut Principal Academy 1990

focused evaluation thoroughly grounded in research. Objective data resulting from skilled supervisory observation reflected upon in the context of clear objectives can now replace the inspectorial judgments once recorded during unannounced inspections. That is to say, education now has a sound knowledge base to validate formative supervision.

The implications for today's administrator's role are significant. Supervision can now be linked directly to growth. Professional growth as predicated in a growth plan is central to professional dialogue about goal attainment, and increased proficiency. Only in the absence of growth, poor planning for growth or lack of attention to educational goal attainment does formal summative evaluation become a relevant course of action. The deficient practice becomes evident in the data and validates a conclusion which is no longer subjective.

The case for professional growth planning for educators is clear and compelling. While much of the literature addresses teacher supervision and evaluation, the professional growth concept is generic and appropriate to the entire education community—including administrators.

The homilies that, "*You can't fatten a pig by weighing it,*" or "*You don't produce a better high jumper by merely raising the bar*" strike home. The approach of watching, judging and writing a formal evaluative report is fundamentally and professionally flawed—as are the plethora of defenses against supervision predicated upon the now obsolete model. Encouraging, coaching and fostering growth are the hallmarks of constructive supervision.

The necessity for effective administration and leadership is a given. Educational research and the effective schools literature validate again and again the positive correlation between good principals and good schools. Effective leadership and productive organizations with reflective visionary administration generate healthy school systems. Even detractors and those hostile to management concede that the large educational institutions of today require effective administration.

Administrative officers are simultaneously charged with two massive responsibilities. The first is to supervise both the staff and the instructional program to ensure the best possible education for all students. The second is to effectively manage personnel, resources and supportive infrastructure humanely and efficiently within a collaborative community. The translation of these two broad job requirements into tasks and responsibilities is demanding. What requires priority attention is not summative process but the formative process of professional growth which sustains and enhances the vitality and development of each administrator and the staff they supervise so that students are well served. Personnel and facilities exist only for this purpose.

Administrative Leadership for Growth

Thomas Sergiovanni from the field of education, and Stephen Covey from the world of business, present a clear and compelling case for a new paradigm of management. Their work, bolstered by numerous other experts on leadership and administration, demonstrates how "*any evaluation and professional growth system must incorporate the best principles of leadership if it is to have a long-term chance of success.*"

Briefly then, what are these 'best principles'?

- ▶ Covey underlines the importance of trust at the personal and interpersonal level as the 'bank trust accounts' between people.
- ▶ Max De Pree attributes the entire well-being of an institution to the degree of trust which provides the space to achieve personal (and professional) potential.
- ▶ Goleman sees coaching as the crucial skill of superior leaders and states that genuine interest in growth and an open trusting relationship are prerequisite to success.
- ▶ Sergiovanni draws on the concept of 'servant leadership' where the leader seeks to identify and remove obstacles which limit realization of (followers') full potential.
- ▶ Schlechty emphasizes the capacity of the participating leader to be strong enough to trust—and not rely on authority alone.
- ▶ Peter Drucker and assert that a climate of working together, where leaders demonstrate trust and collaboration rather than directing and managing maximizes an organization's realization of goals and worker potential.
- ▶ Carl Glickman posits that participatory management and site-based decision-making have created the conditions for self-initiated professional growth and achievement of goals when supervisors lead with trust.

These principles provide the guidance for educators committed to growth.

The Professional Growth Plan

A professional growth program has the commitment to a professional growth plan by each educator at its conceptual apex. Each individual commits to selecting a focus for professional growth and formulates a simple plan to achieve that growth. The specific area for growth may derive from supervisory data and input, from the educator's own initiative or result from conferring with a peer.

The professional growth plan should be simple, focused, relevant and attainable. Ideally there should be continuity from year to year, building growth upon success and incremental development toward a 'higher' standard of performance in the designated area.

The Plan should include:

1. A clear (focused) objective.
2. A relevant rationale.
3. A feasible plan of action.
4. Criteria or benchmarks for evaluation.

In a collaborative context, the staff of a school may share plans and seek congruence

of individual plans with a school growth plan. Where such collegiality is attained, the synergy of collective effort is powerful. It can inject vitality and relevance into inservice professional development activity and positively affect professional culture.

Supervision

Administrators have major responsibility for the supervision of personnel and the implementation of program. Therefore they must supervise as well as manage.

Supervision is the process of facilitating professional growth primarily by giving feedback about performance and facilitating use of that feedback in order to assist staff to become more effective. Supervisory activity requires observation, data gathering, and reflection of observation data back to the supervisee.

Clearly, supportive supervision intended to be growth inducing is formative. As such, there is no place for judgmental conclusions, recommendations, or statements of 'valuing'. The data are all directed toward improved performance and job satisfaction and for the use of the supervisee.

Within a professional growth model, supervision is primarily formative, providing observations and data to the supervisee for reflection. Evaluative data 'belongs' to the supervisee and interactions are guided by the professional growth plan (PGP). There may well be one or more structured supervisory cycles which generate observation data relating to a predetermined objective for the benefit of the supervisee. If the data reveal a problem area, the disposition of the descriptive data must be clear. It either belongs wholly to the supervisee or it must be clarified in a performance review session that a significant problem exists and that a summative conclusion has been reached.

If an area of concern is identified, that particular area can become the focus for supervision. Whether this is an area cited in the PGP is not relevant at this point. The growth plan continues and the area identified is attended to either as part of the growth plan or separately if in an unrelated area.

It is important to recognize that the supervisor has two functions. One is to support and assist the supervisee to grow. The growth plan identifies this area of common interest. Secondly, the supervisor is responsible for addressing areas of concern. This need not displace the growth plan; nor should a professional growth approach compromise the supervisor's responsibility to address problem areas.

Conclusion

The shift to a professional growth program is difficult and highly dependent upon local conditions. Each situation has its own history, culture, challenges and resources. Two appended case studies illustrate different strategies. Clearly, a change such as this cannot be mandated alone. It requires a firm long-term commitment to make fundamental changes. The planning of such a reform requires perceptive planning by an experienced educational leadership team.

Case Studies

The shift from long established norms within education cannot be achieved in a single leap. Establishing the conditions which support and motivate the required changes in attitude and professional behaviour is far more challenging than most realize. Like a huge rubber band, if forced change stretches educators too fast and too far, the recoil and snap back to old positions—once pressure is off—is totally predictable.

The following two brief case studies illustrate two different approaches—both achieving success through incremental change and progress.

School District A

Highly authoritarian leadership within a politicized environment created a situation where administrators supervised largely by writing periodic judgmental reports. Teachers felt subjugated and were seeking protection in union contracts through which they were negotiating for better conditions and access to professional development.

A new administration researched the situation and concluded that professional development focusing upon supervisory relationships was required. Resources were directed to inservice programs utilizing intense workshops open to anyone interested in supervisory training which was formative. Senior staff with training in behavioural science, learning theory, clinical supervision and communication skills conducted sessions modeling the new approach.

Through a series of workshops limited to twenty participants per session, formative assumptions and new professional norms were introduced. Over three years, sufficient numbers of educators were trained to achieve 'critical mass'. Administrators were not required to attend. Increasingly, principals who were empathetic with the values participated. Candidates for leadership positions came predominantly from the growing number of retrained teachers.

In a second phase, district professional development committees allocated scarce but growing resources to professional development activities focused upon the formative agenda. The 'old guard' was not confronted. They were displaced by new appointments and a culture evolved with new less confrontational values and norms.

The commitment to professional growth plans for each teacher was agreed to in contractual negotiations. This could only have happened because time was given for imbedded behaviours to change and for the repopulation of the leadership. Not surprisingly many administrators shifted from authoritative to supportive supervision but only after retraining (voluntarily) and by seeing a change in what was valued and effective for better educational practice.

The approach was one of incremental change over a ten-year period.

Concomitant attention was given to issues such as gender equity, selection, promotion and human relations training. The major driving force was the evident modeling of professional values. Success was gradual with little backsliding.

School District B

A well-resourced district with well-trained administrators and teachers concluded that too much time was devoted to bureaucratic and managerial process. Supervisory activity and evaluation process was complex and over-regulated. Policy, contract and guidelines were clearly taking huge amounts of time.

A new Superintendent committed himself to formative process and required the established bureaucracy to review procedure and to seek avenues to shift to a professional growth focus. The rationale was simple. Shift the time, expertise and resources (now devoured by overly complex supervision, reporting and evaluation) to support of effective teaching practice.

Aided by an *experienced* consultant a representative committee studied the situation, reviewed practice in other districts and developed a professional growth model which took into account the realities, resources and perceived obstacles in the system. A training program was developed for all administrators to first educate them to the new model and then develop an implementation plan to shift from the formalized judgmental reporting process imbedded in policy and contract. While this was going on, consultation with the teachers union appraised them of the intent.

In this scenario it was recognized that highly trained educators were bound by policy and contract. The retraining and reorientation of administrators was seen as the first step. Now in its second year, this initiative is progressing.

4.4 Teacher Preparation for the SEMP Reform

The modernization approach in education necessitates teachers reexamining their roles and pursuing of teaching approaches that are consistent with the modern paradigm shift in education. In this process, our role as teacher educators requires us to model the very processes and goals that we encourage teachers to explore. Just as meaningful learning fosters a reflective engagement in learning itself, so must the learning/teaching explorations with teachers. The following two workshops on Multiple Intelligences and Small Group Cooperative Learning which were part of the SEMP Professional Development Programme for Teachers, were an effort to put this philosophy into practice.

Suggested activity #5:

Multiple Intelligences

“That every child has the ability to learn, and that we must build on this positive assumption.” (Education Policy Paper — Trinidad and Tobago, 1993)

One of the key beliefs of the modernization process emphasizes that all students have the right to learn and should have the opportunity to do so, which is illustrated by the above goal. This, in turn, requires that teachers draw upon a variety of teaching/learning approaches that build on, and meet, these diverse needs and learning styles. Through this process of meeting these diverse needs, our curriculum emerges.

The Multiple Intelligences approach in education that grows out of the work of Howard Gardner encourages us to look at the many ways by which we learn. As a result we do not ask, “How smart are you?” but “What kind of smart are you?” Thus, if there is to be real equity in opportunities for learners, then the consideration and integration of students’ learning strategies is critical. This workshop was developed to meet this goal and the following objectives to:

- ▶ Reflect upon their roles as teachers.
- ▶ Engage in personal reflection about what it means to teach.
- ▶ Explore, come to appreciate, and reconfirm the diversity of intelligences that students use and to see the potential benefit of utilizing these approaches in creating learning experiences .
- ▶ Consider broader frameworks to extend their thinking about teaching and change in schools .

The workshop was thus focussed on having participants examine their beliefs, attitudes and goals as they explored the potential integration of the multiple intelligences approach into their philosophy and practice.

There were a number of principles that were involved in the creation and implementation of this workshop:

1. *Development of a reflective, active approach*

To model an active learning approach, participants were engaged in activities such as a simulation in which participant choices were made in a number of areas such as preferred colours and free time activities that ended in a situation where only a few individuals were rewarded. Participants discussed how this was similar to, or different from, their own learning experiences and the learning/teaching contexts that they were now in.

2. *Examination of personal/professional beliefs in the learning experience*

In the above simulation, participants were asked to examine how they felt being in this learning situation where they were, or were not, rewarded and how they felt being left out of the preferred choice. As well, participants

completed and shared personal multiple intelligence inventories which encouraged an analysis of themselves as learners. In another situation, participants exchanged ideas about their own school experiences regarding multiple intelligences. This was followed by participants indicating how teachers could have better helped them as learners. In this process, beliefs were examined out of which came further questions and suggestions. As one participant exclaimed, "I now realize why some students have trouble learning!"

3. *Modeling the philosophy*

In this workshop, participants and workshop leader utilized a variety of multiple intelligences, for example, visual (creation of skits), verbal (small group discussions on personal beliefs), and environmental (use of found object as part of the props for a skit). This enabled participants to see consistency between the ideas and their implementation.

4. *Application of the workshop principles in concert with others*

Through the development of small group presentations, participants grappled with the key concepts of multiple intelligences and had an opportunity to see how they could use their own skills and ideas to apply these concepts in a learning activity. In this process, ideas could be exchanged, questions raised and ideas tested. By sharing their presentations that ranged from songs and skits to poems, participants could learn from and with other educators.

The workshop endeavoured to become a forum in which the teachers could investigate the impact and benefits of learning styles by drawing upon their own professional experiences, by engaging in new experiences and by sharing with others. It was an opportunity as one participant said, 'to get me out of the box'.

Suggested Activity #6:

Small Group Cooperative Learning

"That there is a need to create and sustain a humanized and democratized system of education for survival of our democracy." (Education Policy Paper, Trinidad and Tobago, 1993)

The emphasis in many education systems has been on each student working independently to accomplish a learning goal with individual success being measured. This supports learning for some students. However, for other students, this structure does not meet their learning needs. In addition, part of being a human being is in interacting and learning from and with others. Small group cooperative learning interdependently links students as they work together to maximize their learning and accomplish shared goals. These skills are also valued for participation as citizens in democratic societies and for effective participation in the global economy which needs individuals who are creative, reflective learners who can work both independently and in cooperative working groups.

This workshop on cooperative learning had the following objectives:

- ▶ Recognize, practice and reflect upon the meaning of cooperation in the workshop activities.
- ▶ Determine benefits and issues involved in cooperative group learning in the development of curriculum and the organization of learning structures.
- ▶ Observe, analyze and discuss the characteristics of cooperative learning.
- ▶ Plan, prepare and share a curriculum learning activity that incorporates cooperative group learning.
- ▶ Examine the role of the teacher in the cooperative group learning process.

