



National Library  
of Canada

Bibliothèque nationale  
du Canada

Acquisitions and  
Bibliographic Services Branch

Direction des acquisitions et  
des services bibliographiques

395 Wellington Street  
Ottawa, Ontario  
K1A 0N4

395, rue Wellington  
Ottawa (Ontario)  
K1A 0N4

*Your file - Votre référence*

*Our file - Notre référence*

## NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

## AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada



**Saint Marys  
University**

**PROSPECTS AND REALITIES OF PROCESS EDUCATION  
IN NOVA SCOTIAN SECONDARY SCHOOLS**

**by**

**PETER J. McALLISTER**

**A thesis submitted in partial fulfillment of the  
requirements for the degree of  
Master of Arts (Education)**

**Faculty of Education  
Saint Mary's University  
Halifax, Nova Scotia  
Canada**

**Peter J. McAllister**

**(c) copyright 1993**



National Library  
of Canada

Acquisitions and  
Bibliographic Services Branch

395 Wellington Street  
Ottawa, Ontario  
K1A 0N4

Bibliothèque nationale  
du Canada

Direction des acquisitions et  
des services bibliographiques

395, rue Wellington  
Ottawa (Ontario)  
K1A 0N4

*Your file* *Votre référence*

*Our file* *Notre référence*

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-84882-0

Canada

**SAINT MARY'S UNIVERSITY**

**FACULTY OF EDUCATION**

The undersigned certify that they have read, and recommend to the Faculty of Education for acceptance, a thesis entitled PROSPECTS AND REALITIES OF PROCESS EDUCATION IN NOVA SCOTIAN SECONDARY SCHOOLS submitted by PETER J. McALLISTER in partial fulfillment for the degree of MASTER OF ARTS (EDUCATION).

R.A. Sargent

(Thesis Advisor)

Levy Papi

(Dean of Education)

Date April 30/83

## Abstract

# PROSPECTS AND REALITIES OF PROCESS EDUCATION IN NOVA SCOTIAN SECONDARY SCHOOLS

Author: Peter J. McAllister

Date: April, 1993

This thesis examines process education in five high school social studies programs in Nova Scotia. An examination of a classroom learning environment, student learning styles, the use of in-depth coverage of subject matter rather than a survey format, and the active involvement of students in the learning process begins the thesis. The research develops an explanation of what process education is, how student-centered and cooperative learning are aspects of process learning and the role of assessment and evaluation in the learning process. An in-depth discussion of various assessment and evaluation strategies in a process education classroom is a major component of this thesis. Research conducted in five high schools in Nova Scotia, concerning the degree of implementation of process education into high school social studies programs, revealed that process education is a valued teaching and learning strategy. As well, teachers with a Masters degree were rated as being more 'progressive' in their teaching strategies than teachers who had less than a Masters degree with regards to implementing process education strategies. The implications that this research will have with regards to alternative forms of assessment such as authentic assessment, performance assessment and proposed increased use of standardized testing is a key issue to the future of education in Nova Scotia.

## **TABLE OF CONTENTS**

### **Page**

<b>1</b>	<b>Chapter I</b>	<b>Introduction</b>
<b>12</b>	<b>Chapter II</b>	<b>Making the Case for Process Education</b>
<b>37</b>	<b>Chapter III</b>	<b>Evaluation and Assessment in Process Education</b>
<b>74</b>	<b>Chapter IV</b>	<b>Research into Aspects of Process Education Evident in Selected High School Social Studies Programs</b>
<b>90</b>	<b>Chapter V</b>	<b>Implications, Conclusions</b>

### **Bibliography**

### **Appendixes:**

<b>Appendix A</b>	<b>Emphasis on Evaluation</b>
<b>Appendix B</b>	<b>So You Want To Keep Their Heads Off The Desk</b>
<b>Appendix C</b>	<b>Scoring Rubrics of Performance Assessment in the California Assessment Program: History - Social Science</b>
<b>Appendix D</b>	<b>Guidelines for Test and Exam Construction</b>
<b>Appendix E</b>	<b>Portfolio Assessment in History - Social Science</b>
<b>Appendix F</b>	<b>Principles of Effective Groupwork and Characteristics of Effective and Ineffective Groups</b>
<b>Appendix G</b>	<b>Characteristics of Authentic Assessment</b>
<b>Appendix H</b>	<b>Authentic Performance Assessment Activities in History And Contemporary Studies - Ontario</b>

**Appendix I Performance Assessment - The Parable of the House  
Builders**

**Appendix J Teacher questionnaire**

**Appendix K Principal and Teacher Letters of Introduction**

**Appendix L Teacher Demographic Information Sheet**

## ACKNOWLEDGEMENTS

I owe a good deal of credit and inspiration to many people who aided my pursuit for an understanding of what was required to complete thesis research. First, I must acknowledge Anne Dean, an instructor of Curriculum Theory, at St. Mary's University, until 1992. She was my professor in 1989/90. Without her open-minded approach to learning, her creativeness and low-keyed inspirational thoughts I would still be muddling around with ideas but no solution. Through discussions with Ms. Dean I made up my mind to change my approach to teaching and to have more student involvement in the process of learning.

I still felt inadequate as an evaluator of student work based on a student-centered process-oriented educational approaches that I was implementing in my teaching strategies. I was able to study under Dr. Phil Carter, in Curriculum Assessment and Evaluation. Throughout this course I developed a more precise idea for a plan of action that I was willing to attempt with my students, which hopefully would better prepare them for their future career choices. Once I accepted the potential benefits to the students, as life long learners, of a student-centered process-oriented approach to learning, I implemented the "negotiated curriculum" into my teaching repertoire. I have used this approach successfully for three years in grade 12 World Economics and grade 10 Physical Geography.

Finally, I want to acknowledge my Faculty Advisor at St. Mary's University - Dr. Robert Sargent. Having worked through the process of initial research and several drafts of a manuscript I have come to appreciate the time and effort he has put into guiding me through several frustrating and tedious aspects of my work. For this I am truly thankful.



## **CHAPTER I**

### **INTRODUCTION**

In the late 1980's the Halifax County-Bedford District School Board embarked on a ten year program of implementing student-centered process learning as a teaching and learning strategy. This policy required a movement away from a teacher-centered class structure towards actively involving students in classroom learning. It has meant a shift in teaching philosophy, teaching strategies and methods of evaluation.

As teachers in the Halifax County-Bedford District School Board move from the product to the process oriented classroom, especially at the High School level, it has become apparent that teachers require "in-servicing" in strategies that work effectively in that new environment. Teachers who are, perhaps, still setting objectives that measure content and product but are trying to teach content by means of process learning need assistance in developing successful learning strategies. Confusion and frustration that teachers have felt in trying to evaluate the worthiness of what they were doing also needs to be addressed. Is there inconsistency between teaching and evaluation strategies?

Furthermore, the policy shift requires a move away from a reliance solely on the lecture and worksheet method of teaching, where students were passive participants, towards the development of actively involving pupils in the curriculum. The result of this paradigm shift by the school board has created the potential for confusion on the part of teachers, as they grapple with new teaching, learning, and evaluation methods.

Students have been shown to give a low priority to work that is not part of the assessment process. At times this lack of assessment has given clear signals to students that their performance in a task “was regarded as less important than their ability to cope with other aspects of their course” (Daniel, 1991, p.59). Teachers are expected to guide students in both cognitive (intellectual) and affective (social and emotional) domains. Curriculum, instruction, and assessment cannot really be separated. Effective methods of instruction must be used to enable students to learn content which is deemed important to be known. Evaluation must be seen as part of the instructional process. It becomes worthless if the wrong thing is evaluated or further learning does not occur.

Grant Wiggins (1992, p.37) asks “What is worth testing?” and “Are there only uniform national answers to that question?” Pollock (1992, p.52), asks “What are acceptable demonstrations of performance of student knowledge of a subject? How do you adequately assess this to reflect what has been learned.”

**Learning is taking risks!** Not foolish risks but well thought out possibilities of how to do work and solve puzzling situations. The students creativity and process of thinking must be recognized, encouraged, and rewarded. Students, as guided by their teacher, should be taught to take ownership of their learning as this is a fundamental part of student's working lives.

The majority of research for this thesis has originated in American, Canadian, and Australian publications, especially the work of Garth Boomer (1988), who is credited with for my introduction to the philosophy of negotiating the curriculum with students. Through committee work in Nova Scotia and the United States, an insight has been gained into the

methodologies that enables a teacher to move from a product-oriented to a process-oriented classroom.

The student-centered learning approach may be called experience-based, active-learning or child-centered. Chapter 2 illustrates strategies for moving to a student-centered classroom as well as four forms of cooperative learning that are of value in creating a positive classroom learning environment. The effects of Roger and David Johnson, among others, to aid teachers in methods to resolve conflicts that arise within groups will be beneficial to teachers.

Data gathered on pupils performance and progress and their ability for social interaction amongst other classmates should leave no doubt that “whole class teaching stimulates a great deal of competition among students while group investigation promotes cooperation and mutual assistance among them” (York Ontario School Board Publication, *Cooperative Learning*, 1986). Teachers experienced more positive attitudes following this method of teaching and evaluating. They perceived their schools as having a more positive climate and they expressed less need to control their student's behaviour all the time.

Through active involvement of students in learning process education is able to create real life tasks and experiences for the students. This involves a good deal of planning on the part of the teacher, to use the content matter of the subject in developing students cognitive thinking skills. When the teacher emphasises the “how did you do” a task (the process) along with the “What did you do” aspect (the product), then process learning is occurring in the classroom.

## **FOUNDATION OF INSTRUCTIONAL DEVELOPMENT**

There are three aspects of the education process in schools that teachers must be equally proficient in. They are; 1) the setting of objectives, goals and outcomes for the unit of work (the scope and sequence of content); 2) the use of various teaching strategies that will cover the curriculum in a number of formats and recognize different learning styles which provides an equal opportunity for success by all students; 3) the assessment of students, to determine if course objectives, goals and outcomes are being achieved and if modifications to the program are needed to better meet the needs of the students.

Pritchard (1988), believed a planning framework provides a context for the decisions teachers will make when considering the teaching/learning process. The Nova Scotia Department of Education believes teachers should establish a positive learning environment where a student can experience success and feel a sense of worth in dealing with the teacher and fellow students and, thus develop student self-esteem. Ways this can be achieved are:

- clear statements of expectations of student performance and work;
- provide individual instruction and to challenge all students at their own level of ability;
- positive reinforcement and encouragement of all students by the teacher;
- emphasis on communication and social skills between the teacher and students, and among students;
- an atmosphere where honesty, and trust exist while humour and

fun are integral parts of the class environment.

Furthermore, the Department of Education (1992) developed a set of Principles of Learning which state that learning is:

- meaningful and purposeful;
- active, experiential, experimental and requires risk-taking;
- based upon prior/on-going knowledge and experiences;
- social and collaborative;
- facilitated by language;
- integrated;
- enhanced by good models;
- supported by on-going, positive and constructive feedback.

The Nova Scotia Provincial Advisory Committee's *Vision of Nova Scotian Education* (1992), states that education;

...should provide enhanced learning opportunities through a student-centered environment. It should provide equal access to high quality programming and should respond to the needs of all students. It should ensure that learners are actively engaged in a curriculum which balances how to learn and what to learn. Finally, it must offer the flexibility to provide purposeful heterogeneous grouping for all students, as well as opportunities to pursue special interests and develop aptitudes in homogeneous or individual settings.

These guidelines from the Department of Education and the provincial Advisory Council establish the broad planning parameters under which classroom teachers are expected to make curriculum decisions. Therefore, they represent, the foundation of institutional development, and contain embedded within them the essence of process education itself.

## **LEARNING STYLES & STRATEGIES**

Much research has been published about various methods of learning (Brandt,1990; Curry,1990; Dunn,1989; Jaouen,1990; Keefe & Ferrell, 1990), revealing a general concern for why some students do better in school than others. As an example, pupils who learn best through hands-on experience may learn little from readings and films. Research identifies major learning styles and provides us with tests to determine what an individual's learning style is. Also, adaptations have been identified to help individuals with different capabilities learn at their maximum potential. Student-centered learning strategies require that we know students learning styles to ensure provision of the best opportunity to achieve to their full potential. The conclusions of this rich research suggest that teaching strategies should make use of as many learning styles as possible to reinforce the content of each unit. Such strategies could include:

- the use of visual materials (words or pictures) to reinforce oral or written explanations;
- a verbal explanation of visual material;
- the use of visual activities (overheads, pictures, diagrams, slides etc.);
- the opportunity for students to touch, to use, and to manipulate objects whenever possible;
- the use of demonstration (followed by correction) as well as verbal or written explanations;
- the use of the blackboard or overhead to reinforce verbal instruction.