This workshop was based on a number of principles that assisted in making choices before and during the workshop experiences.

1. *Participants can determine valuable learning from analyzing their direct experiences.*

Simulated situations were used to evolve principles. For example, participants individually counted the number of triangles they saw in a specific diagram and then did the same in triads. After analyzing the data, participants concluded that the contributions of individuals with different perspectives and backgrounds could contribute to increased learning.

2. *Resources that are relevant to participants can be motivating.*

In order to illustrate and develop social skills that are needed for cooperative learning, articles were used from a local newspaper. This content was relevant to the participants. In addition, the use of these materials illustrated the diverse sources of resource material that can be used.

3. *Each learning/teaching approach involves a concept of the teacher and student.*

As part of the review of the workshop and based on the input of ideas of participants, a chart was made that compared the traditional didactic model regarding teacher and student roles with these roles in a cooperative model.

Traditional Model	Cooperative Model
1. Autonomy is primarily with the teacher	1. Less direct teacher decision-making, students encouraged to solve issues
2. Knowledge transferred from teacher to student	2. Knowledge co-constructed teacher—students, student—student
3. Less emphasis on teaching social interaction skills	3. Social skills taught
4. Individual accountability	4. Individual and group accountability

4. *Learning is enhanced by a reflection on the learning process itself.*

In addition to the analysis of the teacher and student roles in learning, participants were asked at the end of the session to individually consider and to respond in writing to questions such as: What aspects did you find valuable? What is one idea that you think that you can apply in your class when you return this next term? What suggestions could you give to make this session more productive for you?

5. Teachers are decision-makers basing choices based on knowledge of students, strategies, content and the values that underlie decisions.

As a small group, participants selected a school subject, topic and age level to design a cooperative learning activity. These activities were shared with the workshop. In this way participants made realistic decisions as they applied concepts of cooperative learning.

This professional development workshop on small group cooperative learning endeavored to involve participants in active, challenging and reflective ways as they pursued new paradigm shifts in education.

Conclusion

Professional development should be based on the sharing of experiences and the co-development of meaning. By engaging teachers in reflection-in-action, change and growth are made possible. In this way, professional development workshops are a microcosm of the on-going decision making process that is part of being and growing as a professional educator. As in other teaching/learning contexts, there is a dynamic energy that makes the process personally and professionally rewarding.

5.1 Introduction

This final section provides a summary of the National Plan for Pro-D, which is designed to support the SEMP reform in the nation.

The important role of professional development in regards to this reform was highlighted by the authors of the Andrews' report (1998) who described the problem in this way:

5. The Way Forward

"At present in Trinidad and Tobago there is no overall, comprehensive, or integrated plan for the professional development of human resources for the secondary level. Every division, unit or agency within the Ministry of Education has developed its own professional development thrust in virtual isolation from other units." (p. 14)

5.

The Way Forward

~ general interest

Morrissey (2000), in his inception report, drew similar conclusions from his analysis. He found a lack of clarity as to where Pro-D rested within the Ministry and a lack of co-ordination between SEMP Pro-D and other MOE activities.

Such findings point to the need for an overall structure to coordinate and plan for the SEMP reform, as well as plan for professional development, institutional strengthening, curriculum and assessment to support that reform.

This section provides two papers. The first by David Martin describes a linkage model for educational change. Martin's proposal moves the change process beyond packages and project toward systemic reform.

The second paper provides a summary of the Summit report. It sets out plans for the implementation of SEMP for this coming year.

This section ends with the comments of a teacher who recently graduated from a SEMPCU organized beginning teachers' workshop.

5.2 Linkage Model of Educational Development for Trinidad and Tobago ~ by David Martin

The approach proposed in the linkage model involves a systemic approach to decision-making and educational improvement. It involves the retraining of staff in individual schools alongside the different organizational strata at the Ministry of Education. The cadre, which develops from their approach, forms a critical mass of professionals who engage others in a sustained reform and change effort.

One of the key problems in sustaining policy initiatives, usually emanating from a central source, and the practices at school level is that there is no sense in which im-

⁵ Andrews, I., Kellar, C. & Wideen, M. (1998). *Secondary Education Modernization Project: Professional Development Quality Sub-Component* (Final Report submitted to the inter-American Development Bank and the Ministry of Education) Trinidad and Tobago.

⁶ Morrissey, M. (2000) Professional Development: Inception Report. (Inception Report Submitted to SEMPCU) Trinidad and Tobago.

plementation is seen as a continuous process. Rather, an educational idea is 'packaged' in a final solution to whatever problem is perceived to be in need of a solution. Further, the initiative is 'ad hoc' and does not take place in a coherent framework of school activities.

The research in change since the mid 1970s seems to provide evidence for the following principles:

Change

- is structural, systemic and system-disturbing rather than superficial. Cuban regards superficial changes as 'first-order change' and structural change as 'second-order' change. Regarding change as structural recognizes that change in one part of an organization will have a knock-on effect on other parts of an organization;
- is a dynamic process — over time — rather than an event (see the discussion below on the stages of the change);
- is non-linear, echoing theories of chaos and complexity;
- is a multidimensional phenomenon (embracing objectives and functions, organization and administration, structures, knowledge, skills, behaviours, beliefs, values, roles and relationships, curricular aims, content, organization, pedagogy, resources, assessment, evaluation);
- embraces multiple perspectives and, therefore, assumes resistances and conflict—though conflict is to be regarded as an opportunity rather than an insuperable difficulty;
- requires investment in structures, institutions, people, technological and psychological support;
- requires involvement of people, bringing anxiety and uncertainty together with the need to develop new skills;
- is a personal as well as an organizational matter;
- practices often change before beliefs — the adage 'drag them by the hair and their hearts and minds will follow' is perhaps pertinent here; conflict and negotiation are inescapable;
- is better to think big but start small (i.e., to identify 'levers of change'), though the areas of highest leverage are often the least obvious;
- occurs in response to real needs and felt needs;
- occurs when innovation and information are very closely linked with each other;
- evolutionary planning works better than linear planning echoing the discussions of 'emergency' in complexity theory;
- policy cannot mandate what actually happens in schools and classrooms; the critical site of change is the classroom and the teacher;
- effective change integrates top-down strategy with bottom-up strategies.

Therefore, coming from this review is the notion and belief that essential to change and successful projects implementation is having a critical mass (teachers and administrators) on site at the school and solid support at the Ministry of Education as project implementers.

There needs to be a considered exploration of policy enactment as it impacts the different levels of decision-making. The professional development and training of personnel needs to be reflective of the reform taking place.

The strategy for effecting improvement is seen as educating, training and supporting teams of innovators at the school and central office so that innovations and understandings cover as wide a spectrum as possible. Participants learn or evolve the skills, knowledge and support systems to effectively innovate/implement at the level where there is the greatest meaning — the school site.

The linkage model should enhance the capacities already existing at school level and help to construct an empowered base for decision-making. One of the benefits of this approach is that it interferes less with the operations of school life.

Features of the Model

1. Establishing a critical mass of leaders and implementers as part of the planning team.
2. Binding training intimately to the changes occurring in relation to implementing SEMP philosophy.
3. Making the first phalanx and those after accountable as part of their training skills and knowledge to engage in coaching and mentoring. This should result in better identification of personnel for succession planning and maintenance of new decision-making processes.
4. Ensuring that professional development is synchronized and delivered at different levels (Principals, REDs, etc.) for policy enactment.
5. Guaranteeing that policy-making be shared through reflective thought on policy and practice.
6. Managing critical issues in decentralization.
7. Providing opportunities for reflection in action as a priority of any courses or programmes to help key decision-makers to learn and modify their actions.
8. Creating advance collegiality in the education service.
9. Making continuous improvement and reflection as hallmarks of educational systems.
10. Enhancing the dynamism for change by simultaneously working on leadership issues in a restructuring context.
11. Linking the levels of communication and decision-making in the present system and allowing open discussion to implement further realignment of the education system.
12. Bridging the gap or 'stretch' between policy and practice.

5.3 Towards an Integrated Framework for the Secondary Education Modernization Project

~ A Report from the SEMP Summit Meeting of November 5 and 6 prepared by Marvin Wideen and David Martin

Introduction

The concept of a meeting among the Quality Sub-Components arose from discussions aimed at integrating the operations and implementation of SEMP activities. The specific agenda of the two-day meeting involved the participants in discussions and presentations such that they would:

1. Review the Year III plans in the curriculum, assessment, professional development, institutional strengthening, teaching and learning strategies, and infrastructure sub-components;
2. Work towards an integrative plan to move the reform forward;
3. Examine issues and problems that require discussion and resolution in order to support that plan; and
4. Examine ways to harmonize efforts and to collaborate around projects.

The discussions at the Summit meeting gave rise to an integrated framework summarized in this paper.

The Overall Framework

In Figure 2 we set out a framework that integrates sub-components, schools as well as governance and policy structures. The central focus of the school is juxtaposed with strategic intents and governance. The strategic intents include the efforts designed to engage those involved in the reform. These strategic intents occur within a policy framework and their aim is to modernize secondary education.

The Strategic Intents

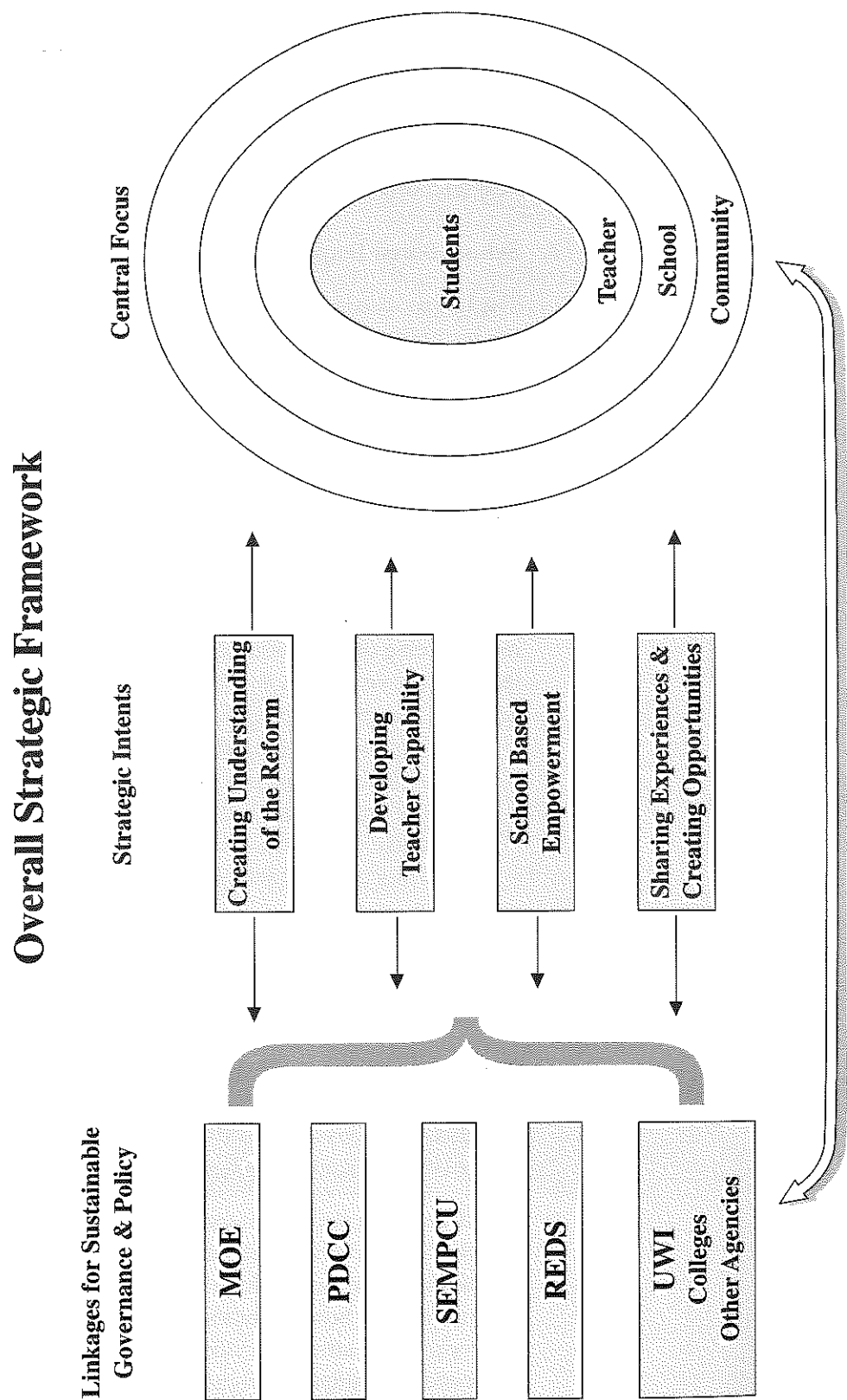
1. Creating Understanding of the SEMP Reform

Any implementation framework must include a plan for creating understanding of the reform among all those associated with it, including students and the general public. This strategy entails a type of social marketing of the SEMP reform to various target groups. With the general public, the type of changes that will occur in classrooms must be communicated. Students should also be given an understanding of the project and informed about how they might be impacted by the change, emphasizing how their education and life chances could be improved.