In the process-learning situation teachers should be encouraged to incorporate teaching strategies which make use of "active learning"- "learning by doing" as much as possible to empower students in the learning process. At the same time teachers should incorporate a variety of short lessons and activities into each task. Lessons might be composed of short units with a brief review exercise or questions. Strategies could focus on such things as:

- shared class decision making;
- student input for class decisions;
- teacher or student demonstration followed with practice by all students;
- "hands-on" experiences and practice as well as theory;
- the use of role-playing and simple dramatization;
- small group work;
- student participation in lessons such as board work, discussions, debates;
- field trips;
- the use of "contracts" for assignments, projects and course work;
- skills and content: social, study, communication and performance skills;
- guided practice using student participation and model examples;
- the use of their past experiences or potential future experiences to stress relevancy;
- the application of the material to real life situations.

Elizabeth Cohen & Joan Benton (1988), believed that use of a “multiple-abilities” strategy includes thinking in a new way about human intelligence. They believed that instead of thinking about how intelligent or unintelligent a student is, imagine that there are many different kinds of intelligence or abilities that are called forth in different kinds of situations and for different aspects of a given task. The multiple-ability strategy requires that the teacher convince students that many different abilities are required for the tasks to be completed and that reading and writing are only two of the necessary skills. The teacher states explicitly, in the introduction part of the lesson: “No one will be good at all of these abilities. Everyone will be good on at least one” (Cohen & Benton, 1988, p.46).

As a result of this introduction to the task, student’s expectations and understandings are more clearly in tune with the learning requirements. When they go into group work with mixed expectations, the tendency of some to dominate and others to withdraw is greatly weakened. ‘At-risk’ students who might normally withdraw from the learning environment have a chance to succeed within the group, to solve problems for themselves, to make contributions to the group activity, and to learn. “Students need the opportunity to grapple with ideas, sit down face to face in a family like situation to see how these are relevant to their lives” (Graves, 1992, p.13).

In recent years cooperative learning has been proposed as a solution to a staggering array of problems. Cooperative learning methods have been offered as an alternative to ability grouping, special programs for the gifted, and special education. They have been suggested as a means of introducing higher-level thinking skills into the curriculum, of ensuring



students an adequate level of basic skills, of mainstreaming academically handicapped students, and of giving students the collaborative skills necessary in an increasingly interdependent society. Furthermore, cooperative learning methods are suggested as a major component of bilingual and English as a Second Language programs, and as a way to improve relationships among students of different racial or ethnic backgrounds (Slavin, 1991b). These advantages can greatly assist in the development of a more process-oriented approach to teaching and learning.

The Halifax County-Bedford District School Board, has published a document *From Teacher to Teacher* (1988) where their learning beliefs are presented, which summarize one view of process education as;

Learning is a life-long process of constructing meaning and coming to new understandings for oneself. Learning occurs through active involvement, through accepted mistakes and through social interaction. Learning occurs through language, both written and oral. Learning occurs independently. Learning depends on the learning process. Learning occurs as an integrated process (p.42).

Chapter 3 of this thesis deals with the assessment and evaluation aspect of student-centered, process education. Various types of assessment and methods of assessment are discussed in relation to classroom environment and the creation of an evaluation criteria before the evaluation process occurs. The creation of a "scoring rubrics" is illustrated in appendix C. Alternative forms of assessment are dealt with separately, differentiating between authentic and performance assessment, as well as implications of increased accountability within Nova Scotian schools with increased use of standardized tests and public disclosure of results.

According to the National Council for the Social Studies Testing and Evaluation Policy Statement (1991);

Assessment of student performance in school is a process of measurement which includes the gathering of information according to predetermined specifications. Evaluation is a process of collecting, analyzing and interpreting data to assess and make judgements about performances on the basis of predetermined criteria, goals and objectives. Testing and evaluation are necessary elements in planning, implementing, and determining the success of students, the teachers', curriculum, and the total program that schools have to offer.

One strategy to involve students in the learning process would be to ask the students what they already know about the area to be studied, and ask what they believe they need to know or want to know about the subject matter to be learned. Concurrently the atmosphere must actively encourage students to ask their own questions. According to Garth Boomer (1988, p.18) the "amount of learning is directly proportional to the number of questions asked by the learner." Matching learning objectives of the curriculum with the students needs becomes a powerful instrument of learning. It adds relevance to learning when students are invited to influence the curriculum. They are being empowered to have a say in the decision making process of what will be taught and what will be learned. This has a positive effect. It gives students ownership in the development of the course of study and has the potential of reducing stress attributed to the process.

Should course content be taught in an in-depth manner or should a survey approach to content be utilized? Which method will enable students to develop a better understanding of what is being taught? It has been

suggested by Walter Parker (1991), that students should cover course content on a more in-depth level, and cover fewer topics. In-depth coverage brings improved instruction, as well as, more instructional time being spent on fewer topics. This extra time is used to expose and challenge students to develop deeper and more complex understandings of topics. The decisions as to what topics deserve to be covered in-depth is one that should be made in consultation with teachers, students, subject specialists, consultants, and the Department of Education.

This thesis was designed to determine; what is process education and the degree in which it is being implemented in the Halifax County-Bedford District School Board. Chapter 4 of the thesis deals with research completed to aid in determining the answers to these questions; and whether those teaching competencies, student learning, and assessment strategies deemed important by high school social studies teachers in the Halifax County-Bedford District School Board are being utilized by teachers, in the classroom?

## **Chapter II**

### **MAKING THE CASE FOR PROCESS EDUCATION**

Student-centered learning, cooperative learning, and process learning are three strategies used in education which actively involve students in learning. All are experienced-based, active, child-centered, and thus can be seen as different terms to describe similar aspects of process education. Each strategy is an approach to curriculum that empowers students to become problem-solvers, decision-makers, effective communicators, and independent learners. This advocates that learning can be maximized when it takes place within the context of support, encouragement and assistance from peers and the teacher within an inviting classroom. Lev Dahl (1991, p.4) used a scientific explanation for this type of learning, and claimed that it was “a process of hypothesizing, predicting on the basis of the hypothesis, testing the prediction, and reinterpreting or modifying the hypothesis.”

### **ACTIVELY INVOLVING STUDENTS**

Learning may be defined as acquiring new information, or new abilities to use information, such that the information or ability is accessible to the person twenty-three or more hours beyond the class period in which the information or ability was first encountered or used. Neither the student nor the teacher can confirm that learning has occurred based on this definition until at least twenty-three hours later. “Just because students are actively engaged in an activity and appear to be learning does not mean that

what they are doing or thinking about during the class has been or ever will be learned” (Stahl,1992, p.13). Many students thus will learn information in one class and have difficulty remembering that information the next day. How then do educators actively engage students in meaningful learning experiences?

Research from the National Training Laboratories in Bethal, Maine has determined the average retention rate of information by learners for different activities. The retention rate refers to a learners ability to recall information over an extended period of time. According to Robert Stahl (1992, p.8), the retention rate would be “memory of information that had been provided to the learner at least twenty-three hours previous.”

This has been developed into a learning pyramid and appears as follows:

### THE LEARNING PYRAMID

5%	Lecture
10%	Reading
20%	Audio - Visual
30%	Demonstration
50%	Discussion Group
75%	Practice by Doing
90%	Teach Others (Immediate Use of Learning)

The percentage of retention for each method shows that by increasing the level of active involvement the retention rate increases. For example, from a low of five percent as a passive learner (lecture) to seventy-five percent (guided practice), and a high of ninety percent when teaching others, the retention rate increases with higher involvement. This input should have a significant impact on the teaching and learning strategies employed in the classroom.

We can ask a number of significant questions about classroom practices. For example, do teachers equip students with specific knowledge and skills, help them discover, develop, and expand their own experiences, and pursue their own interests in an actively involved way? How do teachers endeavour to educate the whole student? How do we teach students to solve problems? How to work as a team? How to pursue lifelong learning? These are questions that may be answered through implementation of more process forms of education.

## **STUDENT-CENTERED LEARNING**

In student-centered learning students and teachers share the responsibility for the curriculum content, the process of learning and the methods of evaluation. According to the York (Ontario) School Board (1986), the teacher creates opportunities and interactive experiences for the students which recognize each students' individuality and emphasize the concept of "learning how to learn", as well as students discovering information about themselves as learners. Students and teachers can share in the responsibility for the development of the curriculum of a particular course at a specific grade level. Both can have input into the content of the

course, the process involved in covering the content, and the means and methods of evaluation of the material covered (Boomer,1988).

The idea of a student-centered classroom in which students have the freedom to share in the decisions which affect their learning may appear, at first, threatening to many teachers. It is important to remember, however, that student-centered does not mean chaos in the class or loss of classroom control by the teacher. Student-centered terminology refers to situations in which students are given an opportunity, at each stage in the learning process, to share in the decisions about how they will proceed.

From the student's standpoint, a student-centered classroom is often less stressful than a teacher-centered classroom. A student-centered classroom does not attempt to have all students fit into the same learning style. Flexibility is allowed to meet individual student needs. The teacher becomes less of an authority figure who controls and directs the class, and more of a resource person, who helps and facilitates the learning experience of students. As students learn, they are also teaching the teachers. The teacher willingly gives up some of the traditional authority thus leading to a development of mutual respect between teacher and student.

The sharing of student prior knowledge is important to the learning process. If educators are required to teach students to think, inquire, interpret and act, then educators should also ask of themselves to think, inquire, interpret and act. Passive learning or passive students can not be accepted nor can passive teachers teaching our children be accepted. A teacher may act as a mentor or coach to the student giving guidance or helpful suggestions when asked. More personal contact between teachers and students can be achieved.

The teacher can create opportunities and experiences that enable the students can interact with each other. This can be achieved by means of formal and informal small group activities relying on individual accountability, such as whole class discussion, role playing, and debates. Alcorn & Wittgen (1990), believed that when students have more responsibility for determining the nature of their learning there is a lasting effect on the learning experience and a positive attitude developed by the students. This effect on the learning experience, in turn, leads to a greater transfer of learning to other situations. (see Appendix A)

The ideal is for the teacher to create a learning environment that allows students to think, discuss and share ideas in a positive learning environment. This can be accomplished in the writing process through writing journals, small group enquiry, or interdisciplinary study, by students trying to discover the connection between what is being studied and their life experiences (Myers,1986). Inviting students to think, share ideas and discuss (negotiate) what will be studied with the teacher should enrich a unit of work for both the students and the teacher. Stover (1990, p.39) believed that student-centered learning was influenced by context, peers, curriculum content, elders, the community and teachers who should "individualize instruction, listen to students concerns, allow peer interaction, and shared decision-making."



## STRATEGIES FOR MOVING TOWARDS A MORE STUDENT-CENTERED CLASSROOM

In *Teaching and Evaluation Strategies for Social Studies*, Kilcher & Warren (1985, p.58), describe a student-centered classroom as one in which:

- there is a variety of resources available for use;
- students are given the freedom to make mistakes and learn from their mistakes;
- creativity and original thinking are encouraged;
- content objectives may be flexible;
- the teacher and other students are perceived as resources and participants in each other's learning;
- there is flexibility in presentation by the student.

The student-centered approach to learning has many benefits. Metzger (1985) believed it was more interesting to the students because they would know ahead of time the work that is required, what the task is worth, and how the task would be evaluated. It teaches the students responsibility; to learn from their mistakes, and to understand that mistakes are a natural process of learning. Student-centered learning creates students that have the potential to be better thinkers, with a more positive attitude towards learning and sharing. (see also Appendix B)

## COOPERATIVE LEARNING

In cooperative learning activities the teacher's role also changes. As in student-centered learning, the teacher is no longer the direct leader with total class control. The authority is delegated to individual students or groups. The students become responsible for making sure that individual or group tasks are completed and that group members get help when needed. Students do many of the things that a teacher in a traditional class setting would normally do, such as answering each other's questions, keeping each other on-task, and helping peers to get organized.

Successful group work requires quite profound changes in students and in teachers. Students take on new roles, and teachers give up some old ones. The curriculum moves away from its almost singular reliance on paper and pencil or verbal tasks to a richer array of teaching strategies. Likewise, a wider variety of intellectual methods for solving problems are encouraged (Cohen & Benton, 1988, p.46).

None of these changes are easy, but they are worth the effort. Group work can help the teacher better reach all students, specifically those students who in the past have been the hardest to reach. Research indicates these students will work harder, be happier, will spend more time-on-task, will be more excited about school, and will learn more (Slavin,1991a; Burnett-Strothers,1990; Kohn,1991a). In the final analysis, it is seeing students begin to develop a deeper understanding for the learning process that motivates many teachers to continue the difficult process of changing the workings of the classroom.

Additional aspects of group work activity that a teacher may use are group or individual observations, asking key questions to stimulate or

direct student learning in a more focused manner, to give quick feedback to individuals, to stimulate thinking, to reinforce rules or group requirements, and to review individual roles and acceptable norms for a successful working group. Working cooperatively in small groups is a learned skill that must be developed over time. Successful activities usually start with short activities, early in the school year and gradually build to more demanding activities as the year progresses. The teacher in this setting acts in a supportive capacity rather than a supervisory capacity. However, the teacher should hold the students accountable for their actions and for the management of the group activities. This is a very demanding process for a teacher and one that may not be readily adopted by educators.

Teachers should work with students on activities that develop listening, explaining, and demonstration skills. In cooperative group work it is always best to start on small short group tasks and build more challenging tasks as students develop cooperative skills. The idea that teachers are allowing students to take ownership of their learning in a student-centered cooperative classroom can be a very positive force as a teaching and motivational tool.

Burnett-Strother (1990), stated that cooperative learning may fail because of poorly or inadequately trained teachers in this methodology. They added, "If students do not possess the necessary social skills to work cooperatively such as resolving conflicts within the group when they arise then the group will not be successful" (p.161). Other situations in cooperative learning may create problems, such as too large groups, inadequately planned lessons, and poorly designed tasks where there is a one answer solution. Cooperative learning has been most successful when

teachers have willingly adopted the idea, and it rarely works successfully where it has been mandated by senior administration.

Cooperation means working together to accomplish shared goals. According to Stahl & VanSickle (1992, p.5);

Simply placing students in groups and telling them to work together does not in and of itself result in cooperative efforts - or positive effects on students. Teachers need to understand the essential elements of cooperative learning and be given enough training so that this can occur.

Within cooperative activities in the social studies classroom, individual students seek outcomes that are beneficial to themselves and to all group members. Cooperative learning means that students work together to maximize their own and each others learning (Johnson, Johnson, & Holubec, 1990; Van Sickle, 1992). According to research conducted by David and Roger Johnson (1992, p.45);

Since 1898, more than 550 experimental and 100 correlational research studies have been conducted on cooperative, competitive, and individualistic efforts... therefore, more is known about cooperative learning than about some of the other educational theories such as lecturing, age grouping, departmentalization, inquiry teaching, critical thinking, starting reading at age six, or the fifty minute period.

The research on cooperative learning has determined that three ingredients for successful small group experiences are:

- students should develop the motivation and be provided with the opportunity to help one another learn;
- students should develop the feeling that they are responsible for and accountable to the group and themselves for doing their best;

- students need to be taught to develop the social skills necessary for effective cooperative work.

Other successful components of cooperative learning are; adequately preparing students for group activities, setting accepted group behaviours before starting a task, recognizing groups that meet the prenegotiated class expectations, keeping groups together long enough (at least one month) to allow for some form of group cohesiveness and spirit, and rewarding students for improving upon their academic achievement (Cohen & Benton,1988; Kohn,1991b; MacLean,1990; Slavin,1991b).

## **FORMS OF COOPERATIVE LEARNING**

There are several models of cooperative learning. The John Hopkins model of cooperative learning, led by Robert Slavin, suggests that students should be placed in small groups to learn, not to compete. A major component of this group process is recognition in the form of certificates to group members when individual performance on quizzes or tests meet a certain standard. Slavin believed this practice encourages students to help each other to learn rather than to simply complete a task or assignment.

According to Slavin (1991b) there are many different forms of cooperative learning, and the effectiveness (particularly for achievement outcomes) depends on the approach used.

- For enhancing student achievement, the most successful approaches have incorporated two key elements: group goals and individual accountability. That is, groups are rewarded based on the individual learning of all group members. Slavin (1988, p.32) asks the question

“how do you measure the benefits obtained by the individual within the group?” Kohn (1991b, p.94), on the other hand believed there was “no reason to expect that if teachers simply allow students to work together or reward them based on a single group product or task, they will learn more than students taught traditionally.”

- When group goals and individual accountability are used, achievement effects of cooperative learning are consistently positive; thirty-seven of forty-four experimental/control comparisons of at least four weeks duration have found significantly positive effects, and none have favored traditional methods.
- Achievement effects of cooperative learning have been found to about the same degree at all grade levels from grade 2 to grade 12, in all major subjects, and in urban, rural and suburban schools. Effects are equally positive for high, average and low achievers.
- Positive effects of cooperative learning have been consistently found on such diverse outcomes as self-esteem, intergroup relations, acceptance of academically handicapped students, attitudes towards school, and ability to work cooperatively.

The Tel Aviv model of cooperative learning, led by Yael Sharan and Shlomo Sharan, believed all members of a group should receive the same mark for group work regardless of the individual work done. Group tasks should be designed so that each group member has an opportunity to contribute and share their information (research), and ideas with each other in a non-threatening environment. Students should be made to feel that what they do and what they say has value and is important.

The University of Minnesota model of cooperative learning, developed by Roger and David Johnson, believed grouping of students should be done in order to complete a task. Individual accountability for specific tasks is a vital part of group dynamics. They believed that this is the difference between simply putting students in groups and having students work together cooperatively.

The Johnson's (1989b, p.80) suggest that cooperative learning should emphasize five basic elements that must be incorporated into each lesson. They are:

- 1) positive interdependence - students must believe that they are responsible for both their own learning and the learning of the other group members;
- 2) positive interaction - students must have the opportunity to explain what they are learning to each other and to help each other understand and complete assignments;
- 3) individual accountability - each student must demonstrate mastery of the assigned work;
- 4) use of social skills - each student must communicate effectively, provide leadership for the group's work, build and maintain trust among group members, and resolve conflicts within the group constructively;
- 5) group processing - groups must stop periodically and assess how well they are working and how their effectiveness may be improved.

The fourth model of cooperative learning originated on the campus of UCLA and was developed by Spencer Kagan. It is a cooperative learning model where many of the characteristics of the three previous models are used with the difference being in how students are grouped. With the UCLA model there is a very structured form of student grouping in classes (Cooperative Learning Summer Teacher's Institute, 1991).

There is much debate throughout the cooperative learning community as to which method of cooperative learning is most beneficial to student

learning and student achievement. Slavin believed that it hasn't been shown conclusively that one method of cooperative learning is better than others as far as student achievement is concerned. The Johnson's (1989b, p.81) suggested that the argument as to which method is the best be abandoned and that researchers work cooperatively with each other to "better understand the conditions under which cooperative, competitive and individualistic efforts are effective and how and why cooperative efforts are so powerful." Slavin responded by questioning the results of research which showed that two or more students can solve problems better than one student. He believed this was obvious, but questions may be raised concerning how to determine if each student is performing better, or if one student is simply copying from other students? He stressed that what is important is how much individual students learn (individual accountability) from a cooperative experience.

According to information presented at a Cooperative Learning Summer Teacher's Institute (1991), research has shown that a successful process of teaching cooperative skills incorporating several models of cooperative learning should:

1. Engage the students in a skill;
2. Obtain feedback from the students in various forms;
3. Reflect on the feedback - individually and as a group;
4. Modify the task and engagement in the skill again, if necessary;
5. Repeat steps 2, 3, 4, again and again until the skill is an automatic response.



Five major steps in teaching social skills are;

1. Ensure students see the need for the skill;
2. Ensure students understand what the skill is and when it should be used;
3. Set up practice situations and encourage mastery of the skill;
4. Ensure that the students have the time and the needed procedures for processing;
5. Ensure that students persevere in practicing the skill until the skill seems natural.

The key aspect is to practice (guided practice perhaps) with the students, the skills that are deemed as being important to meeting the objectives of the task.

## **CONFLICT RESOLUTION**

Some methods of cooperative learning are easier to incorporate than others. It is the individual classroom teacher who must experiment with these techniques and adapt them to their particular teaching style. Many teachers fall into the rut of trying to incorporate a preplanned cooperative learning lesson without totally understanding the particular objective or goal of the lesson. When a teacher realizes that a cooperative learning plan is too restrictive or confusing for their students they often abandon the process rather than adapt the lesson to their particular teaching strategy or ability.

Some teachers may put students in groups without planning for individual accountability, or the teacher may simply plan poorly the group

activity. What results is confusion or chaos rather than on-task activity. As a consequence conflicts can arise within the group, and the teacher may not be prepared to handle the problem. If the conflict is not eliminated it may escalate and prevent successful completion of the task. According to Spencer Kagan (1987), there is an eight step plan for resolving conflicts. They are:

- |   |           |
|---|-----------|
| 1.Share - we can both do it                                     | STUDENT   |
| 2.Take turns - we can do it your way this time, my way next     | TEAMS     |
| 3.Compromise - give up some to get some                         | CERTAINLY |
| 4.Chance - flip a coin  | CAN       |
| 5.Outside help - let's ask a teammate, classmate, teacher       | OFFER     |
| 6.Postpone - do it later, when we cool down                     | PRETTY    |
| 7.Avoid - agree to disagree - with respect                      | AWESOME   |
| 8.Humor - is this important to "Joe's turtle,"or a like comment | HELP!     |

Constructive controversy is part of group dynamics and conflict resolution is a learned skill according to Roger and David Johnson (1989a). They have developed an exercise that allows students to express a way of agreeing to disagree by asking students to determine what disagreeing looks like and what it sounds like. As students work through this exercise and are able to come to grips with the fact that they can disagree in a constructive manner (agreeing to disagree) without major problems developing, then the group can progress towards completing the assigned task in a much more positive manner.

In *Cooperative Discipline: A Workshop*, discipline statistics, presented by Frank McCormick (1992), indicate that;

Eighty percent of students are OK most of the time, they behave well and achieve well. Fifteen percent can be problems. They have the potential to act up, they need rules and consequences. Five percent are serious behaviour cases and are chronically in trouble, and often act out of control.

There are many problems in schools that cooperative learning could address and research has suggested that cooperative learning and strategies like conflict resolution can improve students' attitude towards school, towards learning, and towards one another. Group work is not a panacea. Nor is it the best strategy for all teaching and learning goals. Whole-class instruction clearly has its place in the array of teaching strategies.

## **PROCESS EDUCATION**

In a student-centered process classroom the importance of process, as well as product, is stressed. Process education has been described as a "Thinking Curriculum" (Brown, 1991; Wiggins, 1991). Herman et al, (1992, p.17) stated that process education is a situation in which;

... students are often involved in tasks similar to those encountered in the real world. Students carry out tasks requiring complex thinking, planning, and evaluating. They solve problems, make decisions, construct arguments, and so forth. In this way they model the process of a professional discipline while acquiring knowledge in the discipline.

Process education can best be summed up as an "educational system which emphasizes the learning and demonstration of generalizable skills (eg. observation, classification, measurement, prediction, communication and inference)" (Houston, 1992, p. 203).

If teachers can better understand the learning process it will enable them to develop appropriate teaching and assessment strategies for the individual student. Students need opportunities to summarize and reflect on their learning. The teacher should plan time for this to occur, either in written or oral form. Cooperative small group learning also provides an opportunity for students to process what they have learned and to internalize new information in a manner which makes sense to them. This increases the amount of information otherwise available, allows for varying views or interpretations of new material, and aides the students in staying on task to complete work requirements. It also allows for constructive criticism and feedback to individuals within the group, which may reinforce their ideas and beliefs (Stahl,1992).

There are plenty of opportunities for students to use what they know, to reflect on what has occurred, to explore, to share ideas by means of talking, writing, listening and reading in the classroom. The use of journals or learning logs for reflective thinking and analysis are important components of the learning process. In project work Levdaahl believed there should not be a great emphasis placed on the final draft writing or student discussions rather more emphasis should be placed on the processes that led to the final draft. Thus process itself is emphasized.

Processing is a necessary element of all learning.

Students should examine and discuss how they practiced the social skill, how they could use them more effectively in the future, where else in their lives these skills would be useful, and what they want to work on the next time they are placed in a group. There is only limited improvement in social skills without the processing component of cooperative learning (Cooperative Learning Summer Teacher's Institute, 1991).

Processing helps students grow toward independent thinking and problem-solving. It encourages students to analyze and evaluate their behavior.