It must also be kept in mind that every workshop, presentation and piece of material being sent out to various groups becomes part of the public relations surrounding the SEMP reform. The activities that could be undertaken in this campaign include among others:

- Public announcements
- Newspaper articles and features
- Public meetings
- Mailing to schools
- Radio talk shows

Figure 2: Integrative Framework for the Quality Component



2. Developing Teacher Capability

This strategic intent lies central to the reform. Developing the capacity of the high school teachers requires a concerted effort on the part of all components. All resources must be drawn upon. As such, this strategic intent must rest at the center of all efforts, activities and policies. While teacher capability can be developed in many ways, two stand out in the SEMP reform. First, teachers must expand their capacity in methods of teaching so that the learning needs of all children can be met. Second, teachers will require new capacities in order to deal with diversity among students.

3. School-Based Empowerment

The key to sustainability of the SEMP reform is to strengthen the schools and the institutions that support them. Once teachers have learned about the new curriculum, whether through a three-day orientation workshop or a two-week summer professional development program, they must have a receptive environment in which to practice what they have learned. The culture of the schools must be changed so that supportive structures are available.

The concept that has been put forward in 'Linkages for Sustainable Governance and Linking' is school-based empowerment. The central form of this empowerment is a culture based on the continuous improvement of teaching and learning. Furthermore, an important context for the future of SEMP activities is the reconfiguring of the relationship between the central Ministry of Education and the local provision of schooling in a more decentralized system. The typical activities that promote such institutional strengthening include:

- Building sustainable cultures for improvement.
- Curriculum change processes within the school.
- School renewal and authentic assessment strategies.
- Leadership preparation.
- Building collegial relationships including community linkages.

But activities must be supported by a vision of a school-based learning community and the subsequent cultural building necessary to create that.

4. Sharing Experience and Creating Opportunity

The three strategic intents described to this point carry what some would identify as a planned change. As we noted in an earlier section a change of this magnitude depends also on efforts of individuals and groups working from their own views and needs.

In this case, the strategic intent is to encourage communication among many players through various activities including conversation, networking, and the use of list servers and bulletin boards on web pages. For example, a web page has just recently been established. (See <http://www.educ.sfu.ca/sempecu/>). In the very near future affordable video and telephone linkages will be available. The connections portrayed in Figure IV illustrates this strategic intent.

The Implementation Plan

• From January to June 30, 2002 •

1. Establishing the PDCC.
2. Selecting and preparing a cadre of in-service providers to support the implementation. Central to this group will be a core of 18 positions to be occupied by curriculum implementers.
3. Selecting and preparing a cadre of persons to work with schools to develop a school-based approach to implementation.
4. Complete the drafts of Form Three curriculum and review and revise Forms One and Two. The external examination of the curriculum guides is complete. (See Annex B, pp. 5 to 7)

• From June 30 to August 30, 2002 •

5. Offering a program of professional development for selected officials within the Ministry to prepare them for their changed role in the implementation.
6. Offering professional development for teachers without teacher training.
7. Undertaking a public relations campaign.
8. Continuing the preparation of the inservice providers.

• From September 30 on •

9. Undertaking Orientation workshops for teachers implementing the new curriculum. (See 3.1.2)
10. Intensive coaching and support to teachers implementing the curriculum and using alternative approaches to assessment.

• Ongoing •

11. Continuing the Masters programs for principals and short courses for teachers.
12. Integrating the teaching and learning strategies with the existing other quality sub-components.
13. Setting up a program of action research grants for teachers and MOE officials.
14. Reconfiguring and restructuring the MOE.

The acronym PDCC stands for the Professional Development Coordinating Committee. Planning is now underway to establish this committee as one that would coordinate professional development in the country.

Conclusion: Implementing the Implementation Plan

In this concluding section, we identify the points of common agreement among the external consultants as to the steps required to implement this implementation plan. We also identify an area where alternatives need to be considered by the decision-makers.

The points of agreement which grew out of the Summit meeting and later discussed among the external consultants can be summarized under four headings: political will, broad-based support, following with the plan, and developing a cadre for implementation and support.

Political will. Common agreement exists around the need for political will on the part of all players if this plan is to become operational. That political will begins at the strategic apex of government who must commit the financial resources necessary so that the implementation can be properly supported. Financial support would be needed to engage local facilitators and consultants, support the development and printing of the necessary documents, and fund professional development activities to support the reform. Financial support is necessary for all quality sub-components.

If such financial support is forthcoming, then those at the various levels within the Ministry and in SEMPCU must take the necessary decisions to move the implementation forward. We believe that these decision points have been identified generally in this report and described in considerable detail in other reports such as those appended¹. In the Pro-D Year III final report, for example, eleven recommended courses of action are offered for consideration by SEMPCU and the Ministry. It will be necessary to make decisions this year or early in 2002 that make a commitment to the implementation plan (or some modification of it) such that work can go forward.

Broad-based support. Deliberations during and after the Summit gave rise to the sense that the SEMP reform had reached a crucial point from the standpoint of implementation. Much work had been done leading up to the Year III. It was now time to move forward.

Moving forward would require broad-based support that would draw upon local and external consultants, facilitator teams, Divisions within the Ministry, SEMPCU, and the University. The broad-based support would also come through the funding and executing of various programs put forward by the quality sub-components. For example, the notion of school-based implementation, central to this implementation, requires that the action research support proposed by Pro-D and the school strengthening activities proposed by IS be funded and in place.

Following the Plan. For this implementation plan to work effectively, planners must maintain the integrity of the plan, once it has begun. For example, the public relations plan becomes a very integral part of this implementation. However, if it does not occur in a timely manner, much of the 'big bang' effect will be lost. If it does occur but subsequent activities do not, the result will be cynicism and a compromising of the implementation.

Developing a Cadre for Support. Complete agreement exists regarding the need for a cadre of inservice providers to support the implementation. That cadre would be familiar with all aspects of the implementation plan and have specific expertise in

some aspect of the implementation. For example, the providers working in IS would be expected to be familiar with the overall plan for the implementation as well as the changes expected in curriculum. However, their main focus would be working with principals and teams of teachers to strengthen schools' capability to implement and support the reform.

We end this report with a personal note focusing on changing the zeitgeist among stakeholders to better support the SEMP reform. To set this in context, we will first present two contrasting conditions that can be taken by those in education and among the stakeholders who support educational enterprise

An innovative climate	A stable climate
A focus on hope, high expectations, and a willingness to entertain change.	A focus on problems, low expectations, and the view that change is something that others do.
Players work to mutually support others in an atmosphere of collaboration.	Gripping and critique become the order of the day where individualism is the norm.
Professionals are encouraged to take risks knowing that innovation will be respected.	Risk-taking is discouraged in a system that focuses on identifying problems.
Decisions are based on what will provide the best education for children.	Decisions rest on well established bureaucratic procedures.
Players have a penchant for action (after considered, conceptual discussion).	Players have a penchant for discussion of problems (with no tendency to act).

We offer this contrast as a means to stimulate discussion. We should also like to add that this table presents nothing particularly original. As teachers and professors in Canada and graduate students and visitors in the United States, we have observed and worked in institutions and larger jurisdictions representing both innovative and stable climates. Many have written extensively about these two types of institutional conditions. We wish to invite the reader to fill in her or his own contrasting ideas of the conditions that represent innovative and stable conditions in Trinidad and Tobago.

We raise this issue because we believe that the people of Trinidad and Tobago have a once-in-a-lifetime opportunity to dramatically change the education in their country for young people. Many we spoke to this last visit convinced us of that. On the other hand, if we allow ourselves to fall into the ethos of a stable climate, the possibility of success in improving teaching and learning in the high schools in Trinidad and Tobago will be limited indeed. If this major reform is to succeed, an innovative climate must become the order of the day.

In short, if the schools are expected to change their practice, then the various Divisions in the Ministry associated with this reform, and indeed SEMPCU itself, must move beyond the stability associated with crisis management to become exemplars of change and improvement. They must capitalize on this next four-year window of opportunity to revitalize and modernize education in Trinidad and Tobago.

We refer to the various consultant reports, particularly those produced Year II.

5.4 One Person's Experience in Dealing with Change¹

by Shanaz Wahid-Goolab

Madame Chairperson, permanent secretaries, chairpersons, specially invited guests, facilitators, fellow teachers, a pleasant good morning to you all.

I am representing Module 2 and my presentation this morning is to enlighten you about The Action Plan. The way in which I would like to proceed with such an important job would be to explain my action plan, its goal, the strategies I used in implementing it, and the results that were obtained.

I teach Mathematics at ASJA Girls College in Tunapuna to Form Two students.

Initially, it was difficult to proceed with the planning with what little I knew. However, the intense courses I received in cooperative learning, creative thinking, continuous assessment and reflective questioning made my task easier in structuring a plan.

Cooperative learning was an appealing strategy since I had previously attempted it, though unsuccessfully. So having failed once, and now given the opportunity to try it again, this time better equipped, I jumped at the idea. Being a Maths teacher I wanted to achieve Mathematics made simple for my students so that they would develop an understanding of the work content through cooperative learning. My attitude to teaching changed!

Obviously, the goal of my action plan was to implement cooperative learning in my teaching strategy to better equip my students to achieve their best in Mathematics.

Implementing cooperative learning in the classroom was met with some hesitation, since my students recalled my last attempt. Eventually, I convinced them to try again, by letting them know what fun I had in store. The hesitation was still evident, but they were willing to give it a try.

I encouraged them to form their own groups, not exceeding five to six people. Their first attempt at a presentation as a group was fair, but they showed a fear of expressing themselves creatively. They did not see any connection between Mathematics and being creative.

My challenge was to change their way of thinking. I gave each group a real life situation, which involved school children. Situations they could relate to, to act out as a short skit. This was met with excitement and the final product was astonishing. The girls thoroughly enjoyed themselves.

Having accomplished my objective of bringing out their creative side, I proceeded to give them assignments to be done as a group and to present their work in a creative fashion. I was impressed by their performance. They dressed the part and even formed short dialogue to relate their solutions and findings to the rest of the class. Their attitude towards group work had changed.

¹ This presentation was made by Shanaz Wahid-Goolab at the closing graduating ceremony in January, 2002. This ceremony was the culmination of the Beginning Teachers' workshop conducted in August, 2001. That workshop had been followed by school-based activity and follow-up meetings.

I realized that they needed to be credited for their excellent performance and their change in attitude. I developed a chart, which I hung in the classroom. It consisted of the group names. I explained the purpose of the chart was to acknowledge when a group worked well, that is, the responsibility was shared equally among all members and there existed harmony and cooperation in each group effort. Good group effort was acknowledged with a 'smiley face', while when there was dispute or where one or two members of the group took it upon themselves to do all the work, it was acknowledged with a 'frowning face'.

I noticed that my classroom management was duly affected by my new strategies. Instead of having to wake the girls up to pay attention, I was being sought out as a friend and as a respected and well-liked teacher. No longer would I have to ask them to do their work, instead I would be walking around the class impressed by a student assisting another.

As I would sit back and watch the change in their attitude, change in their commitment to achieve rather than to just get through another term, much of this I realized was due to my change in attitude and new strategies.

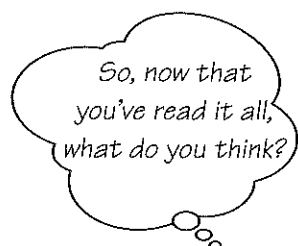
However, there came a time when a few girls in a couple of groups were having trouble in learning to agree to disagree with their fellow group members. I was not worried, I realized that they were not aware that they were alike in more ways than one. I used the game 'Treasure Hunt' to help the girls understand one another.

The game sorts out persons who have things in common, for instance, favourite movie, food that is disliked, favourite book, favourite subject in school, etc. At the end of the game, new friendships were formed and new respect was built for one another.

Another strategy I used as 'think, pair, share'. This strategy was effective in getting the students to talk about the content of the topic and to share their ideas and opinions with their classmates. They appreciated the fact that what they had to say was important.

There were times when some student experienced problems in calculation or applying the theory to questions. In these cases I would personally try to explain the methods and procedures again. Much to my disappointment, it did not always work out. So I implemented an on-going activity in class call 'Peer Professor'. This activity employed students as personal tutors for their classmates. There was hesitation in some students, however, when the novelty of the activity wore off the results were impressive. Students who would usually score low on their exams and assignments were taking it upon themselves to help others in what they knew. It was amazing to see how this encouraged the students to want to learn, to help others.

Cooperative learning gave my students the opportunity to learn and to teach and it is obvious that they are up to the challenge of trying to help someone get the concept. Hence, this proves that two heads are better than one and five heads give ultimate cooperation that brings about cooperative learning.



Annexes

Annex A:

The Role of Assessment in a Learning Culture

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Annex B:

Becoming a Reflective Practitioner

Patricia Holborn

Annex A: The Role of Assessment in a Learning Culture

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This article is about classroom assessment—not the kind of assessments used to give grades or to satisfy the accountability demands of an external authority, but rather the kind of assessment that can be used as a part of instruction to support and enhance learning. On this topic, I am especially interested in engaging the very large number of educational researchers who participate, in one way or another, in teacher education. The transformation of assessment practices cannot be accomplished in separate tests and measurement courses, but rather should be a central concern in teaching methods courses.

The article is organized in three parts. I present, first, an historical framework highlighting the key tenets of social efficiency curricula, behaviorist learning theories, and “scientific measurement.” Next, I offer a contrasting social-constructivist conceptual framework that blends key ideas from cognitive, constructivist, and sociocultural theories. In the third part, I elaborate on the ways that assessment practices should change to be consistent with and support social-constructivist pedagogy.

The impetus for my development of an historical framework was the observation by Beth Graue (1993) that “assessment and instruction are often conceived as *curiously separate* in both time and purpose” (p. 291, emphasis added). As Graue notes, the measurement approach to classroom assessment, “exemplified by standardized tests and teacher-made emulations of those tests,” presents a barrier to the implementation of more constructivist approaches to instruction.

To understand the origins of Graue’s picture of separation and to help explain its continuing power over present-day practice, I drew the chronology in Figure 1. A longer term span of

history helps us see that those measurement perspectives, now felt to be incompatible with instruction, came from an earlier, highly consistent theoretical framework (on the left) in which conceptions of “scientific measurement” were closely aligned with traditional curricula and beliefs about learning. To the right is an emergent, constructivist paradigm in which teachers’ close assessment of students’ understandings, feedback from peers, and student self-assessments would be a central part of the social processes that mediate the development of intellectual abilities, construction of knowledge, and formation of students’ identities. The best way to understand dissonant current practices, shown in the middle of the figure, is to realize that instruction (at least in its ideal form) is drawn from the emergent paradigm, while testing is held over from the past.

Historical Perspectives:

Curriculum, Psychology, and Measurement

The historical framework I present here is familiar to you. Yet, it is important to remind ourselves where traditional views of testing came from and to appreciate how tightly entwined these views of testing are with past models of curriculum and instruction—because dominant theories of the past continue to operate as the default framework affecting and driving current practices and perspectives. Belief systems of teachers, parents, and policy makers derive from these old theories.

A more elaborated version of the paradigm that has predominated throughout the 20th century can be shown as a set of interlocking circles (Figure 2). The central ideas of social efficiency and scientific management in the curriculum circle were

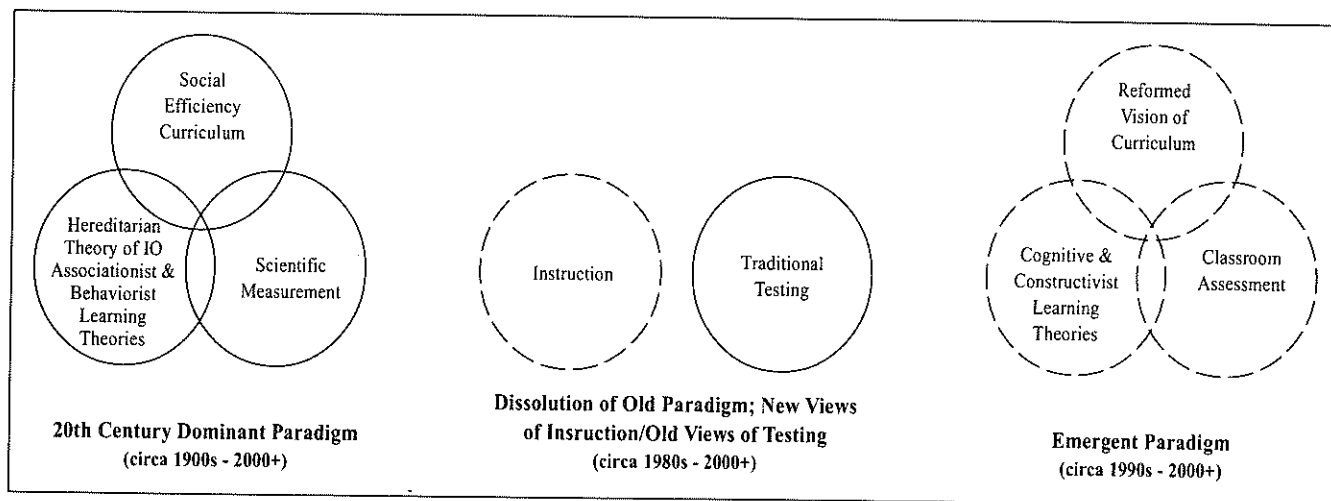


Figure 1. An historical overview illustrating how changing conceptions of curriculum, learning theory, and measurement explain the current incompatibility between new views of instruction and traditional views of testing.

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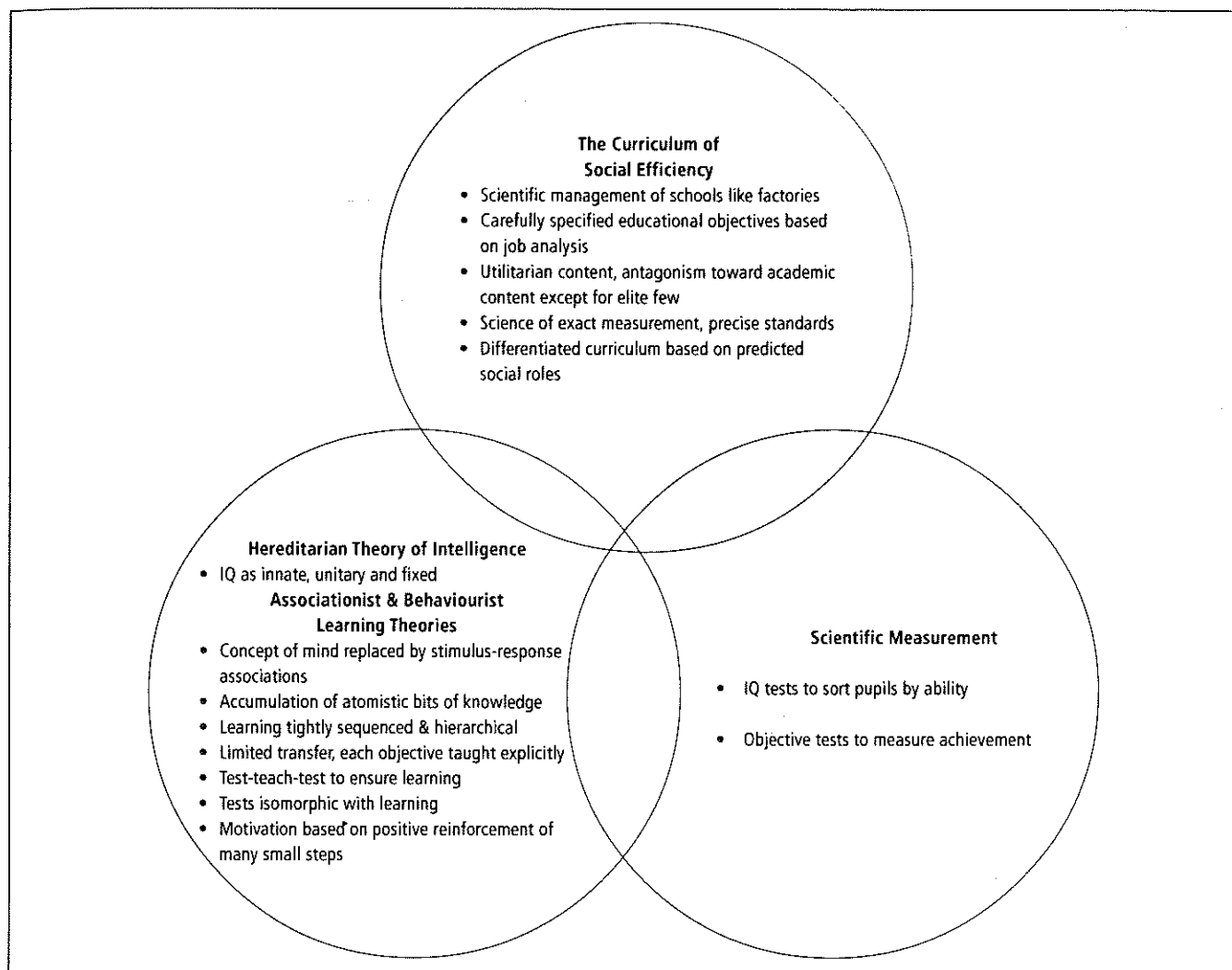


Figure 2. *Interlocking tenets of curriculum theory, psychological theories and measurement theory characterizing the dominant 20th century paradigm.*

closely linked, respectively, to hereditarian theories of individual differences and to associationist and behaviorist learning theories. These psychological theories were, in turn, served by scientific measurement of ability and achievement.

In the early 1900s, the social efficiency movement grew out of the belief that science could be used to solve the problems of industrialization and urbanization. According to social efficiency theory, modern principles of scientific management, intended to maximize the efficiency of factories, could be applied with equal success to schools. This meant taking F.W. Taylor's example of a detailed analysis of the movements performed by expert bricklayers and applying similar analyses to every vocation for which students were being prepared (Kleobard, 1995). Then, given the new associationist or connectionist psychology with its emphasis on fundamental building blocks, every step would have to be taught specifically. Precise standards of measurement were required to ensure that each skill was mastered at the desired level. And because it was not possible to teach every student the skills

of every vocation, scientific measures of ability were also needed to predict one's future role in life and thereby determine who was best suited for each endeavor. For John Franklin Bobbitt, a leader in the social efficiency movement, a primary goal of curriculum design was the elimination of waste (1912), and it was wasteful to teach people things they would never use. Bobbitt's most telling principle was that each individual should be educated "according to his capabilities." These views led to a highly differentiated curriculum and a largely utilitarian one that disdained academic subjects for any but college preparatory students.

Alongside these curriculum theories, Edward Thorndike's (1922) associationism and the behaviorism of Hull (1943), Skinner (1938, 1954) and Gagne (1965) conceived of learning as the accumulation of stimulus-response associations. The following quotation from B.F. Skinner is illustrative:

The whole process of becoming competent in any field must be divided into a very large number of very

small steps, and reinforcement must be contingent upon the accomplishment of each step. This solution to the problem of creating a complex repertoire of behavior also solves the problem of maintaining the behavior in strength . . . By making each successive step as small as possible, the frequency of reinforcement can be raised to a maximum, while the possibly aversive consequences of being wrong are reduced to a minimum. (Skinner, 1954, p. 94)

Note that this viewpoint promotes a theory of motivation as well as one of cognitive development.

Several key assumptions of the behavioristic model had consequences for ensuing conceptualizations of teaching and testing:

1. Learning occurs by accumulating atomized bits of knowledge;
2. Learning is tightly sequenced and hierarchical;
3. Transfer is limited, so each objective must be explicitly taught;
4. Tests should be used frequently to ensure mastery before proceeding to the next objective;
5. Tests are isomorphic with learning (tests = learning);
6. Motivation is external and based on positive reinforcement of many small steps.

It is no coincidence that Thorndike was both the originator of associationist learning theory and the "father" of "scientific measurement," a name given him by Ayers in 1918. Thorndike and his students fostered the development and dominance of the "objective" test, which has been the single most striking feature of achievement testing in the United States from the beginning of the century to the present day. Recognizing the common paternity of behaviorist learning theory and objective testing helps us to understand the continued intellectual kinship between one-skill-at-a-time test items and instructional practices aimed at mastery of constituent elements.

Looking at any collection of tests from early in the century, as shown in Figure 3, one is immediately struck by how much the questions emphasized rote recall. To be fair, at the time, this was not a distortion of subject matter caused by the adoption of objective-item formats. One hundred years ago, various recall, completion, matching, and multiple-choice test types, along with some essay questions, fit closely with what was deemed important to learn. However, once curriculum became encapsulated and represented by these types of items, it is reasonable to say that these formats locked in a particular and outdated conception of subject matter.

The dominance of objective tests in classroom practice has affected more than the form of subject-matter knowledge. It has

New Stone Reasoning in Arithmetic (1908) 1. James had 5 cents. He earned 13 cents more and then bought a top for 10 cents. How much money did he have left? <i>Answer:</i> _____	
Sones-Harry High School Achievement Test, Part II (1929) 1. Write "25% of" as "a decimal times." _____ 2. Write in figures: one thousand seven and four hundredths. _____	
The Modern School Achievement Tests, Language Usage a: off 1. I borrowed a pen b: off of my brother. _____ c: from	
The Barrett-Ryan Literature Test: Silas Marner 1. Dolly Winthrop is: _____ a. an ambitious society woman b. a frivolous girl c. a haughty lady d. a kind, helpful neighbor	
Examples of True/False Objective Test (Ruch, 1929) 1. Tetanus (lockjaw) germs usually enter the body through open wounds. <i>True</i> <i>False</i>	American History Examination, East High School (Sam Everett and Effey Riley, 1928) I. Below is a list of statements. Indicate by a cross (X) after it, each statement that expresses a social heritage of the present-day American nation. Place a zero (0) after each statement that is not a present-day social heritage of the American nation. 1. Americans believe in the ideal of religious toleration. _____ 2. Property in land should be inherited by a man's eldest son. _____ 3. Citizens should have the right to say what taxes should be put upon them. _____ II. To test your ability to see how an intelligent knowledge of past events helps us to understand present-day situations and tendencies. (Note: Write your answer in essay form on a separate sheet of paper.) 4. Take some <i>economic</i> fact or group of facts in American History about which we have studies and briefly show what seems to you to be the actual significance of this fact in the past, present and future of America. 5. Show this same <i>three-fold relationship</i> using some <i>political</i> fact or facts. 6. Show this same <i>three-fold relationship</i> using a <i>religious</i> fact or facts.

Figure 3. Examples from some of the earliest 20th-century "standard" tests and objective-type classroom tests. Note: The first four examples are borrowed from Ross (1941); the last two, including the Everett-Riley American History Examination, appeared in Ruch (1929).