### **THE DIFFERENCE BETWEEN A PRODUCT-ORIENTED AND A PROCESS-ORIENTED CLASSROOM**

In any well designed exercise or assignment, the student is involved in some kind of learning process. The resulting product created by the student is simply a formal expression of this process. For example, this thesis is a product. However, to produce this document, the author was actively involved in a very lengthy process. The valued outcomes are as much a part of the process as they are embedded in the product. Since a product is the result of a process, it may seem that the two terms are inseparable. However, Hargraves and Earl (1991) point out several misconceptions concerning the nature of a process-oriented classroom which are echoed by Stahl and VanSickle (1992, p.4-6). These misconceptions are:

- attention to process does not negate the importance of content; however, the content, instead of being an end in itself is the vehicle through which the process is worked;
- process does not negate product; concern for process adds an additional dimension to the worth of a product;
- an activity-centred classroom is not necessarily a process-oriented classroom, i.e., the students may be "doing" but be neither aware that they are going through a process nor understand what the process is.

According to the Nova Scotia Department of Education, *Product vs Process-Oriented Classroom* (1992), research has shown differences between product and process classrooms. The following is a list of the differences.

### **THE PRODUCT-ORIENTED CLASSROOM**

- the teacher emphasizes “what did you do?”
- tasks revolve around items of content learning
- the answer is most important
- the teacher believes that there is a body of content that the student must cover
- the teacher evaluates the product
- the student “does”
- the student often lacks an awareness of how they learn
- learning takes place through the acquisition of factual knowledge

### **THE PROCESS-ORIENTED CLASSROOM**

- the teacher also emphasizes “how did you do?”
- tasks involve a process of learning
- the means of obtaining an answer is equally as important as the answer
- the teacher recognizes that content is only one component of the learning process
- the teacher also evaluates the process
- the student “does” and thinks about what they did
- the student has a growing awareness of how they learn and can learn
- learning occurs when the student works through a process in which knowledge is

- |  |  |
|--|--|
|  | actively manipulated and<br>restructured to reach an<br>insight  |
| - problem-solving skills may<br>develop when learning the<br>content | - problem-solving skills develop<br>when learning the content and<br>when the student reflects on the<br>process used to work through<br>the content |

Actively involving students and allowing for reflective thinking and writing by the learner helps develop a better level of understanding, and aids in the development of student appreciation of becoming a life long learner. At a Cooperative Learning Summer Teacher's Institute in Bridgewater, Nova Scotia, August, 23-25, 1991, it was determined that process-oriented activity-based objectives, all other things being equal, will cause one activity to be more worthwhile than another if:

- it permits children to make informed choices in carrying out the activity and to reflect on the consequences of their choices;
- it assigns to students active roles in the learning situation rather than passive ones;
- it asks students to engage in enquiry into ideas, applications of intellectual processes, or current problems, either personal or social;
- it invites children with relia (i.e. real objects, materials and artifacts);
- completion of the activity may be accomplished successfully by children at several different levels of ability;

- it asks students to examine in a new setting an idea, an application of an intellectual process, or a current problem which has been previously studied;
- it requires students to examine or issues that citizens in our society do not normally examine and that are typically ignored by the major communication media in the country;
- it involves students and teachers in 'risk' taking - not a risk of life or limb, but a risk of success or failure;
- it requires students to rewrite, rehearse, and polish their initial efforts;
- it involves students in the application of meaningful rules, standards, or disciplines;
- it gives students a chance to share the planning, the carrying out of a plan, or the results of an activity with others;
- it is relevant to the expresses purposes of the students'.

Also discussed were seven additional objectives that summarize the concepts inherent in process education.

1. To initiate and develop in youngsters a process of question-posing (the inquiry method);
2. To teach a research methodology where children can look for information to answer questions they have raised and use the framework developed in the course (eg, the concept of the life cycle) and apply it to new areas;
3. To help youngsters to develop the ability to a variety of first hand sources as evidence from which to develop hypotheses and draw



conclusions;

4. To conduct classroom discussions in which youngsters learn to listen to others as well as express their own views;
5. To legitimize the search; that is, to give sanction and support to open-ended discussions where definite answers to many questions are not found;
6. To encourage children to reflect on their own experiences;
7. To create a new role for the teacher, in which the teacher becomes a resource rather than an authority.

## **PROCESS LEARNING LESSON PLANS**

Lesson plans which incorporate any student-centered approach need rules and guidelines, which provide room for negotiation with the students concerning certain aspects of the learning process. The lesson should be adaptable to the ability levels of the students. According to Robert Yinger (1990, p.125-126) unfortunate weaknesses in implementation occur because;

... teachers spend time on student activities, content, teaching strategies and learning activities, but objectives of lessons are rarely planned. Information may be put in a planbook and pages of a text may be noted, but they are more for accountability purposes than for setting lesson outcomes.

Robert Schwartz and Ronald Cramer (1989, p. 2-3) suggested that there are three types of lesson plans - content, process, and context.

Content plans focus on information we want students to know...content plans should include instructional strategies designed to introduce or elaborate the content presentation. Process plans help students learn how to perform cognitive skills or procedures... process skills include procedural knowledge that supports independent learning...

Context plans are the “larger framework in which content and process lessons occur...context plans can include decisions about grouping, discipline, and grading... contextual factors are important because they interact with content and process plans to enhance or limit their effectiveness” (p.3).

In *Planning Process Lessons: A Guide To Independent Learning* (1989, p.4-10), a six step approach to process lesson plans was developed by Robert Schwartz and Ronald Cramer. Step one was to determine what learning process would benefit a teacher's students to improve their achievement. The teacher should start with small simple activities and gradually build upon the learning of the students. Step two was to develop the student understanding of the purpose of the lesson (activity, task). Analogies and demonstrations are good examples of this.

The third step was to link students prior knowledge to new material to be able to extend the lesson to other learning activities or circumstances. Step four required using a graduated program for introducing new material. Teacher modeling of the skill or procedure was suggested. Students would be able to see how the process operates and develop their own solutions to the activity (task). It would be useful here if students observe, participate, and discuss what they have done, to allow for a better understanding of what has been accomplished.

Step five required students to practice the skills deemed important for the completion of the activity, in a meaningful and constructive manner. The practical application of the skill improves student understanding of information. The last step was to relate the learning task to other information. This is an extension of the learning experience which enabled students to apply what had been learned to other content areas. Schwartz and Cramer (1989, p.10) stated;

To use process skills independently and efficiently, students need to make decisions about when a given strategy will help achieve their purpose. Teachers can not assume that transfer will occur; they must plan instruction that makes it happen.

This was illustrated by Kon & Martin-Kniep (1992) in research completed for the California Assessment Program which determined that students had difficulty with the transfer of geography skills from one activity to another when the format of the question or work was changed. Work that students successfully completed using one skill was not transferred successfully to another question requiring the same skill.

In order to overcome this compartmentalization of knowledge and skills teachers should plan for active student participation in lessons through sharing of class ideas with regards to the goals and objectives of the activity. Class procedures can be negotiated with students. The class should emphasize important content, allow time and opportunity for students to think about and possibly try out, and comment on the new ideas, and develop clear perceptions about the linkages of the new skills to other areas of learning. The development of deadlines, and individual and group expectations should be a collaborative effort between the students and the

teacher, and the teacher should be sure that students share in setting the class rules and regulations. Teacher flexibility is important. All negotiations should ensure that there will be no surprises or "hidden agendas", and that the process and cross-curricula linkages are clear and understood.

## CONCLUSIONS

There are a number of different views about process education. While those perceptions differ, the essence seems relatively the same. Thus, we have a core of what process education is. First, it is an education that actively involves the learner in an experienced-based set of strategies which serve to empower those learners in taking responsibility and control of the process itself. Second, the process is an integral part of the learning outcomes and, while not replacing the more traditional notion of product-oriented teaching and learning, adds a significant dimension to what is required and expected. Third, research shows quite clearly that a process approach, in which the learners are involved in a variety of doing-activities, including teaching of others in planned and structured group situations, accelerates retention of the required information and knowledge.

Therefore, while we can identify various forms of student-centered, cooperative, and process learning strategies, in essence they all provide an approach to teaching and learning that is designed to enhance the student gain. Teachers may have some difficulty in absorbing and implementing these kind of strategies, but the evidence seems quite clear - a more positive, productive, and responsible learning situation can be constructed through effective implementation of process models of education.

## CHAPTER III

### EVALUATION AND ASSESSMENT IN PROCESS EDUCATION

#### Introduction

The purpose of this chapter is to present a compilation of evaluation methods which may be used in a student-centered process learning environment. Teachers should be aware of and employ these methods to facilitate student success, reduce student anxiety associated with the assessment process, and hopefully, generate a feeling within students of self-fulfillment in school.

Efforts to define what is considered a part of evaluation and assessment (Clarke, Wideman, & Eadie, 1990; McCutcheon, 1987; Wiggins, 1991; Madeaus, 1992) occupy much space in recent educational literature. Evaluation/assessment is often used as a synonym for testing. The terms evaluation and assessment (Brandt, 1988; Fitzpatrick, 1992; Haley, Natoli, & Hollar, 1990; Herman, 1992; Hiebert & Hutchison, 1991; Johnson, 1988; Martinez & Lipson, 1989; Pollock, 1992; Shepard, 1989; Stock & Robinson 1987; Weiser, 1982; Wiggins, 1989, 1992; Wolfe, 1989) have various meanings to researchers. According to *Making the Grade* (McCutcheon, 1987, p.2) "Evaluation includes all available methods of obtaining information regarding what the students are learning and how effective the teaching is."

Edward Chittenden (1991, p.28) defined assessment as;

the process of obtaining information which is used to make educational decisions about students, and to judge educational

effectiveness and curricular adequacy... The various assessment techniques include, but are not limited to, formal and informal observation, qualitative analysis of pupil performance and products, paper and pencil tests.

The *Encyclopedia of Educational Evaluation* (Anderson et al., 1975, p.27) defines assessment as “a process for gathering information to meet a variety of evaluation needs. Tests may contribute to the assessment but they should not be the sole means of evaluation.” According to the Encyclopedia (p.27);

It therefore seems appropriate to... limit the term assessment to the process of gathering the data and fashioning them into an interpretable form; judgement can then be made ... Assessment, then, as we define it, precedes the final decision making stage in evaluation.

John Myers (1992, p.26) sees these terms in much the same light when he stated that evaluation was the “rendering of a judgement on the merits of a performance, and assessment, the collection of data on the basis of which that judgement is to be made.”

We can conclude for our purposes that evaluation is the process of assessing student progress towards stated educational objectives and includes making judgements. Only with clearly defined and stated objectives is it possible to judge the extent of student progress. McCutcheon (1987, p.28) stated;

... these objectives should be fully understood by students before teaching and evaluation take place. Making students aware of the learning objectives and how learning will be evaluated helps students to understand the purpose of learning activities and their desired outcomes.

Assessment can be differentiated in terms of what teachers assess - the process of work (how the student sets about collecting, organizing, and interpreting information), or the product (the presentation of the ideas and the quality and quantity of work). Traditionally, precedence has been given to the assessment of the finished product, since assessment is commonly viewed as an attempt to quantify learning, from a product-oriented view of learning.

## **THE PURPOSE OF ASSESSMENT AND EVALUATION**

Assessment/evaluation is an integral part of the learning process. The purpose of evaluation should be to assess the growth and development of the student over a period of time. Assessment is a consistent system that includes constant gathering of information about student learning; the effectiveness of the teaching process; and the appropriateness of the curriculum in relation to the needs of the student. The information gathered should be used to plan future learning experiences; to develop a quality learning environment in the classroom for students; and to provide feedback for the student, teacher, and parents. Grant Wiggins (1989a; 1992) suggested there is a need to develop an outcome-based form of assessment that has a standardized evaluation criteria determined before the evaluation takes place. Good assessment is not only an essential part of teaching and learning, but is also inseparable from the act of teaching itself.

Depending on what educator you ask, there are many purposes of assessment and evaluation. Some of the answers that could be given as to the purpose of assessment and evaluation are:

1. to diagnose or assess students in order to decide what/how to teach;
2. to classify or group students for instructional purposes;
3. to give quick, constructive feedback to the learner;
4. to determine whether or not instructional objectives are being met;
5. to grade students;
6. to improve learning - not merely to prove learning;
7. to help students better understand what students know and to make meaningful instructional decisions;
8. to identify areas of strengths/weakness for individual students;
9. to modify/pace instruction;
10. to determine what experiences/strategies were useful in promoting student growth in learning;
11. to communicate student's progress as fully as possible to parents or guardians and other school staff such as guidance councillors;
12. to be done in an on-going and continuous manner.

Although assessment and evaluation are an on-going processes and assigning grades is a task that teachers are continually faced with, assessment is much more than simply a tool to measure student achievement. Assessment must also be seen as a means to improve teaching and learning.