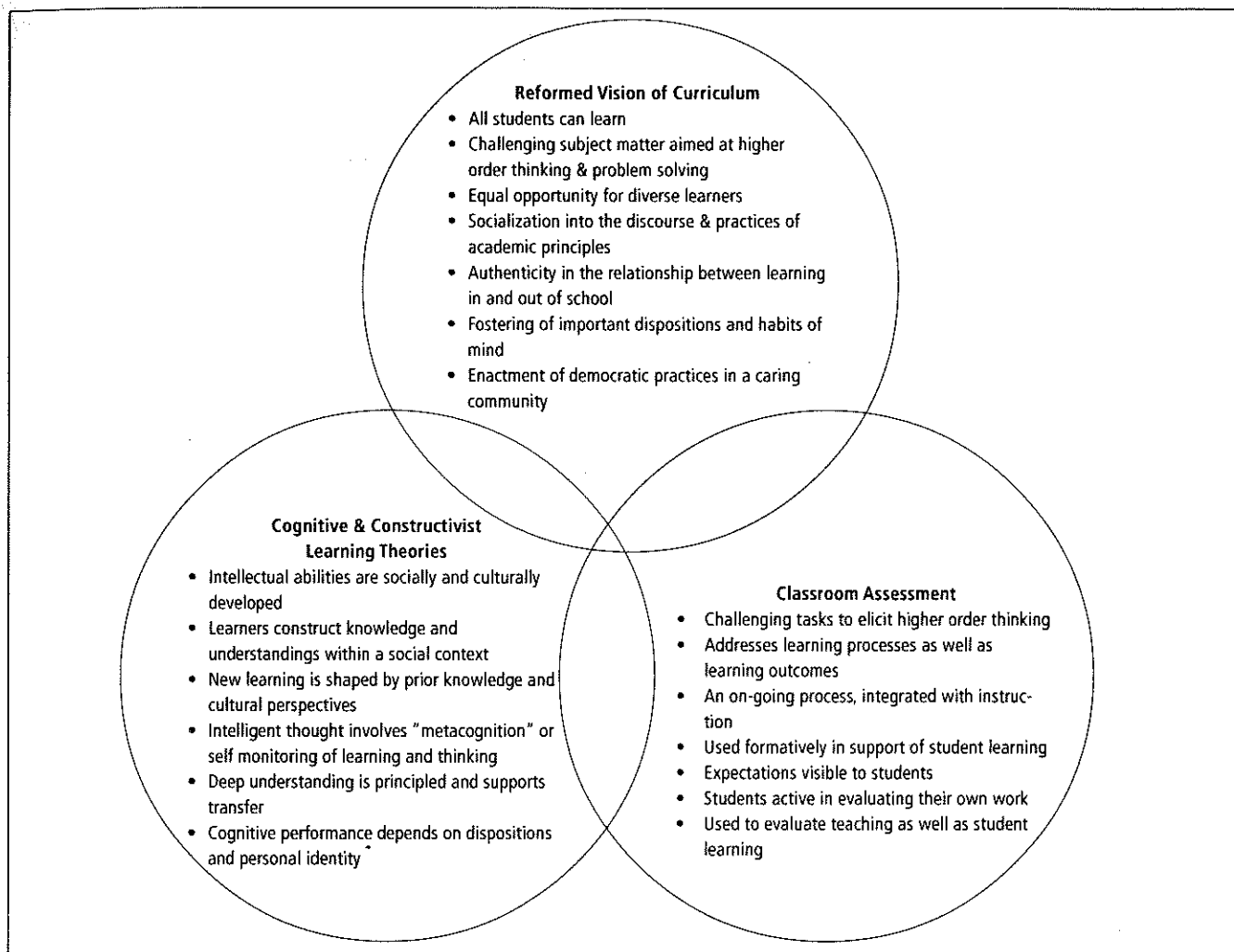


Figure 4. Shared principles of curriculum theories, psychological theories and assessment theory characterizing an emergent, constructivist paradigm.

also shaped beliefs about the nature of evidence and principles of fairness. In a recent assessment project, for example, both teachers and researchers were surprised to find that despite our shared enthusiasm for developing alternatives to standardized tests we nonetheless operated from different assumptions about how "standardized" assessment needed to be in classrooms. More surprising still, it was teachers who held beliefs more consistent with traditional principles of scientific measurement. From the perspective of our teacher colleagues, assessment needed to be an official event, separate from instruction (Blein & Davinroy, 1997). To ensure fairness, teachers believed that assessments had to be *uniformly* administered, so they were reluctant to conduct more intensive individualized assessments with only below-grade-level readers. Because of the belief that assessments had to be targeted to a specific instructional goal, teachers felt more comfortable using two separate assessments for separate goals, "running records" to assess fluency and written summaries to assess comprehension rather than, say, asking students to retell the gist of a story in conjunction with running

records. Most significantly, teachers wanted their assessments to be "objective," and this was the word they used. They worried often about the subjectivity involved in making more holistic evaluations of student work and preferred formula-based methods, such as counting miscues, because these techniques were more "impartial."

Any attempt to change the form and purpose of classroom assessment to make it more fundamentally a part of the learning process must acknowledge the power of these enduring and hidden beliefs.

Conceptual Framework:

New Theories of Curriculum, Learning, and Assessment

To consider how classroom assessment practices might be reconceptualized to be more effective in moving forward the teaching and learning process, I elaborated the principles of a "social-constructivist" conceptual framework, borrowing from cognitive, constructivist, and sociocultural theories.¹ (Though these camps are sometimes warring with each other, I predict

that it will be something like this merged middle-ground theory that will eventually be accepted as common wisdom and carried into practice.) The three-part figure (Figure 4) was developed in parallel to the three-part historical paradigm to highlight, respectively, changes in curriculum, learning theory, and assessment. In some cases principles in the new paradigm are the direct antitheses of principles in the old. The interlocking circles again are intended to show the coherence and interrelatedness of these ideas taken together.

The cognitive revolution reintroduced the concept of mind. In contrast to past, mechanistic theories of knowledge acquisition, we now understand that learning is an active process of mental construction and sense making. From cognitive theory we have also learned that existing knowledge structures and beliefs work to enable or impede new learning, that intelligent thought involves self-monitoring and awareness about when and how to use skills, and that "expertise" develops in a field of study as a principled and coherent way of thinking and representing problems, not just as an accumulation of information.

At the same time, rediscovery of Vygotsky (1978) and the work of other Soviet psychologists led to the realization that what is taken into the mind is socially and culturally determined. Fixed, largely hereditarian theories of intelligence have been replaced with a new understanding that cognitive abilities are "developed" through socially supported interactions. Although Vygotsky was initially interested in how children learn to think, over time the ideas of social mediation have been applied equally to the development of intelligence, expertise in academic disciplines, and metacognitive skills, and to the formation of identity. Indeed, a singularly important idea in this new paradigm is that both development and learning are primarily social processes.

These insights from learning theory then lead to a set of principles for curriculum reform. The slogan that "all students can learn" is intended to refute past beliefs that only an elite group of students could master challenging subject matter. A commitment to equal opportunity for diverse learners means providing genuine opportunities for high-quality instruction and "ways into" academic curricula that are consistent with language and interaction patterns of home and community (Au & Jordan, 1981; Brown, 1994; Heath, 1983; Sharp & Gallimore, 1988). Classroom routines and the ways that teachers and students talk with each other should help students gain experience with the ways of thinking and speaking in academic disciplines. School learning should be authentic and connected to the world outside of school not only to make learning more interesting and motivating to students but also to develop the ability to use knowledge in real-world settings. In addition to the development of cognitive abilities, classroom expectations and social norms should foster the development of important dispositions, such as students' willingness to persist in trying to solve difficult problems.

To be compatible with and to support this social-

constructivist model of teaching and learning, classroom assessment must change in two fundamentally important ways. First, its form and content must be changed to better represent important thinking and problem solving skills in each of the disciplines. Second, the way that assessment is used in classrooms and how it is regarded by teachers and students must change. Furthermore, to enable this latter set of changes within classrooms, I argue that teachers need help in fending off the distorting and de-motivating effects of external assessments.

Improving the Content and Form of Assessments

The content of assessments should match challenging subject matter standards and serve to instantiate what it means to know and learn in each of the disciplines. Therefore, a broader range of assessment tools is needed to capture important learning goals and processes and to more directly connect assessment to ongoing instruction. The most obvious reform has been to devise more open-ended performance tasks to ensure that students are able to reason critically, to solve complex problems, and to apply their knowledge in real-world contexts. In addition, if instructional goals include developing students' metacognitive abilities, fostering important dispositions, and socializing students into the discourse and practices of academic disciplines, then it is essential that classroom routines and corresponding assessments reflect these goals as well. This means expanding the armamentarium for data gathering to include observations, clinical interviews, reflective journals, projects, demonstrations, collections of student work, and students' self-evaluations, and it means that teachers must engage in systematic analysis of the available evidence.

In this article, I do not elaborate further on needed changes in the content and form of assessment primarily because this aspect of reform has received the most attention to date. Although I cannot claim that common practice has moved significantly beyond the end-of-chapter test, there are nonetheless already promising models being developed and used in literacy, mathematics, science, history, and so forth. For example, Pat Thompson (1995) provided the set of questions in Figure 5 to

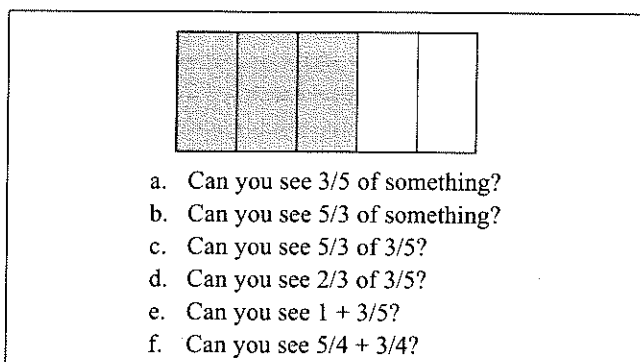


Figure 5. An example of a set of questions designed to help students visualize part-whole relationships as a way to understand fractions. (Thompson, 1995)

Grade 4 Mathematics Problem Set
(Mathematical Sciences Education Board, 1993)

All of the bridges in this part are built with yellow rods for spans and red rods for supports, like the one shown here. This is a 2-span bridge like the one you just built. Note that the yellow rods are 5 cm long.



1. Now, build a 3-span bridge.
 - a. How many yellow rods did you use? _____
 - b. How long is your bridge? _____
 - c. How many red rods did you use? _____
 - d. How many rods did you use altogether? _____

2. Try to answer these questions without building a 5-span bridge. If you want, build a 5-span bridge to check your answers.
 - a. How many yellow rods would you need for a 5-span bridge? _____
 - b. How long would your bridge be? _____
 - c. How many red rods would you need? _____
 - d. How many rods would you need altogether? _____

3. Write a rule for figuring out the total number of rods you would need to build a bridge if you knew how many spans the bridge had.

Grade 5 Science Tasks
(California Learning Assessment System, 1994)

Fossils

You are a paleontologist (a scientist who studies past life forms). You were digging and just discovered a large group of fossils.

Directions:

Open BAG A and spread the fossils on the table.

Use the hand lens to carefully observe each fossil.

Sort your fossils into groups. You may make as many groups as you like.

Write answers to these questions in your journal.

1. Draw your groups. Circle and number each group.
2. How many groups do you have?
3. List the number of each group and tell why you sorted your fossils into these groups.

BAG B has a fossil that was found in the area near where you were digging.

Directions:

Open BAG B.

Take out the new fossil and compare it with the other fossils on the table.

4. Does this new fossil fit into one of your groups? If YES, how are they alike?
5. If the new fossil does not fit into any of your groups, describe a new group in which this fossil would fit.
6. Choose one of the fossils and draw a picture of it.
7. In what kind of habitat (environment) do you think this fossil might have once lived? Why?

Figure 6. Examples of open-ended assessment tasks intended to engage students in thinking and reasoning about important content.

illustrate how non-algorithmic problems can help students "see" a mathematical idea. Two additional open-ended tasks are shown in Figure 6 and serve to illustrate the point that good assessment tasks are interchangeable with good instructional tasks.

Protecting Classroom Assessment from the Negative Effects of High-Stakes Accountability Testing

The arguments advanced thus far—in support of social constructivist learning theory, challenging curriculum for all students, and imaginative new forms of assessment—follow closely the rhetoric of standards-based reform. I have avoided using that term, however, because, from the beginning, standards-based reform has additionally placed great faith in externally imposed standards and "tests worth teaching to." More recently, the standards movement has been corrupted, in many instances, into a heavy-handed system of rewards and punishments without the capacity building and professional development originally proposed as part of the vision (McLaughlin & Shepard, 1995). Although both large-scale, system-monitoring assessments and classroom assessments could benefit from the same kinds of substantive reform and alignment of content with important learning goals, there is more at stake here than reform of assessment format. If we wish to pursue seriously the use of

assessment for learning, which I consider in the next section, it is important to recognize the pervasive negative effects of accountability tests and the extent to which externally imposed testing programs prevent and drive out thoughtful classroom practices. In presenting these ideas to an audience of educational researchers and teacher educators, I used the image of Darth Vader and the Death Star to convey the overshadowing effects of accountability testing.

The negative effects of high-stakes testing on teaching and learning are well known (e.g., Madaus, West, Harmon, Loman, & Viator, 1992). Under intense political pressure, test scores are likely to go up without a corresponding improvement in student learning. In fact, distortions in what and how students are taught may actually decrease students' conceptual understanding. While some had imagined that teaching to good tests would be an improvement over low-level basic-skills curricula, more recent experiences remind us that all tests can be corrupted. And all can have a corrupting influence on teaching (Whitford & Jones, 2000).

Moreover, as Darling-Hammond (1988), McNeil (1988), and others have pointed out, external accountability testing leads to the de-skilling and de-professionalization of teachers, even—in my own state recently—to the denigration of teaching. High-

stakes accountability teaches students that effort in school should be in response to externally administered rewards and punishment rather than the excitement of ideas. And accountability-testing mandates warn teachers to comply or get out (or move, if they can, to schools with higher scoring students).

Again, these ideas are not new. It is likely that teacher educators saw something about this litany of complaints in teacher preparation courses. But, what do diatribes against testing teach candidates about more meaningful forms of assessment? Given their own personal histories, our students are able to hate standardized testing and at the same time reproduce it faithfully in their own pre-post testing routines, if they are not given the opportunity to develop and try out other meaningful forms of assessment situated in practice. So we must teach them how to do assessment well.

Also, teacher candidates need to find support and a way of protecting their own developing understandings of constructivist assessment practices from the onslaught of test-driven curricula. I have in mind here something like the double-entry teaching that teachers had invented in Linda McNeil's (1988) study of the Contradictions of Control. In contrast to teachers who trivialized content and taught defensively as a means to control and win compliance from students, McNeil found that excited and engaging teachers in the magnet schools she studied found ways to resist and hold off the pernicious effects of proficiency testing on their curriculum. Specifically, they helped students keep parallel sets of notes, one set for the real knowledge and one for the knowledge they would need for the test. They did this rather than give over the entire course to the "fragments and facts" required on the test.

This is only one example of a strategy for resistance. As I continue next to describe productive ways to use assessment in classrooms, I emphasize the need sometimes to "mark" informal assessment occasions for students as they occur within the normal flow of classroom discourse—because this helps students become self-aware about how assessment can help learning. Similarly, I believe we should explicitly address with our teacher education students how they might cope with the contesting forces of good and evil assessment as they compete in classrooms to control curriculum, time, and student attitudes about learning.

Using Assessment in the Process of Learning

A Learning Culture

Improving the content of assessments is important but not sufficient to ensure that assessment will be used to enhance learning. In this section, I consider the changes in classroom practices that are also needed to make it possible for assessment to be used as part of the learning process. How might the culture of classrooms be shifted so that students no longer feign competence or work to perform well on the test as an end separate from real learning? Could we create a teaming culture where

students and teachers would have a shared expectation that finding out what makes sense and what doesn't is a joint and worthwhile project, essential to taking the next steps in learning?

I believe that our international colleagues are ahead of us in thinking about the difficulties of making these cultural changes. Sadler (1998) in Australia, for example, writes about "the long-term exposure of students to defective patterns of formative assessment" (p. 77). Perrenoud in Switzerland (1991) notes that there are always certain students in a class who are willing to work harder to learn more and who, therefore, go along with formative assessment. But other children and adolescents are "imprisoned in the identity of a bad pupil and an opponent" (p. 92). According to Perrenoud, "every teacher who wants to practice formative assessment must reconstruct the teaching contract so as to counteract the habits acquired by his pupils" (p. 92). Tunstall and Gipps, (1996) have studied classrooms in Great Britain where teachers have developed more interactive ways of discussing work and criteria with students as a means to distribute power and establish more collaborative relationships with students.

To accomplish the kind of transformation envisioned, we have not only to make assessment more informative, more insightfully tied to teaming steps, but at the same time must change the social meaning of evaluation. Our aim should be to change our cultural practices so that students and teachers look to assessment as a source of insight and help instead of an occasion for meting out rewards and punishments. In the paragraphs that follow, I summarize briefly several specific assessment strategies: dynamic assessment, assessment of prior knowledge, the use of feedback, teaching for transfer, explicit criteria, student self-assessment, and evaluation of teaching. Each of these strategies serves a special, motivational purpose as well as a cognitive, informational one. None of these strategies by themselves will be effective if they are not part of a more fundamental shift in classroom practices and expectations about learning.

Dynamic, On-Going Assessment

In order for assessment to play a more useful role in helping students learn it should be moved into the middle of the teaching and learning process instead of being postponed as only the end-point of instruction. Dynamic assessment is finding out what a student is able to do independently—as well as what can be done with adult guidance—is integral to Vygotsky's idea of a zone of proximal development. The type of interactive assessment, which allows teachers to provide assistance as part of assessment, does more than help teachers gain valuable insights about how understanding might be extended. It also creates perfectly targeted occasions to teach and provides the means to scaffold next steps. Although formal dynamic assessments are assumed to involve an adult working with only one child, these ideas about social mediation of learning can be extended to groups, especially if students are socialized into the web of talking in a community of practice and become accustomed to ex-

plaining their reasoning and offering and receiving feedback about their developing competence as part of a social group.

Note that these ideas, based on activity theory and Lave and Wenger's (1991) concept of legitimate peripheral participation, provide a profoundly different view of motivation from behaviorist reinforcement and create no separation between cognitive and motivational goals. According to Lave and Wenger's theory, learning and development of an identity of mastery occur together as a newcomer becomes increasingly adept at participating in a community of practice. If one's identity is tied to group membership, then it is natural to work to become a more competent and full-fledged member of the group.

Prior Knowledge

Prior knowledge and feedback are two well-established ideas, the meaning of which may have to be re-examined as learning theories are changed to take better account of social and cultural contexts. For example, assessing my prior knowledge using a checklist or pretest version of the intended end-of-unit test may not be very accurate unless I already have sophisticated experience with the teacher's measures and conceptual categories. Open discussion or "instructional conversations" (Tharp & Gallimore, 1988) are more likely to elicit a more coherent version of students' reasoning and relevant experiences and can be a much more productive way for novice teachers to learn about the resources brought by students from diverse communities.

In my own experience working in schools, I have noticed two divergent sets of teaching practices that address students' prior knowledge. First, many teachers rely on a traditional, pretest-posttest design to document student progress, but then do not use information from the pretest in instruction. At the same time, a significant number of teachers, especially in reading and language arts, use prior knowledge activation techniques, such as Ogle's (1986) KWL strategy, but without necessarily attending to the assessment insights provided.

We have a great deal of work to do to develop and model effective assessment strategies, for starting points as well as for other stages of learning. One question we may want to consider is whether assessment should become so much a part of normal classroom discourse patterns that scaffolding and ongoing checks for understanding are embedded (and therefore disguised). Or whether assessment steps should be marked and made visible to students as an essential step in learning. In our efforts to change the culture of the classroom, it may be helpful, at least in the short term, to label prior knowledge activation techniques as instances of "assessment." What safer time to admit what you don't know than at the start of an instructional activity?

Feedback

We take it for granted that providing feedback to the learner about performance will lead to self-correction and improvement. For the most part, however, the existing literature on feedback

will be of limited value to us in reconceptualizing assessment from a constructivist perspective, because the great majority of existing studies are based on behaviorist assumptions. Typically, the outcome measures are narrowly defined, feedback consists of reporting of right and wrong answers to the learner, and the end-of-study test may differ only slightly from the prior measure and from instructional materials.

More promising are studies of scaffolding and naturalistic studies of expert tutoring—but these studies also reveal how much we have to learn about effective use of feedback. For example, Lepper, Drake and O'Donnell-Johnson (1997) found that the most effective tutors do not routinely correct student errors directly. Instead they *ignore* errors when they are inconsequential to the solution process and forestall errors that the student has made previously by offering hints or asking leading questions. Only when the forestalling tactic fails do expert tutors *intervene* with a direct question intended to force the student to self-correct, or they may engage in *debugging*, using a series of increasingly direct questions to guide the student through the solution process. According to Lepper et al.'s analysis, the tendency of expert tutors to use indirect forms of feedback when possible was influenced by their desire to maintain student motivation and self-confidence while not ignoring student errors. This is a balancing act that new teachers must learn to perform as well.

Transfer

There is a close relationship between truly *understanding* a concept and being able to *transfer* knowledge and use it in new situations. In contrast to memorization—and in contrast to the behaviorist assumption that each application must be taught as a separate learning objective—true understanding is flexible, connected, and generalizable. Not surprisingly, research studies demonstrate that learning is more likely to transfer if students have the opportunity to practice with a variety of applications while learning (Bransford, 1979). Although there appears to be disagreement between cognitivists and situativists regarding knowledge generalization (Anderson, Reder, & Simon, 1996), in fact, both groups of researchers acknowledge the importance of being able to use what one has learned in new situations (Bransford, Brown, & Cocking, 1999). Cognitivists focus more on cognitive structures, abstract representations, and generalized principles that enable knowledge use in new situations, while situativists are concerned about "learning to participate in interactions in ways that succeed over a broad range of situations" (Greeno, 1996, p. 3).

In working with pre-service teachers, I have suggested that a goal of teaching should be to help students develop "robust" understandings (Shepard, 1997). The term was prompted by Marilyn Burns's (1993) reference to children's understandings as being "fragile"—they appear to know a concept in one context but not to know it when asked in another way or in another setting. Sometimes this fragility occurs because students are still

in the process of learning and sometimes because the framing of the problem, clues, and other supports available in the familiar context are not available in another. All too often, however, mastery appears pat and certain but does not travel to new situations because students have mastered classroom routines and not the underlying concepts. To support generalization and ensure transfer, that is, to support robust understandings, "Good teaching constantly asks about old understandings in new ways, calls for new applications, and draws new connections" (Shepard, 1997, p. 27). And good assessment does the same. We should not, for example, agree to a contract with our students which says that the only fair test is one with familiar and well-rehearsed problems.

Explicit Criteria

Frederiksen and Collins (1989) used the term *transparency* to express the idea that students must have a clear understanding of the criteria by which their work will be assessed. In fact, the features of excellent performance should be so transparent that students can learn to evaluate their own work in the same way that their teachers would. According to Frederiksen and Collins,

The assessment system (should) provide a basis for developing a metacognitive awareness of what are important characteristics of good problem solving, good writing, good experimentation, good historical analysis, and so on. Moreover, such an assessment can address not only the product one is trying to achieve, but also the process of achieving it, that is, the habits of mind that contribute to successful writing, painting, and problem solving (Wiggins, 1989). (Frederiksen & Collins, 1989, p. 30)

Having access to evaluation criteria satisfies a basic fairness principle (we should know the rules for how our work will be judged). More importantly, however, giving students the opportunity to get good at what it is that the standards require speaks to a different and even more fundamental sense of fairness, which is what Wolf and Reardon (1996) had in mind when they talked about "making thinking visible" and "making excellence attainable."

Self-Assessment

Student self-assessment serves cognitive purposes, then, but it also promises to increase students' responsibility for their own learning and to make the relationship between teachers and students more collaborative. As Caroline Gipps (1999) has suggested, this does not mean that the teacher gives up responsibility, but that rather, by sharing it, she gains greater student ownership, less distrust, and more appreciation that standards are not capricious or arbitrary. In case studies of student self-evaluation practices in both an Australian and English site, Klenowski (1995) found that students participating in self-evaluation became more interested in the criteria and substantive feedback than in their grade per se. Students also reported that they had to be more honest about their own work as well as being fair with other students, and they had to be prepared to defend their opin-

ions in terms of the evidence. Klenowski's (1995) data support Wiggins's (1992) earlier assertion that involving students in analyzing their own work builds ownership of the evaluation process and "makes it possible to hold students to higher standards because the criteria are clear and reasonable" (p. 30).

Evaluation of Teaching

In addition to using assessment to monitor and promote individual students' learning, classroom assessment should also be used to examine and improve teaching practices. This includes both ongoing, informal assessments of students' understandings to adjust lessons and teaching plans as well as more formal and critical action-research studies. As I have suggested with other assessment strategies, here again I believe it will be helpful for teachers to make their investigations of teaching visible to students, for example, by discussing with them decisions to redirect instruction, stop for a mini-lesson, and so forth. This seems to be fundamentally important to the idea of transforming the culture of the classroom. If we want to develop a community of learners where students naturally seek feedback and critique their own work then it is reasonable that teachers would model this same commitment to using data systematically as it applies to their own role in the teaching and learning process.

Conclusion

In conclusion, let me acknowledge that this social-constructivist view of classroom assessment is an idealization. The new ideas and perspectives underlying it have a basis in theory and empirical studies, but how they will work in practice and on a larger scale is not known. Clearly, the abilities needed to implement a reformed vision of curriculum and classroom assessment are daunting. Being able to ask the right questions at the right time, anticipate conceptual pitfalls, and have at the ready a repertoire of tasks that will help students take the next steps requires deep knowledge of subject matter. Teachers will also need help in learning to use assessment in new ways. They will need a theory of motivation and a sense of how to develop a classroom culture with learning at its center. Given that new ideas about the role of assessment are likely to be at odds with prevailing beliefs, teachers will need assistance to reflect on their own beliefs as well as those of students, colleagues, parents, and school administrators.

I am reminded of Linda Darling-Hammond's (1996) acknowledgement in her presidential address that John Dewey anticipated all of these ideas 100 years ago. But as Cremin (1961) explained, the successes of progressive education reforms never spread widely because such practice required "infinitely skilled teacher;" who were never prepared in sufficient numbers to sustain these complex forms of teaching and schooling.

So, we are asking a lot of ourselves and others. Nonetheless, we must try again. This vision should be pursued because it holds the most promise for using assessment to improve teach-

ing and learning. To do otherwise means that day-to-day instructional practices will continue to reinforce and reproduce the status quo. Our goal should be to find ways to fend off the negative effects of externally imposed tests and to develop instead classroom assessment practices that can be trusted to help students take the next steps in learning.

Epilogue

I would be remiss if I did not take this opportunity to provide at least a brief sketch of what we might do concretely to work toward a proposed vision of assessment in the service of teaming. Happily for an organization of researchers I suggest more research—but research of a particular kind, embedded in the dilemmas of practice. I also suggest that we develop and pursue an agenda of public education to help policy makers and the general citizenry understand the differences between large-scale, system monitoring tests and what we hope for from teachers on a daily basis.