## **TYPES OF ASSESSMENT**

**Diagnostic assessment** may be conducted at the beginning of the school year, or term of study, to identify whether or not a student is having



difficulties with subject matter, and thus to make decisions about the placement of the student, or the need for modifications to the program. Much of this type of assessment is also done informally and continually throughout the year. Informal assessment takes place as the teacher interacts with students in the classroom, interprets students' answers and responds by modifying the teaching style, adapting the topic to student needs, or changing the curriculum to meet the needs of the class.

Diagnostic evaluation can assist the teacher in identifying special needs of students. It can also aid a teacher in determining at which level of learning certain students are. One means of accomplishing this is a pre-test. Once you know the present level of ability of the student you can then prepare to challenge the student at the next level of learning. You can also better judge the degree to which the student has progressed while under a teacher's guidance by comparing the initial score of the student (the pre-test) to where the student is presently in the learning process (current assessment).

**Formative assessment** is on-going and may act as a guide for continuous student progress. It is used to evaluate student learning throughout the school year rather than at points such as the end of a unit, a chapter, or the end of a school year (summative). Information gathered is used to improve instruction, to modify classroom activities, and to indicate student strengths and weakness. Hargraves & Earl (1991, p.141) state that; "the emphasis is on how far assessment will help the teacher identify the students' problems and provide support, as compared to describing just the final result."

Formative evaluation is designed to assess the learning process and diagnose problems and needs of specific students. Its prime purpose should

be to improve instruction, learning, and assessment. It aims at assessing the student to produce evidence of what has been achieved. It should allow room for the subject matter to be modified, and the method of teaching and learning strategies that will be used to be altered, based on the results of the assessment. Formative evaluation strategies suggested by Clarke, Widerman, & Eadie (1990, p.162), are;

- Checklists of tasks completed, tasks to do
- Discussions
- Worksheets
- Early draft of writing; early draft with group's suggestions for reshaping or editing
- List of original ideas generated from brainstorming
- Observation
- Response journals
- Plans, flowcharts
- Evaluation of effort as well as accomplishment
- Point form notes
- Quizzes
- Teacher or peer conferences with the group to assess progress and to set future goals
- Work habit profiles
- Learning logs
- Inventories of materials needed
- Self and group anecdotal reports of concepts understood, procedures mastered, and procedures for which the group needs help

**Summative evaluation** usually occurs at the end of a unit of study, by means of a test or an exam. It assesses the learning outcomes and the grasp

of academic knowledge acquired. It may also assess the development of thinking and cooperative skills. Forms of summative evaluation characterized by Clarke et al (1990, p.171), are;

- Scrapbooks
- Critiques
- Written reports
- Anthologies of the groups creative writings (poetry, stories, dialogues)
- Panel discussions
- Flowcharts depicting processes in social studies
- Oral reports
- Debates
- Demonstrations
- Portfolios
- Tests to assess factual recall, problem solving, interpreting events, describing a point of view
- Essays
- Multi-media presentations
- Creations such as photo essays, videos

Summative evaluation has traditionally been used to grade students. Paper and pencil evaluation strategies are commonly used with this type of assessment. However, results gathered through summative evaluation are limited, and teachers should attempt to use a combination of summative and formative evaluation throughout the academic year.

Assessment can be differentiated in terms of its point of reference. **Criterion-referenced** assessment records each students' level of attainment for specific curricular goals. It matches students against a standard. The advantage of this method is that it enables educators to identify by how much a student has exceeded or fallen short of the

predetermined level of performance, so that appropriate help can be offered.

Criterion-referenced tests are designed to determine where an individual stands in relation to a set of objectives. The rating for each student is in relation to stated objectives, and is not affected by the performance of the group. The Newfoundland Department of Education (1990, p.86) stated that "criterion-referenced tests focus on a limited domain of learning tasks." They place emphasis on determining what students can or can not do, and match item difficulty to learning tasks. Teacher-made tests are criterion-referenced, and are used to measure the performance of students in relation to specific objectives. A concern of criterion-referenced assessment is the matching of test items and course objectives to create content validity.

When the comparison is made against peers and not specific standards, the assessment is called **norm-referenced**. Norm-referenced tests are constructed to determine where a student or group stands in relation to a comparison of other students or a norm group. They are not designed for the specific purpose of determining what a student can or cannot do. However, an analysis of the performance of a student or class can provide valuable information concerning the teaching - learning process. Norm-referenced tests are usually developed commercially and there may be some degree of mismatch between what is taught and what is tested. In *The Evaluation of Students in the Classroom* (1990, p.92), Broadfoot argues;

... that the predominance of norm-referenced assessment, which is of little help to teachers in improving their teaching, reflects the competitiveness of our society and how we relate to ourselves. Gronlund (1985) emphasises additional

characteristics of norm-referenced tests. He believed they should cover a large domain of learning tasks, with just a few test items, of average difficulty, for each task.

There is a difference between classroom assessment and large scale testing for accountability purposes. Grant Wiggins (1992) believed that large scale assessment must be formal, objective, time efficient (a constant problem) cost efficient (they are not), widely applicable and centrally processed. Classroom assessment is informal, teacher mandated, adapted to local curriculum, locally scored, adaptable to change in students knowledge, and more meaningful to students than externally mandated tests. They provide immediate feedback to students.

Accountability pressures encourage teachers and administrators to focus planning and teaching efforts on test content and to devote more and more time to preparing students to do well on the tests (Madeaus, 1991; Shepard, 1991). Herman (1992, p.75), quoted Glass and Ellwein;

... when policy makers and others try to raise standards based on test results; safety nets are strung up ( in the form of exemptions, repeated trials, softening of scores, tutoring for retests) to catch those who fail, and further, standards are determined by consideration of politically and economically acceptable pass rates, symbolic messages and appearances, and scarcely at all by a behavioural analysis of necessary skills and competencies.

Herman et al (1992, p.10-11) stated that The Center for Research on Evaluation, Standards, and Student Testing in 1991 developed additional criteria for deciding the quality of an assessment, which are as follows:

1. **Consequences.** The consequences of an assessment dictate what

priority people will assign to it.

2. **Fairness.** Is there any racial and/or gender bias in the assessment?
3. **Transfer and generalizability.** Are the results of research applicable across a broad spectrum of schools, districts and regions?
4. **Cognitive complexity.** At what level of cognitive ability does the test challenge the students? Can you determine the level of cognitive ability by looking at the test?
5. **Content quality.** The material that is being assessed should be material that is worthy of assessment and not simply material that is easily assessed.
6. **Content coverage.** Is there the possibility that what is assessed will be emphasized and what is not assessed will be de-emphasized? If so, what problems does that create?
7. **Meaningfulness.** Is the assessment meaningful to student learning and understanding of important subject concepts?
8. **Cost/efficiency.** How cost/efficient are performance assessments compared to other standardized forms of assessment? Can this cost be justified or reduced? Does the time required for performance assessment justify the cost?

What is good assessment? Marzano (1991, p.172) stated,

It is built on current theories of learning and cognition and grounded in views of what skills and capacities students will need for future success. It is not standard, traditional multiple-choice tasks. It is reflective, constructive and self-regulated.

As researchers improve upon current evaluation strategies there will be a need to redefine what our beliefs about good assessment are. We should continue to strive towards assessment that actively involves students in meaningful learning situations.

## **METHODS OF ASSESSMENT**

Teachers should experiment to find out what method of evaluation works for the needs of their students. No one method of teaching or evaluating is appropriate for all content or for all students. It is impossible to deliver a program that will reach all children if only one or two methods of instruction are used.

Based on information from the Nova Scotia Department of Education (1992) the following are 'Principles of Evaluation' which should be incorporated into the evaluation process:

- all forms of evaluation should provide an opportunity for student success;
- evaluation practices should be varied sufficiently to provide opportunities for students with different learning styles (visual, auditory and kinesis learners) to achieve success;
- evaluation should not focus solely on subject content; it should also evaluate skills, process and values;
- any modifications to the evaluative process should be to accommodate individual student differences and or learning difficulties;
- evaluation should provide opportunities to measure student performance, to assess the needs of the individual students

and to modify the teaching of the subject based on this new data;

- evaluation is part of the educational process and students should be taught how to prepare for, and respond to, evaluative processes.

As with instruction, teachers are faced with choices when it comes to evaluating student performance. There are a wide range of evaluation methods, but not all are appropriate for all levels of cognitive development or for all types of learning. In order for teachers to assess the whole student, a variety of evaluation strategies should be employed. A discussion of various strategies follows.

**Observation** of in-classroom work either of students individually or as members of a group. Observation may be concerned with process as well as product. It can be used to monitor what a student is attempting to do and what the student can do. This gives students the advantage of immediate feedback from the teacher concerning their strengths and weakness. Radford (1990, p.37), stated the purpose for observation “should be determined before the observation takes place.” A teacher’s judgement of student performance is recognized as a most effective form of evaluation gathered through observation and assessment.

The judgement of student performance could be accomplished by means of a checklist of activities completed; anecdotal remarks; and informal, short, individual or group observations. Observations could include comments on student work such as; time on task, who is leading and who is following within a group, or the relevance of group discussions. In observation a teacher would be looking for specific behaviours with regards to thinking skills, organization skills, group interaction (cooperative) skills or communication skills. Specific definitions of



behavior should be noted to ensure greater teacher accuracy of what is or is not being accomplished by students.

**Teacher-student interviews** - where the teacher can gain additional information on student level of understanding and degree of work effort. Student learning difficulties or confusions about the subject could be determined in an interview. The earlier in a unit of work that potential problems of student learning are detected and strategies are put in place to deal with the situation the more beneficial it will be for students. Interviews can be used to determine knowledge or skills mastered, or values acquired. An interview can also be part of individualized instruction, and portfolio work. The students may be asked to reflect on work they have completed, to make decisions about what will be included in a portfolio, or to evaluate their degree of success while working within a group.

**Student self-evaluation**, may be classified as a form of reflective thinking. Three basic questions that can be asked, which could aid in determining the level of student understanding according to Clarke et al, (1990, p.159,173) are:

- What have you learned?
- Why do you say so?
- What can you do now with what you have learned?

The students have the opportunity to reflect on past events and determine the merits of the activity. The strength of self-evaluation is in the opportunity provided for students to take control of their own learning. They can assess their level of achievement and then set learning objectives for themselves. Too often self-evaluation is seen as a quick means of

grading tests. Students can grade their own or classmates tests, but if that is all that occurs, the chance for development of student responsibility is lost. According to the Ontario Schools *Intermediate and Senior Divisions* (1987), in order for self- evaluation to be of most benefit, the teacher should use it as a strategy to:

1. Help students understand that evaluation is not based on one activity;
2. Help students evaluate their progress toward class formed goals and instructional objectives;
3. Help students understand their own strengths and weaknesses in the subject area;
4. Help students set new goals for learning based upon evaluation results.

**Peer-evaluation** - where each student evaluates another student in the class or other members of a group, as to the work they accomplished, the effort they used, or the cooperation that existed in completing a task. There should be at least three students to a group in peer-evaluation and no two students should evaluate each other because it will detract from the objectivity of the evaluation. Gail MacLean (1991), believed that when students evaluate each other it relieves some of the stress related to a teacher evaluation and allows the students to set their own standards which may be set higher than those that would be imposed by a teacher.

To have students learn responsibility toward others is one of the goals of education. Students developing the skills of evaluating others and giving them the opportunity to practice those skills is one means of achieving that goal. As with the use of self-evaluation, it is essential that students acquire

skills before peer-evaluation is used as a strategy. A problem may develop if students are not taught the necessary skills of evaluation. Peer-evaluation can be reduced to such a level that students' assessments of each other are based on personal likes and dislikes rather than quality of work. Students must learn to give constructive criticism and must understand the relationship between evaluation and learning. The fact that time is required to teach and learn these skills should not be seen as a disadvantage. Rather, the skills should be seen as a valuable learning instrument for students.

**Checklists and Participation charts** are similar to observations. Lynne Anderson-Inman (1986), believed that checklists could be used to record student activity in class discussions or a group project, whether a student has mastered a certain skill or a student has completed a certain task by a specified time. Checklists could also be used to monitor student behavior in class. The checklist could be used with student-teacher interviews or parent-teacher interviews to give immediate feedback on the students' learning progress.

**Performance checklists** provide both teacher and student with a list of the expectations for the course or unit of study. The checklist may be a very specific list of expectations and activities (see also Appendix C). The checklist can include skills and abilities the student is to develop during the work activity. This provides for on-the-spot evaluation and allows for rapid feedback about the level or quality of student performance. The following are suggestions for constructing checklists developed with reference to *Making the Grade* (McCutcheon, 1987, p.62).

- items should be clear and precise

- items should reflect the instructional objectives for the unit
- keep checklists short to allow the observer to focus on specifics
- design checklists so that they can be used as a focus for discussion with students

**Journal writing** enables students to write about what concerns them in a subject area. As students learn to express themselves about different topics they are better able to understand what they have learned. Students may write about what has occurred in class, or about what they do not understand concerning class material. As students develop a trust in a teacher they become more open with their opinions. At first this may come in the form of journal writing and at a later stage this could appear in class discussions, if there is a non-threatening, inviting classroom atmosphere. Robert Slavin (1990), believed that a caring atmosphere would be a positive contributor to student self-esteem and a positive factor in adolescence stress reduction.

**Written assessments - a) quizzes, b) tests, c) exams, and d) projects** may be considered more traditional approaches to evaluation but planning must be undertaken to determine the objectives of the evaluation, the evaluation criteria to be used, the reliability and validity of the assessment instrument, and the method of evaluation to be used. Classroom **quizzes, tests and examinations** should be constructed based on the objectives of the course as prescribed by the Provincial Departments of Education and as adapted by the teacher to the curriculum. (see also Appendix D)

**Open-ended Questions.** In developing open-ended questions for tests or exams, it may be easier to state what they are not. Open-ended questions are not multiple-choice questions without options. They are not questions that demand a single correct response. Nor are they questions in which any response is acceptable. Pat Dye, in a Social Studies Evaluation Workshop, November 1991, Washington, D.C. stated that open-ended questions;

... are questions that address the essential concepts, processes, and skills that go beyond the the specifics of instruction to define the subject area. In general, they require complex thinking and yield multiple solutions. Unlike questions that can be judged right or wrong, they require interpretation and the use of multiple criteria on the part of the evaluator or teacher. Unlike questions that rely upon memorized facts, they demand thoughtfulness and a significant mental effort on the part of students.

In designing open-ended questions Dye believed that guidelines to follow should;

- allow for a variety of acceptable responses;
- challenge students of all abilities;
- assess both concepts and process skills;
- ask students to transfer traditional knowledge to a new setting;
- require reasoning/higher level thinking on the part of students;
- permit students' using personal perceptions and experiences in their responses;
- require interpretation and the use of multiple criteria on the part of the evaluator;
- require a maximum of 10-15 minutes for response time;
- portfolios are folders of all a student's work done

throughout the term or semester.

**Projects** are formal assignments related to the curriculum. They may be assigned to a group or an individual and they usually involve some type of research or development such as constructing models, preparing oral or written reports, developing skits, creating audio/video tapes, or developing position statements for class discussions or debates.

**Questionnaires** which require answers to a series of brief, easily understood questions, is a method of evaluation where immediate feed-back could be given to students from their answers to questions dealing with specific topics. This form of evaluation may be used in evaluating the degree of understanding by a group of students to a specific area of subject matter and will be less time consuming than student-teacher interviews.

**Work portfolios.** The philosophy of portfolio assessment is based on the choice "to consider the full range of relevant experiences and accomplishments as multiple indicators of achievement." (Valencia,1990, p.727) Valerie-Gold et al, (1992), called this "collaborative reflection" which helps students understand that learning is a continuous process. "Achievement is not measured by a score on a test; achievement is a multidimensional, multi-purpose process that should capture the complexity of the task" (p.304).

Students could be allowed a choice of work to be evaluated for inclusion in a portfolio. For example, each student may be required to write three papers, over a period of time, in a unit of work (Simmons,1992). These papers can be revised and edited either by the student, with the aid of other students (peer editing), or in consultation with the teacher (student-teacher interview). The student would have to

decide which two of the three papers they would submit to be evaluated. The teacher would ensure all student's papers have been completed and have meet a prescribed standard (negotiated with the class). The teacher is rewarding the student for the process of critical thinking and synthesis as they compare which of their papers have the most value and meaning to them.

Portfolios are a way of collecting a compilation of student work throughout the term, semester or year. With a portfolio you can see the progression of the student as a writer, as a reflective thinker, or as a member of a group. A student portfolio may be more common in a Language Arts or an Art program but it also has a purpose in a Social Studies curriculum. The work may be related to a specific topic. For example, the current North American Free Trade Agreement (NAFTA) can be part of the economics, political science, law, history and geography programs, all at the same time. The portfolio may be a cross-curriculum, or interdisciplinary folder of work in several subjects. Each subject may deal with the same topic from a different perspective. Economics may deal with the trade balance between countries, the flow of goods and services and the ownership of corporations while the Political Science class may deal with the format in which the NAFTA was passed through Parliament in Canada and the Legislatures in the U.S. and Mexico. The Geography class may deal with the topic by determining the effects the deal will have on specific segments of the economy such as farmers, the resource industries and the manufacturing sector.

Portfolios give a way of assessing student learning that is quite different from traditional methods. You can assess students taking risks, developing creative solutions, and learning to make judgements about their own

performance. A portfolio is a portfolio when it provides a complex and comprehensive view of student performance in a context of course requirements. The student is a participant in, rather than object of, assessment. Above all, a portfolio is a portfolio when it encourages students to develop the abilities needed to become independent, self-directed learners.

The process of compiling and reflecting on portfolios can be a form of formative assessment, creating a means of discussion between parents, students and teachers. The process of selecting final content for a portfolio assessment develops student judgement and decision making skills. If students were required to summarize the many items included in a portfolio as a means of reflecting on what they had achieved throughout the year it would be very helpful to the student's learning and maturing process. Portfolios tend to:

- motivate lower achieving students by providing an opportunity to perform and have something to show for their effort other than just a mark on a test;
- motivate students by allowing them to choose, to some degree, what will go into their folder;
- gives students an opportunity to reflect on what they have accomplished and gives them an opportunity to express what they are feeling in a more insightful manner;
- allow for another way of recognizing student achievement other than through tests and exams;
- provide another source of data for parents and perhaps employers with regards to the capabilities of the student.



Some limitations of portfolios are:

- They are not a formal means of assessment. They provide a record, a more broad range of information of what the student has done or is capable of;
- They serve little purpose as a group monitoring of student progress. Rather they have more benefit to the individual student than to a group.

What comes out of portfolio-based assessment? Teachers can validate how and to what degree students have progressed with their learning based on portfolios. Portfolios allow teachers and students to reflect on what they have accomplished over a period of time. Students may be asked to determine why they have changed or progressed or why they value one piece of work over another. They can express their thoughts orally or in writing, about their decision-making process that was accomplished individually or as part of a small group. A portfolio allows teachers and students to reflect on the increase in student performance and to critically evaluate their own work and that of other students. (see Appendix E)

Portfolios of student work can be a means for both teachers and students to understand the educational process at the level of the individual learner. They can be a powerful learning instrument for encouraging students to take charge of their own learning. Portfolios can provide evidence of a wider range of student performance than can conventional forms of assessment. They can be a source of personal pride for students and provide a source of personal reflection as well as a record of accomplishments. They are valuable as an instrument to share with parents and guardians in interviews

**Group work** is a major source of student-centered and cooperative learning. Groups can be assigned in a variety of ways from total teacher choice to total student choice allowing students to work with whoever they wish. The ideal group has three to four students of differing ability levels. Slavin's (1990) research showed that ability grouping of students has little or no impact on overall student achievement in elementary and secondary schools. What Slavin does support is cooperative learning in small heterogeneous learning groups. It has been consistently shown that there are positive effects of cooperative learning on self-esteem, race relations, acceptance of mainstreamed academically handicapped students and ability to work cooperatively with others.

Reid and Forrestall (1989), believed students should be allowed some flexibility in choosing the other students they work with. This avoids the potential problem of forcing students to work together who genuinely do not like each other. The idea is to create a positive group work environment so that each student has the opportunity for success at their own ability level. (Appendix F)

In small group activity each student should have a responsibility to do a portion of the work towards the group goal of completing an assigned task (Clarke et al., 1990). All students must be aware of the work expectations before the task is started. After negotiations there should be a written outline of the work, stating the objectives, specific requirements, due dates and deadlines, the evaluation criteria and a possible marking scheme. As well, suggestions for sources or references to begin the task benefit the students. On-going, positive reinforcement of objectives, deadlines and expectations are important to the success of the group effort. Students should be encouraged to negotiate research topics with the teacher.

Evaluation of group work should be a collaborative process involving students and the teacher. Students when they have become involved in the planning and carrying out of evaluation grow to feel accountable to themselves and other group members. They may see evaluation as part of their learning process, and assist the teacher in making decisions evaluating group work.

Alfie Kohn (1991a) has made a case against the use of cooperative rewards for group activities while Robert Slavin (1991a, p.90) has taken a different approach. He believed that group rewards “enhance learning and act as a means of continuous student or group motivation or have no effect on continuous student or group motivation.” Groups are to be rewarded for example, when students are actively explaining ideas to each other. Rewards should be based on the learning of all group members or cooperative group learning will degenerate into simple sharing of answers. Other rewards may also be evident (certificates, recognition, praise, bonus marks) but Slavin believed group rewards were not alternatives to no rewards - rather, rewards will focus the group on helping each other learn.

## **THE ENVIROMENT OF ASSESSMENT**

Assessment should be conducted in a positive environment which provides the opportunity for all students to succeed. To establish this atmosphere there should be:

- clearly established expectations;
- sufficient announced lead time to prepare students for tests and quizzes;

- clearly understood and established routines in the classroom;
- clear understanding of the testing process - the expectations of the teacher, the methods and skills of studying and performing in a testing situation;
- teacher preparation of students regarding study skills and performance on tests and teacher guidance through the process.

## **SCORING OF ASSESSMENT**

Students should be given the **criteria of evaluation** before the test or assignment is given to alleviate any ambiguity as to what is expected (Hanna,1986; Redding,1992; Wiggins,1989b; Thorpe,1985; Thornton, 1990). When both the student and the teacher initially know the objectives of the work to be completed as well as the method of evaluation, it avoids confusion and ambiguity, and a lower level of stress, associated with assessment, will be felt by students. This creates the potential for better student achievement. There is concern over assessment scoring systems (see Appendix C).

The focus of evaluation should not be limited to the course content but also should include the testing of skills, processes, student beliefs, and how prior knowledge is applied to new material. The methods of evaluation should be varied to support different students' learning styles.

## ALTERNATIVE ASSESSMENT

Several common terms are used in association with various innovative evaluation strategies. Terms such as performance assessment (Brandt, 1992; Civek, 1991; Meyer, 1992; O'Neil, 1992; Wiggins, 1991), authentic assessment (Marzone, 1992; Perrone, 1991; Wiggins, 1989, 1989a), cooperative and student-centered learning (Anderson-Inman, 1986; Bawden & MacAdam, 1990; Bennett-Rolheiser & Stevahn, 1992; Daniel, 1991; Dippong, 1992; Johnson & Johnson, 1989a, 1989b; Kohn, 1991a, 1991b; Savage, 1992; Slavin, 1991a, 1991b), portfolio assessment (Adams & Hamm, 1992; Biddle & Lesley, 1991; Frazier & Paulson, 1992; Herbert, 1992; Paulson, Paulson & Meyer, 1991; Valerie-Gold, Olson & Deming, 1992; Wolf, 1989), as well as process learning (Camel, 1988; Meyers & Lytle, 1986; Schwartz & Cramer, 1989; Waxman & Eash, 1983), are all used to describe various forms of learning and assessment processes of education. Together, these terms may be categorized as describing alternative forms of learning and assessment.

The use of many terms relating to evaluation and assessment found throughout this research has led to a need to clarify terms and meanings. Terms used to discuss alternatives to conventional, multiple-choice tests include alternative assessment, authentic assessment, and performance assessment. These terms are used synonymously to mean variations of performance assessments that require students to generate rather than choose a response. In *A Practical Guide to Alternative Assessment* (Herman, Aschbacher & Winters, 1992, p.2) it states that; "performance assessment by any name requires students to actively accomplish complex

and significant tasks, while bringing to bear prior knowledge, recent learning, and relevant skills to solve realistic or authentic problems.”

Various alternative methods of assessment (Wolfe,1989; Wiggins,1989a, 1989b; Hibbard,1992) have been in the experimental and testing stage over the last several years. Tests with "authentic" types of questions, usually requiring the use of higher order thinking skills (Valencia & Pearson, 1987) matched to student life experiences and classroom learning have been introduced to educators as alternatives to the standardized multiple-choice tests which tended to measure lower level thinking skills of students.