A Program of Research

To develop effective practices based on social-constructivist perspectives, it will be important to conduct studies in classrooms where instruction and assessment strategies are consonant with this model. In many cases this will mean “starting over again” and not assuming that findings from previous research studies can be generalized across paradigms. For example, as suggested earlier, there are hundreds of studies on feedback but nearly all conform to behaviorist assumptions—instruction is of short duration, posttest closely resembles pretests, feedback is in the form of being told the correct answers, and so forth. New studies will be needed to further our understandings of feedback provided in ways that reflect constructivist principles, for example, a part of instructional scaffolding, assessment conversations and other interactive means of helping students self-correct and improve. Similarly, the research literature on motivation makes sweeping claims about the risks of evaluating students, especially when they are tackling difficult problems. Yet, these findings are based on students’ experience with traditional, unauthentic and normative forms of assessment, where students took little responsibility for their own learning, and criteria remained mysterious. If the classroom culture were to be shifted dramatically, consistent with social-constructivist learning perspectives, then the effects of assessing students on difficult problems would have to be re-examined. Thus we face the challenge of trying to find out what works at the same time that we are attempting to create new contexts and new cultural expectations that will fundamentally alter the very relations we are trying to study.

We also need to study what makes sense in terms of teacher development and change. Many of the **most exciting** current assessment projects are being conducted in classrooms but still have researchers at the helm, taking central responsibility for the development of curriculum, assessment tasks, and technology-

based delivery systems. We know that for teachers to make meaningful changes in pedagogical beliefs and accompanying practices, they themselves will need to try out and reflect on new approaches in the context of their own classrooms (Putnam & Borko, 1997). In deference to the enormous constraints on teachers’ time, we should also look for ways to introduce new practices incrementally, for example, to develop a portfolio for one subject area or one curriculum unit before trying to do it in all subject areas. To consider how particular classroom assessment strategies might be used to create a learning culture as well as improve achievement, teams of teachers in schools might undertake projects aimed at any one of the assessment elements. For example, ‘one team might want to introduce self-assessment and conference with students about how (or whether) self-assessment helps them learn. Another team of teachers might agree to meet regularly to share examples of “assessment insights,” that is, specific occasions when assessment data from a student, written or oral, helped the teacher intervene in a better way—because she understood what the student was thinking. While another group of teachers might focus on using feedback explicitly to help students make their work better.

When I say that our research efforts should be embedded in the dilemmas of practice, I am echoing the call for more collaborative forms of research advanced in recent reports by the National Research Council (1999) and National Academy of Education (1999) as well as by Alan Schoenfeld (1999) in his presidential address to the AERA. In contrast to a traditional, linear progression from research to development and dissemination, these authors argue for investing in research projects that would advance fundamental understandings at the same time that they would work to solve practical problems in real-world settings. If researchers and professional educators share responsibility for improving educational outcomes, it is hoped that research will lead to continuous improvement of practice and not require a separate translation phase to be useful. In the context of an agenda for improving classroom assessment, this model for research would mean conducting studies aimed at general explanatory principles regarding prior knowledge, self-assessment, and the like, at the same time that practical issues are addressed such as the initial obstacles of negative student attitudes, time seemingly stolen from instruction, and the inevitable demand for better materials and instructional tasks that elicit the kind of thinking and dialogue envisioned.

A Public Education Agenda

Researchers in the United States have engaged policy makers and the public on the topic of testing but have focused almost exclusively on the features of state and district accountability testing programs—what the content should be, whether there should be high-stakes consequences, and so forth. In contrast, we have much to learn from assessment experts in the United Kingdom who have pursued a fundamentally different course of action emphasizing the key role of formative assessment in ef-

fective teaching. Beginning in 1989, researchers representing England, Northern Ireland, Scotland, and Wales met as a Task Group of the British Educational Research Association and ultimately established themselves as the Assessment Reform Group. The group is concerned with policy issues and has attempted to have a dialogue with policy makers. Although members of the group have been involved with either the development or evaluation of the National Assessment Programme, they "have become more and more convinced of the crucial link between assessment, as carried out in the classroom, and learning and teaching" (Assessment Reform Group, 1999, p. 1). They commissioned a major review of research examining the impact of assessment on students' learning (Black & Wiliam, 1998a), and they have issued two policy-oriented "little books" summarizing the important tenets of *assessment for learning* and urging government policies that would give more than lip service to the importance of improving formative assessment (Assessment Reform Group, 1999; Black & Wiliam, 1998b). They have argued for (a) reframing of bureaucratic requirements, such as standards for teacher education and school inspections, to ensure that teachers are skilled assessors of students' learning; (b) increased funding, especially for teacher professional development; and (c) reducing obstacles, especially the influence of external tests that dominate teachers' work.

Assessment experts in the U.S. should consider whether a similar public education endeavor would be worthwhile and what message we would choose to convey. At a minimum, we should try to get beyond the currently popular sound-bite of "instructionally relevant assessment," because, unfortunately, legislators and school board members have taken up this slogan with the intention that once-per-year accountability testing can be used to diagnose individual student needs. Yes, end-of-year tests can be used to evaluate instruction and even tell us something about individual students; but such exams are like shopping mall medical screenings compared to the in-depth and ongoing assessments needed to genuinely increase learning. By pursuing a public education agenda like that undertaken in the U.K. we could help policy makers understand the limits to what can be accomplished with accountability tests (and thereby fend off their negative effects) and at the same time garner the support and flexibility that teachers and researchers will need to develop powerful examples and to enact more pervasive shifts in classroom practices.

Notes

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¹ A more detailed discussion of this framework and supporting literature review are provided in Shepard (in press).

² Sadler (1998) uses the term *formative assessment* to mean assessment "that is specifically intended to provide feedback on performance to improve and accelerate learning" (p. 77). He acknowledges that teachers may have difficulty using feedback in positive ways because of students' negative coping strategies developed in response to past practices.

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Annex B: Becoming a Reflective Practitioner¹

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*People do not necessarily learn from experience,
particularly if they do not think about it
or do not take responsibility for its creation.*

Anon

To be an educator is to be a learner. No matter how much formal education we complete, or how many years of experience we accumulate, every day of teaching brings opportunities to learn more. Because each combination of pupils and events has its own unique dimensions, every day in school offers new challenges.

The diversity of unexpected situations that arise and the multitude of decisions to be made every day frequently overwhelm beginning teachers. Fortunately, as our base of experience grows, some elements become routine. As we become more familiar with our pupils, we begin to understand their individual personalities and needs. We learn that certain actions cause fairly predictable responses, and that some teaching approaches feel more comfortable and work more effectively than others. In other words, we develop personal theories about what works best for us. Our personal theories are usually based on principles that we have extracted from our experience and filtered through our assumptions and beliefs. These theories help us make decisions about what might work in new situations.

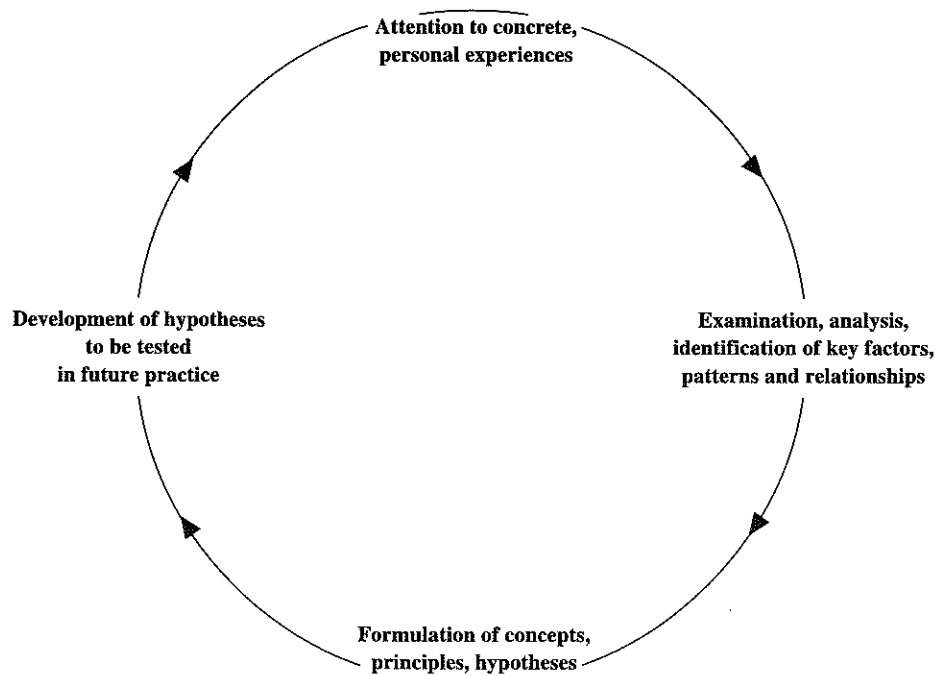
All of this learning may happen without our conscious awareness. The constant pressures of teaching leave little time for meditation, and it is difficult to step back and review our daily activities. But as the introductory epigraph suggests, much learning may be lost if we do not take the time to analyze our experiences and evaluate the effects of our own actions on classroom events and student learning.

This article describes one simple model of the reflective process and suggests ways in which you might use it to learn more from your teaching experiences. After reviewing the model, we will examine the ways that competent professionals engage in reflection, and then discuss how you might practise and develop your reflective skills. In particular, we will explore the professional journal as a tool for reflection, using specific exercises to focus and draw out your reflective thinking.

¹ This article has been adapted from P. Holborn, I. Andrews, and M. Wideen (Eds), *Becoming a Teacher*. Toronto: Kagan and Woo, 1988. Chapter 17, pp. 196-209.

The Reflective Process

Reflection is often defined as meditation, thoughtfulness, or careful consideration of some subject matter, idea or purpose. The reflective process involves a critical examination of one's experiences in order to derive new levels of understanding by which to guide future actions. A simplified model of the reflective process is presented in Figure 1.



In this diagram the reflective process appears as an ongoing cycle. That is, understandings gleaned from our experiences are transformed into principles and theories that guide our actions in future situations. In turn, as we modify our actions in each new situation, opportunities for further reflection and understanding are presented. In reality, learning through experience and reflection does not always proceed in such a linear fashion, but the ongoing interactions between thought and action can both deepen our understandings and change our educational practices if we are consciously attuned to learning as we teach.

Attention to concrete, personal experiences.

The reflective cycle is often triggered by our own concrete, personal experiences, especially if we pay conscious attention to events as they occur. Although attending to our experience might seem automatic, much research shows that in every situation we concentrate selectively on certain variables while ignoring others. One way to increase awareness of important aspects of every day experience is to prepare ourselves in advance with specific questions or a focus for our observations.

EXAMPLE: 8:30 a.m. Wednesday morning

I've been concerned about John's interactions with his classmates lately. He seems to be more anxious for attention than usual. I've noticed that he is deliberately irritating some of the other students. He used to be so kind. I wonder why his behaviour has changed?

In this case, the teacher's focus of attention is triggered by a concern about a student's behaviour. She wants to learn more from the day's experiences, and sets herself the task of attending carefully to events that may shed light on the situation. She may even initiate a private conversation with John that invites him to share his feelings with her.

Unfortunately we cannot always prepare ourselves to attend to specific events as this teacher has done. Unexpected problems that demand an on-the-spot reaction arise frequently in the classroom. However, we can be ready to learn from these new situations by being open and flexible in our responses and by carefully observing the interactions between our own behaviours and the dynamics of the situation.

Examination, analysis, identification of key factors, patterns and relationships.

As we focus our attention on a specific situation, we can begin to analyze our experiences, trying to identify key factors that influence the situation and that affect our feelings and actions. It is often helpful to look for patterns and relationships, not only within the experience itself, but also in connection with other situations we have encountered.

EXAMPLE: 4:00 p.m. Wednesday afternoon

I noticed that John arrived late today, and he had a hard time settling down. As I recall, this pattern happened twice last week. His classroom behaviour always seems to be worse on the days when he's late. Come to think of it, I always get upset with him when he disturbs the class as he comes in. It seems to get us both off to a bad start. When we talked at lunchtime, he said, "Who cares! Nobody even notices if I come to school or not." I guess I haven't been very welcoming to him.

Here, the teacher is reflecting on the day's events in relation to her earlier concerns about John's behaviour. She has collected information during the day and is now looking for pertinent patterns and relationships. Note that she attends not only to John's behaviour but also to her own feelings and reactions. As a result, she identifies a relationship between her reactions to John's lateness and his subsequent behaviour in the classroom.

Formulation of concepts, principles, hypotheses

The kind of analysis described above can sometimes lead to insights that were previously hidden from us. These insights allow us to view a problematic situation from different perspectives, opening avenues for understanding and response that we did not see earlier. As we process our analysis, we begin to make generalizations, usually in the form of concepts or principles that capture our broader understanding of the situation. Frequently these generalizations arise from making connections between the specific situation and other pertinent events or experiences.

EXAMPLE: 8:00 p.m. Wednesday evening

John is upset when he gets to school late. He seems to want attention from me and his classmates to make him feel part of the group. I over-react to his attention-getting, which affects his behaviour for the rest of the day.

Here the teacher has recognized several patterns, not only in John's behaviour but in her reactions as well. Her understanding of the situation has been transformed from one in which John was acting badly with his classmates to one in which John's need to be part of the group is not being met. In effect, this teacher has developed a working hypothesis which enables her to state an "If...then" principle about the interactions between herself and John: "If I respond negatively to John when he comes to school late, he continues to demand attention in negative ways."