Current cognitive research contends that learners gain understanding when they construct their own knowledge and develop their own meaning of the interconnections among concepts and facts. Real learning cannot be taught one skill at a time. To become proficient at thinking and reasoning, students need practice in solving real problems, and developing understanding about complex issues. In the past, tests and real life situations have not been related. Students tended to learn only what was needed to be known for test purposes and in ways that the material would be evaluated on the test. A practice of postponing higher-order thinking skills until low-level thinking skills have been mastered is harmful. Some form of assessment should allow for questions with more than one possible answer. Students would then be required to justify their answer based on information that they have at their disposal. Nora Redding (1992), believed there was a need to make assessment more relative to student's lives in order to make learning more meaningful to them. She believed that the more students were actively involved in interesting tasks it would result in improved student learning.

Alternative forms of assessment give the opportunity to increase student motivation and provide all students with the means of achieving at their own level of academic ability. "They are presently being implemented in approximately seventy-five percent of the states in the United States, usually through writing tasks in subjects such as Language Arts as well as Mathematics, Science, Art, and Social Studies" (Shepard 1991, p.234). The idea is to develop a test worth teaching to, which may sound bad but is an example of an outcome-based performance evaluation. Caution must be taken in how fast school boards move to high stakes performance assessment. A lot of performance assessments may not be appropriate for all levels of students. "While we are developing expertise it seems to be a bad time to be applying high stakes" (O'Neil,1992, p.18). We must not hurt the students we are attempting to help.

## **STANDARDIZED TESTS AND THEIR EFFECTS ON ASSESSMENT**

Standardized tests assess only part of the curriculum. Many researchers have concluded that the time spent on test content has narrowed the curriculum by over emphasizing basic skill subjects and neglecting higher-order thinking skills (Herman,1986; Livingston, Castle & Nations,1989; Madeaus,1992; McMurtry, 1992; Rogers,1991; Wiggins, 1991). Standardized tests never show students where they went wrong or right in their work. There is no feedback to the students because the tests are never returned. "The only purpose the standardized tests seem to serve is to categorize students into manageable groups, such as those that "can" and

those that "can not" achieve at a certain level on a particular set of questions about a specific subject matter" (McMurtry,1992, p.94).

What do we want standardized test results to tell us? When the test results are made public are we hoping that they will tell us positive information about the performance of Nova Scotian students and how we might adapt programs to better meet the needs of our students or are the test results going to be looked at negatively as a way of saying what we are not doing well compared to some norm group?

In the United States, state mandated standardized tests results have been made public, through local newspaper for several years. The original intention of making public the test results was to provide information for parents to use in deciding which school their children would attend. Jaeger (1991) believed that over the years test results became a measure of school performance until ultimately school funding, teacher and administration job security were dependent on student performance on these tests. This continued until the publication of *Nationally Normed Elementary Achievement Testing in America's Public Schools: How All Fifty States are Above the national Average* (Cannell,1988), which showed that all fifty states in the U.S. were performing above the national average on standardized achievement tests. But of course such a result is impossible.

Such improvements in test scores do not mean much - they do not result in meaningful learning. "Standardized test scores no longer represent broader student achievement but only the content and formats included in the tests" (Herman,1992, p.75). It seemed that when so much emphasis was placed on the results of standardized tests that teachers started "teaching to the test". When the stakes are high people are going to find ways to have test scores go up. Schools will look better but the students skill levels will



not necessarily go up. Schools may become outcome rather than input oriented because of government legislation and tests may eventually drive the curriculum. School-based management may be of little effect if decisions such as this will be made by the Provincial Department of Education. If this occurs it would be to the detriment of other equally valid parts of a curriculum.

A possibility exists that a system, such as is in place in some states in the U.S., where teachers will be paid according to the performance of their students with bonuses (merit pay) being paid to teachers, and funding to schools being based on the year to year improvement of students who write the test, may be introduced into the education system in Nova Scotia. Shepard (1989, p.6) believed that;

... many teachers have been praised, rewarded, and recognized, for having their students improve their test scores. Unfortunately it was found that only a limited part of the curriculum was being taught and in a way that was only useful on the high stakes standardized tests.

This usually meant teaching lower-level learning and thinking skills in the classroom and not challenging students to think critically or develop deeper understandings about significant aspects of the curriculum. It can only be hoped that through constant diligence on the part of the teaching profession this mistake will not be allowed to repeat itself in Nova Scotia.

In the United States it has been found that the more pressure schools, teachers, and students are under to perform well on these tests, teachers end up teaching to the test even though standardized tests have serious limitations and are open for misuse and misinterpretation. Wiggins (1989a,

p.44) stated; "The prevailing teaching and testing technology rests on the assumption that knowledge is objective and can be drilled into passive 'blank-slate' brains, then paraded out on cue."

If merit pay and/or job security was determined by student's test scores superintendents, administrators, and teachers would see rewards as a means of promoting the worst type of educational practices and act accordingly. Rather than allowing school boards to mandate that test scores must rise, Shepard suggested that learning should increase. Some boards in the U.S., according to Shepard (1989, p.8), have "mandated that all students must be above the national norm, which is the same as requiring one hundred percent of the students be above the fiftieth percentile" which of course is an impossibility. Grant Wiggins (1989, p.708) asks;

Does a correct answer make thought less recall? Does a wrong answer obscure thoughtful understanding? We can know for sure by asking further questions, by seeking explanation or substantiation, by requesting a self-assessment or by soliciting the student's response to the assessment.

Wiggins (1989a, p. 41) also believed teachers should be teaching to the test with the idea of designing;

... standard-setting tests so that practicing for and taking the tests actually enhances rather than impedes education and so that criterion-referenced diplomas make externally mandated tests unobstructive - even unnecessary.

## AUTHENTIC ASSESSMENT

In *Authentic Assessment: Beyond the Buzzword* (Zessoules & Gardner, 1991, p.50) a distinction is drawn between the;

... singular act of testing and the complex process of assessment which should be part of the learning process. If it is incorporated into part of the daily classroom activity it will be a means of the teacher, administrator, parent and student to plan future direction of students work.

According to Walter Parker (1992, p.88) attributes of authentic benchmark assessment are;

1. Tasks go to the heart of the essential learnings, i.e., they ask for exhibitions of understandings and abilities that matter.
2. Tasks resemble interdisciplinary real-life challenges, not schoolish busy work that is artificially neat, fragmented, and easy to grade.
3. Tasks are standard-setting; they point students toward higher, richer levels of knowing.
4. Tasks are worth striving toward and practicing for.
5. Tasks are known to students well in advance.
6. Tasks are few in number; hence they are representative.
7. Tasks strike teachers as worth the trouble.
8. Tasks generally involve a higher-order challenge - a challenge for which students have to go beyond the routine use of previously learned information.
9. All tasks are attempted by all students.

Authentic assessment allows students to take the initiative for problem-solving, develop their ability to question, to "learn how to learn", and to develop answers to open-ended questions. Authentic tests are more performance-based and engaging than traditional paper-and-pencil tests.

The plan for authentic assessment in California is to directly measure key process skills such as observing, comparing, communicating, organizing, relating, referring, and applying - both individually and in groups by means of both oral and written tasks. (Grant Wiggins has developed characteristics of authentic assessment which are included in Appendix G.)

## **PERFORMANCE ASSESSMENT**

Performance-based assessment involves the assessment of students in normal class activities with predetermined criteria for evaluation. The skills that are being assessed can include social interaction with other students, paper and pencil tasks, and decisions based on real life situations.

John O'Neil (1992, p.17) wrote that;

... the desire to ensure that students graduate with more than basic skills- with the ability, for example, to use skills to solve novel problems, work cooperatively in groups, or synthesize knowledge across disciplines - has fueled interest in performance assessment. Students taking part in performance assessments might be called upon to write an essay, perform a group science experiment, defend in writing how they answered a math problem, or keep a portfolio of their best work. In contrast, standardized paper-and-pencil tests, which typically require students to work individually and select answers from multiple-choices, seem less appropriate for such outcomes. ( See also Appendix H , Outcomes)

A great deal of credit for the development of performance assessments in the United States is given to the British Assessment of Performance Unit (APU) tasks for the fine development in performance assessments that have

been accomplished in Britain, over the last fifteen years. Performance-based assessment has a number of advantages over traditional forms of assessment. According to the Hargraves and Earl (1991), some of these advantages are:

- It establishes a closer relationship between assessment (what is tested) and classroom tasks;
- Because of the link between teaching and testing, performance-based assessment makes assessment part of the learning process;
- The establishment of a closer relationship between testing and teaching also encourages teachers to emphasize the skills being tested and the tasks being set;
- This "backwash" effect of performance-based assessment can lead to higher order learning being assessed and being taught too;
- By being task-related, performance-based assessment has the capacity to recognize and promote a wide range of skills and achievements, including personal and practical as well as cognitive and intellectual ones. This broadening of opportunities for achievement can stimulate student motivation;
- Performance-based assessment also improves the diagnosis of student learning problems by observing these problems in context. (For a parable that illustrates what is considered as performance assessment see Appendix I.)

Of the approximate forty states in the United States that are moving to authentic forms of assessment, Kentucky, in 1994, will be the first state that

will rely totally on performance assessment for state evaluation in Social Studies.

There are concerns about performance-based assessment expressed by researchers and classroom teachers such as:

- Performance assessments are used more widely in some subject areas (especially Language Arts and Physical Education) than in others (especially Math and Science);
- The scoring criterion is often not written down prior to the assessment, which makes the process very subjective;
- The assessment criterion has been developed by individual teachers, rather than in consultation with other teachers which causes uncertainty among teachers and has the potential to lower academic standards;
- The over assessment of students. Time is needed for individual student instruction and to deal with events as they unfold in the classroom. If more time is spent on evaluation, teachers may end up taking valuable time away from students who need the help the most.

Performance-based assessment takes a great deal of time to produce and this can cause problems with teachers already strapped for preparation time. Performance criteria are not being shared with the students (a common problem with most teacher designed tests) prior to the test, creating complaints from students that they do not completely understand the evaluation process and thus may not perform as well as they believe they are capable. If students knew what the planned outcomes and procedures of an activity were it would enable them the opportunity to perform better on an assessment.

Performance assessment has proven to be very time consuming and costly in England. It is estimated to take over forty-four hours on average to prepare, administer and grade a performance-based test. It has been almost impossible for teachers to administer the tests and deal with the rest of the class at the same time. The tests only have the ability to assess a portion of a class at one time while the other students are required to do regular class work.

In Maryland they expect the costs to implement performance assessment will be two to three times more expensive per student than present forms of standardized tests because of extra funds needed to train teachers in the development and evaluation of the assessment and the cost of substitute teachers while classroom teachers are being trained. The time requirements for these tests may take away from much needed instruction time. It is estimated that performance assessment will take up to one week in Mathematics and Language Arts in Maryland.

In Canada, six provinces and both territories already have compulsory examinations at the grade twelve level with between thirty and fifty percent of the value of the assessment counting towards the students final mark. Nova Scotia and New Brunswick are moving towards this possibility. It will take valuable time away from classroom instruction if the provinces mandate provincial standardized performance assessments as a contributing factor for high school graduation.

In Connecticut they have incorporated a variety of performance assessments into state assessments. Baron (1992, p.8) stated; "these tasks require students to complete exercises that require both content knowledge and process skills, and to generate solutions to multi-step problems requiring the application of their knowledge." Performance assessment in

Connecticut has led to improved teaching and to broadening the scope of student skills being assessed.

Although Maeroff (1991), believed that testing needs to be done in a more efficient way, performance-based assessment is too costly to implement on a full scale basis as an alternative to the norm-referenced nationally mandated standardized tests. Less time should be spent on this aspect of education and educators should evaluate more wisely.

### **AUTHENTIC vs PERFORMANCE ASSESSMENT**

Carol Meyer (1992), illustrated the difference between authentic and performance assessment. She believed that authentic assessment assessed student performance in much the same way as would be done in real life. If a person was being trained to be a record keeper then they should be assessed doing bookkeeping work. If history students are being assessed on individual research about a specific event in history then the authentic assessment should cover the skills that were being taught. There is the possibility that some assessment is more authentic than others in the fact that if you design an authentic assessment situation then it may not be authentic any longer.

In performance assessment, the student completes a task in the same manner necessary for the teacher to complete the evaluation. In authentic assessment the student completes a task in the same manner necessary for the teacher to complete the evaluation, but they also do it in a real life situation. (see Appendix I). Meyer (1992, p.40) stated that; "Performance assessment refers to the kind of student responses to be examined; authentic assessment refers to the context in which the response is performed."



This chapter has provided a broad general overview of the important area of evaluation and assessment. The purposes of assessment in education were highlighted, along with a very general analysis of the types and methods that can be employed. The focal point of the chapter really falls on the place of education and assessment in the process-oriented classroom and upon ways in which assessment can better reflect the fundamental philosophy and practice of process education itself.