Development of hypotheses to be tested in future practice

A working hypothesis is our "best guess" about the complex dynamics that may be involved in a particular situation. The power of a working hypothesis is that it helps us determine what actions we might take to influence the situation. A working hypothesis may also suggest the need for more information that could help us understand the situation better. This often leads to new questions for the next round of observation.

EXAMPLE: 8:00 a.m. Thursday morning

I'm going to try something different with John today. If I acknowledge his arrival in a positive way, and if I make sure he knows what I expect of him during the first few interactions, perhaps he'll settle down more quickly. I'll also try to find out more about why he's late so often. Perhaps something is happening at home or on the way to school which is disturbing him.

Learning as we Teach

The ability to respond flexibly, as in the example just provided, has been identified as an important characteristic of effective teaching. Teachers are involved in continuous decision-making while they respond to individual needs, structure learning experiences, manage the learning environment, and experiment with new and better ways to foster learning. The work of Donald Schon² and others suggests that experienced, competent teachers frequently engage in reflection on their teaching that allows them to respond flexibly to unfamiliar or problematic situations. Two levels of reflective activity seem to characterize these professionals. The first, reflection-in-action, is often referred to as "thinking on one's feet." However, this is a process that may involve more than an immediate response to a single incident: it may continue through a series of interactions with a situation over several days or weeks, as in the example given previously. The second level, called reflection-on-action, involves more meditative, deliberately thoughtful reflection on broader professional issues.

Reflection-in-action

Schon's research³, conducted with professionals from a variety of fields, indicates that the best practitioners do not rely on formulae for their decision-making, but are able to improvise in response to unfamiliar situations. Studies of competent professionals in action have shown that they tend to follow similar

² Schon, Donald A. (1983). *The Reflective Practitioner*. New York: Basic Books.

³ Ibid., pp. 40-41

patterns of response to problematic situations. When faced with a situation in which the normal course of action is not working, these professionals look for factors that may help them make sense of their problem. In studying these factors, they identify those elements that should be attended to, and define the direction in which the situation needs to be changed. This process is called "setting the problem." In the example above, the teacher engages in "setting the problem" as she collects and analyzes data about John's classroom behaviour. Her analysis leads her to re-define the problem as one in which John needs to feel part of the group, rather than as a problem in which John is bothering the other pupils.

Rather than classifying each new situation as a particular kind of problem and applying a standard solution to it, the reflective practitioner defines each new problem in terms of its similarities and differences with respect to previous experience. To do this, the practitioner draws on his or her past repertoire of examples, images, and understandings in a variety of problematic situations. In Schon's words, "the artistry of a practitioner...hinges on the range and variety of the repertoire that he brings to unfamiliar situations."⁴ For instance, the teacher in our example has probably experienced a variety of other situations in which children sought attention negatively when they felt left out.

Once a problem has been defined, the reflective practitioner initiates an experimental action for the purpose of changing the situation. John's teacher has decided to change her negative reaction to one that will make the boy feel more accepted and secure. In turn, she hopes he will feel less need for negative attention and will behave more acceptably for the rest of the day.

Experimental action generates a response from the situation, which allows the professional to test his or her hypothesis. Sometimes the response from the situation leads to another re-definition of the problem, which in turn suggests further experimental actions. In this interplay between practitioner and situation, the process of reflection-in-action continues until the problem has been resolved or a new problem has been defined.

This process is more challenging for beginning teachers because they lack a repertoire of experiences and understandings on which to draw in unfamiliar situations. Their limited bank of previous experience makes it difficult to identify important variables in a situation, to define a problem, or to draw from a selection of previously tested responses that might be applied to a new experience. Consequently, student teachers yearn for formulae or rules to guide their decision-making. Unfortunately, standard rules do not always work in the complex problematic situations that are a part of teaching. However, beginning teachers can reduce the stress of uncertainty and increase their flexibility in responding to problematic situations by practising the reflective process both within and outside the classroom. This process can be enhanced when the beginning teacher can dialogue regularly with a more experienced professional who guides the new teacher's reflections through thoughtful questioning, or who helps the beginner identify possible options for consideration, rather than providing answers from his or her experience. In this way, the beginning teacher builds a repertoire of examples, images, and understanding needed for reflection-in-action when problematic situations are encountered. More experienced professionals can also mentor the less experienced by thinking aloud in ways that provide exemplars of reflection-in-action.

⁴ Ibid., p. 140.

Reflection-on-action

The reflective process should also carry us beyond the day-to-day process of problem solving. A thoughtful professional is one who considers not only how to teach effectively, but also what should be taught, under what circumstances, and why.

Teaching requires making concrete choices among competing values for vulnerable others who lack the teacher's knowledge and skills, who are dependent upon the teacher for access to both, and who will be changed by what the teacher teaches, how it is taught, and who that teacher is.⁵

Value questions related to educational, moral, and cultural issues should have an important place in the reflections of all educators. These are the questions that need substantial time and attention outside the classroom, because they require us to step back from our daily routines and engage in meditative contemplation.

Sometimes, the questions on which we reflect do not have clear or comfortable answers. Larry Cuban (1992) points out that thoughtful educators must often make difficult decisions when faced with competing values over which we have little control. He calls these kinds of situations "dilemmas," because no matter what we decide, we must compromise.

Every person, every organization operates under constraints of time, money, laws, cultural and political assumptions, and scores of other conditions that limit what can be done at any one point in time. Awkward, unattractive choices must be made in the face of these conditions to secure as much of the competing values as possible....Dilemmas, then, involve choices, often moral ones. They end up with good-enough compromises, not neat solutions. We "satisfice" when we cope with dilemmas. That is, in order to satisfy, we must sacrifice. We invent a tightrope to walk, knowing that to cross the tightrope juggling the competing claims will still leave us uneasy.⁶

Regular reflection-on-action is a means to develop a sense of dynamic balance in the difficult dilemmas that teaching presents.

The Professional Journal as a Tool for Reflection

One tool for systematically practising the reflective process is a professional journal. This type of journal is not a diary, a resource book, or a log of daily activities. It is a place to record, in an open-ended format, your experiences of teaching and your reflections on them. Your records may be in narrative or point form. They could include drawings, charts, webs, lists or other visual representations. However, the key elements that make it a reflective tool are:

- recording of significant experiences, including associated feelings and thoughts;
- analysis of patterns and relationships;

⁵ Cuban, L. (1992). Managing Dilemmas While Building Professional Communities. *Educational Researcher*, January-February, p. 5.

⁶ Ibid., p. 6.

Process for reflecting on a critical incident

Think about the recent past in your life as an educator. What stands out as the most exciting, challenging or frustrating incident?

- a) Describe the details of the incident and your feelings about it. Ask yourself, "What really happened? Why was it important to me?"
- b) Analyze the incident in terms of significant features, interactions, patterns and relationships. Ask yourself, "What were the significant elements of this situation? How did it affect my behaviour, feelings and attitudes? How did my behaviour affect the situation? How is this situation like others I have experienced?"
- c) Develop a statement of principles describing what you have learned from this incident. Ask yourself, "How does this incident affect me? What do I understand now that I didn't realize before?"
- d) Think about the future. Ask yourself, "How will I apply what I have learned in another situation?"
- e) Think about what you have learned in relation to your beliefs and values. Ask yourself, "Has this incident affected by beliefs, my values, or the way I think about myself and others? How might it affect my decisions about major educational questions and issues?"

Reflective summaries

Sometimes it is helpful to re-read the professional journal and to reflect on one's growth over time. The reflective summary may be an exercise in overall self-evaluation, or a review of one's learning over a series of experiences.

Development of a reflective summary

Think about our teaching concerns over the past month. Write about each of the following.

- a) How have your concerns changed over time? Why have your concerns changed? To what extent have your past concerns been resolved? What evidence of learning do you see in your changing concerns?
- b) What themes can you identify in your journal entries? What questions have you been thinking about? Which of these are questions about educational values? What questions have you answered to your satisfaction? What questions remain to be answered?
- c) What is your present focus for learning? What are your goals in that area? What are your questions? Who can help you with your learning? How might you go about it? How will you know if you are making progress?

Most of us, especially teachers, tend to be preoccupied with what is not going well in our profes-

freely and honestly. Sentence structure, grammar, punctuation or even flow of ideas is less important than the content of your reflections. Your journal entries need not be limited to writing. Many people find it helpful to begin a journal entry with a drawing that metaphorically captures an experience. At times of high emotion, words written randomly on the page can be a good starting point. Sometimes the intensity of an experience may even lead to poetry. For a more analytical moment, a diagram might be appropriate.

5. How often should I write in my journal? Regular journal writing is important to the development of reflective skills, which need frequent practice for maximum benefit. A daily reflective period is ideal. However, the many demands of a teacher's schedule may make this an unrealistic expectation for you. It is important to guard against the negative feelings that arise through forcing yourself to write when your attention is elsewhere, or the guilt that comes from missing a day because of other pressures.

6. Do I have to include all the elements of the reflective process every time I write in my journal? As in any model, the four elements of the reflective process simplify and idealize what actually works in everyday situations. Sometimes an entire journal entry may consist of describing a situation and exploring one's feelings about it. This is particularly true for problematic situations to which one has a strong emotional reaction. Frequently, the feelings associated with an experience must be dealt with before analysis and theory development can proceed. Sometimes this process may take days or even weeks. The important point is to ensure that, over time, your reflective episodes are not limited to description, but do involve some critical examination of your experience and the development of principles and personal theories to guide your future actions.

Exercises in Reflective Writing

The following strategies provide a variety of approaches to writing in your professional journal. Each approach has a particular function. If you try the accompanying exercises as starters, you will soon develop other approaches to journal writing that suit your style and needs.

Critical incidents

Learning is usually most powerful in situations where the learner is emotionally involved. In teaching, many situations will cause you to react emotionally. This is especially true of those unique, problematic situations that cause stress and frustration. While these situations have great potential for developing understanding about teaching, in the heat of the moment you may have neither the time nor the distance from the situation to think reflectively. These kinds of incidents provide an ideal focus for journal writing.

- formulation of principles;
- development of hypotheses and possibilities for action.

There are many reasons to keep a professional journal. Regular journal-writing ensures that time will be taken to slow down and think. The journal provides a forum for processing, so that understanding, principles and hypotheses are more likely to be developed. It is a place to capture important ideas that might otherwise be forgotten and to record the development of your beliefs and values about education. It becomes an ongoing record of growth, reflecting changing concerns and development of ideas and confidence. Finally, the professional journal can be a source of inspiration and pride, where achievements are recorded and difficult problems are resolved in writing.

Many teachers find that the thought of journal writing itself produces anxiety and apprehension. Some even say, "I can't write. It doesn't suit my style of thinking." While it is true that different individuals prefer different modalities for processing their experience, the journal provides a focus and structure for conscientiously practising the reflective process. The following pages suggest specific exercises that make journal writing easier for most teachers. First, however, here are some answers to frequently asked questions about using a professional journal.

- 1. What kind of book should I get for my journal?** Choosing a journal is an important step in getting started. Most importantly, the journal should be a book that you like and that you will enjoy owning. Choose a bound notebook rather than a loose-leaf binder, because it will be more likely to encourage commitment to writing. A binder makes it too easy to disown a problem or idea that doesn't seem quite right on paper, because the pages can be removed.
- 2. When and where should I write?** Finding an ideal time for reflection is an individual matter, depending on one's lifestyle, personal rhythms and schedule demands. Regardless of the hours you select, it is important to identify a regular block of time and a quiet place in which you can focus without external distractions. You may have to get up before the rest of the family, or isolate yourself in a quiet room during the day or evening. If you are familiar with progressive relaxation or other meditative strategies, you might use them to prepare yourself, taking the time to screen out distracting thoughts or external stimuli.
- 3. How do I start?** One might think of journal writing as something like swimming. It is easier to jump right in and get wet all over, rather than standing on the shore thinking about it and perhaps sticking a toe into the water once in a while. If you are having difficulty jumping in, remind yourself that you are not writing for anyone but yourself, so what you put down should matter to you. You might start by asking yourself some stimulating questions, such as: "What as the most significant thing that happened to me today? How did I feel? Why was it important to me? Then write as if you were having a conversation with yourself, or with a good friend. Don't try to be too analytical until you have described the details of the event. Then re-read what you have written and take time to think about it.
- 4. What kind of writing style should I use?** The professional journal is your own private document. In order to get the most from reflection on your experiences, you should be able to write

sional lives. Conscientious educators are always looking for ways to do better, and may pay attention only to those things that are problematic. With such a 'deficiency approach' our energy may be drained and our sense of achievement distorted by focusing on the negative aspects of our experience. This strategy can be particularly helpful in keeping your experiences in perspective.

As an antidote to the deficiency approach, set aside a special section of your journal for celebrating your successes, achievements, and sources of pride. Each day, regardless of whether you make any other entries in the journal, try to record at least one item in this section. Your entry might address some small incident in which you have made a child feel more worthwhile, a major breakthrough in your teaching, or just an overall sense of well-being at a time when things are proceeding smoothly. By referring back to this section, you will find that even the blackest days can be lightened. There you will find the evidence that better times have prevailed and will prevail again.

Beyond the Professional Journal

Journal writing is only one way to exercise your reflective skills. There are many others to be explored. Some people reflect while jogging. Others practise yoga and exotic meditations. Still others, like Einstein, sit quietly before a fire lost in thought, developing theories to change the world. Regardless of which approach suits you best, you are likely to find greater professional success and satisfaction as you practise the reflective process.