## **CHAPTER IV**

### **RESEARCH INTO ASPECTS OF PROCESS EDUCATION IN SELECTED HIGH SCHOOL SOCIAL STUDIES PROGRAMS IN THE HALIFAX COUNTY-BEDFORD DISTRICT SCHOOL BOARD**

The initial impetus for the creation of this thesis was to determine to what extent student-centered, process-oriented learning, teaching, and evaluation was occurring in the Halifax County-Bedford District School Board, within Social Studies departments at the high school level. The process of selecting a criterion for a teacher questionnaire was a tedious one with several possible established formats that closely related to the topic to be researched but none that exactly replicated the thesis premise.

Therefore, a questionnaire was adapted from a format created by Hirst and Bailey in 1983 which surveyed community college educators about what they perceived to be good aspects of teaching and creating a positive learning environment. Other aspects of the questionnaire were created through consideration for the work of Norma McKinnon (1991), Peggy Teters (1984), and Henry Donaldson (1984). Each question was designed so that two answers were required. The first answer dealt with the teacher's rating of the importance of the statement while the second answer to the question asked for the ranking of the degree of utilization of the statement in the teaching strategies employed by the teacher. Using the Hirst & Bailey format, sixty-three questions were developed which measured the degree of certain student-centered, process-oriented education strategies that existed in five high school Social Studies departments. (see Appendix J)

Many questions had arisen over the years that the researcher attempted to determine the answers to. Has the move to student-centered process learning created a teaching and learning environment in schools that may be categorized as "progressive"? Has actively involving students in the learning and content of the subject changed the classroom or would teachers be seen as "traditional" in their methods of teaching- with the students role to act as passive participants in a teacher-centered classroom? To what degree have Social Studies teachers adopted process methods of teaching, learning, and assessment into their teaching strategies? These are all significant questions, and the responses on the questionnaire aid in the understanding of the circumstances presently in existence in schools.

Teachers in Social Studies departments of five high schools in the Halifax County-Bedford District School Board were asked to voluntarily take part in this research project. Each school was selected according to its proximity to Halifax. All schools were within a thirty minute travelling time from the St. Mary's University campus.

The questionnaire was approved by Dr. Trider, the Director of Program for the Halifax County-Bedford District School Board. The Principal at each participating school was contacted for permission to conduct research in their school. An accompanying letter was sent to each Principal as well as to each participating teacher to explain the purpose of the research project (see Appendix K). The questionnaires were distributed to teachers through the Social Studies department head or a school administrator. Participating teachers taught a variety of subjects (history, geography, economics, law, political science, and modern world problems) at the grade ten through grade twelve level. All questionnaires were

distributed to the schools and returned during the period November 2 -10, 1992.

Teachers were asked to complete the questionnaire on their own time. Each participant was assured anonymity and was asked to complete a demographic information profile sheet (Appendix L).

**Definitions of terms:** Teaching competencies were defined as those effective teaching and student learning behaviors as well as evaluation and questioning strategies that teachers use in classroom teaching. The teaching importance scale was an instrument used to evaluate the worth of identified teaching competencies. The utilization scale was an instrument used by teachers to indicate the occurrence level of identified teaching competencies.

**Sample:** The sample consisted of 26 high school Social Studies teachers (minimum of five teachers per school) at five high schools in the Halifax County-Bedford District School Board. The total number of potential respondents was difficult to calculate. At the high school level some teachers taught in more than one department while other teachers did not teach at the school on a full-time basis. In one school the grade 10 teachers teach in a separate school building from the grade 11 and 12 teachers. Based on this information a total of 38 teachers were determined to be teaching Social Studies on a full-time basis at the five high schools surveyed.

**Limitations:** Importance of the selected teaching competencies, their acceptance as contributing to process education and their use by high school

Social Studies teachers was researched through many sources. The effective classroom teaching competencies were limited to those found through research on student-centered learning, process learning, forms of assessment and evaluation and a selected number of questions from the research of Hirst & Baily (1983). External validity of the study was limited to a random sampling of St. Mary's University graduate students in the Faculty of Education who participated in the refinement of the questions to be included in this research.

The return rate of questionnaires was 68.4% (26 of 38 full-time Social Studies teachers). Although this rate is not overly high it appears to be a very good rate of return for a questionnaire which was completed voluntarily and under time and work restraints placed on teachers in certain schools. One school was having Parents Night, another school was having mid-year evaluations and all schools had an In-service day during the period that the questionnaires were to be completed. These factors led to teachers at three schools being given three extra days to complete the questionnaire.

## RESULTS

The mean score for each statement / question was calculated with regards to the level of importance assigned to each question as well as the degree each statement was utilized by the teacher. The questions with the highest mean scores for level of importance were:

#5 Students are informed about how they will be  
evaluated in the class. = 4.731

#51 A teacher who lacks information to a student

- question should admit to not knowing the answer. = 4.654
- #39 Interest in the subject and its importance is conveyed  
to students during class room presentations. = 4.615
- #41 Students are encouraged to participate and  
contribute to class discussions. = 4.615
- #28 Different levels of questions (memory, application,  
or analysis) asked to raise the students' level  
of understanding? = 4.538

The statement / questions with the highest mean scores for level of utilization were:

- #5 Students are informed about how they will be evaluated  
in the class. = 4.692
- #24 The effect on student performance by positive  
teacher attitudes. = 4.500
- #51 A teacher who lacks information to a student question  
should admit to not knowing the answer. = 4.462
- #28 Different levels of questions (memory, application,  
or analysis) asked to raise the students' level  
of understanding? = 4.423
- #39 Interest in the subject and its importance is conveyed  
to students during classroom presentations. = 4.423

The questions with the lowest mean scores for level of importance were:

- #14 Pre-tests use as a teaching strategy = 2.192

# 9 The use of skits as part of class requirement	= 2.346
#15 The use of student interviews as part of the evaluation process	= 2.769
#18 Student developed videos as an evaluation instrument	= 2.808
#35 The lecture method method as part of teaching strategy	= 2.885

The questions with the lowest mean scores for level of utilization were:

#14 Pre-tests use as a teaching strategy	= 1.846
#32 Computer availability for students in Social Studies	= 1.923
# 9 The use of skits as part of class requirement	= 2.115
#18 Student developed videos as an evaluation instrument	= 2.115
# 7 The use of portfolios of student work as part of the evaluation process	= 2.231

In all statements except for three the mean score for level of importance was higher than the mean score for level of utilization. In question 1; Exams accurately reflect student knowledge or understanding of material - the mean score for utilization was 3.769, and the mean score for importance was 3.231; question 16; the use of group work as part of evaluation process - the mean score for utilization was 3.923, and the mean score for importance was 3.885, and question 35; the lecture method as part of teaching strategy - the mean score for utilization was 2.923, and the mean score for importance was 2.885.

The questions which had the mean score for importance and the mean score for utilization most similar were; question 24; The effect on student performance by positive teacher attitudes - importance = 4.538, utilization

= 4.500, difference = .038; question 35; The lecture method as part of teaching strategy - importance = 2.885, utilization = 2.923, difference = .038; question 5; Students are informed about how they will be evaluated in the class - importance = 4.731, utilization = 4.692, difference = .039; question 61; New material is introduced by relating the subject to the students current interests - importance = 3.962, utilization = 3.923, difference = .039; question 27; Good teaching is inseparable from good assessment? - importance = 4.269, utilization = 4.192, difference = .077; question 47; The varying of class lessons to match the material to be studied - importance = 4.192, utilization = 4.115, difference = .077; question 34; The role of negotiation of due dates for projects and tests - importance = 3.308, utilization = 3.231, difference = .077.

Two questions had the same degree of importance and utilization. Question 36 - the time sequence of the course material is planned for the whole year (semester), importance = 3.731, and utilization = 3.731. The second question was question 37 - students are told the sequence of topics in the course and the purpose of the sequence, importance = 4.115, and utilization = 4.115.

The questions which had the greatest difference in mean scores for importance and utilization were: question 32- Computer availability for students in Social Studies - importance = 3.538, utilization = 1.923, difference = 1.615; question 7- The use of portfolios of student work as part of the evaluation process - importance = 3.154, utilization = 2.231, difference = .923; question 23- Student journals used as reflective or critical thinking and the writing process - importance = 3.038, utilization = 2.308, difference = .730; question 18- Student developed videos as an evaluation instrument - importance = 2.808, utilization = 2.115, difference



= .693; question 22- Student creativity and "risk-taking" as part of the learning process - importance = 4.077, utilization = 3.462, difference = .615; question 38- Students are shown how to organize their notes for study purposes - importance = 4.038, utilization = 3.462, difference = .576; question 53- The use of educational journals as part of professional development - importance = 3.615, utilization = 3.077, difference = .538.

There was no significant results found with regards to the age or the sex of the teachers, teaching license, number of years teaching Social Studies, total number of years teaching, and school at which the teachers taught with regards to progressive and traditional teaching categories, level of importance or the level of utilization of the statements/questions by responding teachers.

A relationship was shown to exist between all teachers education levels (highest degree) and total importance ( $F= 3.214$ ,  $df= 1$ ,  $p = .0856$ ) when analyzing the page one questions (question 1-29). However, when teacher education levels were compared to total importance for all 63 questions the results showed no significance. The mean score for teachers with less than a Masters degree (239) was lower then the mean score for teachers with a Masters degree (247.273) when determining the existence of a relationship between teachers education level (highest degree) and total importance of all questions. A relationship was shown to exist between all teachers education levels (highest degree) and total utilization ( $F= 6.439$ ,  $df= 1$ ,  $p = .0181$ ) in an analysis of all questions. The mean score for teachers with a Masters degree (237.636) was higher then the mean score for teachers with less than a Masters degree (215.467), when analyzing teacher education level and total utilization.

A relationship was shown to exist between teachers' education level (highest degree) and progressive teaching strategies total level of importance ( $F= 3.741$ ,  $df= 1$ ,  $p = .065$ ) in page one questions (question 1-29) however, there was no significance found in analysis of all questions regarding this. A relationship was shown to exist between teachers' education level (highest degree) and progressive teaching strategies total level of utilization ( $F= 6.577$ ,  $df= 1$ ,  $p = .017$ ) The mean score for teachers with a Masters degree (180.455) was higher than the mean score for teachers with less than a Masters degree (160.6).

A relationship was shown not to exist between teachers' education level (highest degree) and traditional teaching strategies total level of importance ( $F= .417$ ,  $df= 1$ ,  $p = .5246$ ). The difference in the mean score for teachers with less than a Masters degree (57.4) and the mean score for teachers with a Masters degree (58.455) was of no significance. A relationship was shown not to exist between teachers' education level (highest degree) and traditional teaching strategies total level of utilization ( $F= 2.337$ ,  $df= 1$ ,  $p = .1394$ ). The mean score for teachers with less than a Masters degree (54.867) was lower than the mean score for teachers with a Masters degree (57.182) but the difference was of no significance.

When an analysis of schools and total progressive utilization was done some significance was determined from the results between schools. Cole Harbour High had the highest mean score (184.6) while Sackville High had the lowest mean score (152.4) with a significant result at 95% of 27.272 in comparison of both schools.

In comparison of schools and total progressive importance there is close to a significant result ( $F= 2.277$ ,  $df= 4$ ,  $p = .0951$ ). Cole Harbour High has a distinctive score higher than all other high schools being compared.

There is significance difference, at 95%, between the mean scores of Cole Harbour and C.P. Allen = 20.874, and Cole Harbour and Sackville High = 21.709.

## DISCUSSION

The questions with the highest mean scores, which Social Studies teachers deemed to be most important as well as the most utilized in the classroom indicates that process education is occurring in the Social Studies departments surveyed. The high scores that Social Studies teachers assigned to individual questions reflects the degree of importance specific questions have for these teachers. Although certain questions did not score as well as others it may be attributable to the author. Although internal reliability is determined by a test and the scores achieved on the test, not by any prior survey there was not an available survey to determine the level of process education in schools and therefore the survey document that was used did not have internal reliability. Individual aspects of process education were included as separate statements whereas in future questionnaires on this topic the individual aspects may be able to be lumped together in a shorter format questionnaire. However, if other researchers pursue the use of process education the questionnaire may be of assistance as an indicator of questions/statements that teachers deem to be important or of less importance in their teaching strategies.

Question 5 was rated highest in rankings for total importance and total utilization. The result indicates that Social Studies teachers believe in the principal of making students aware, in advance, of evaluation requirements and is an indication of student-centered cooperative learning occurring

within the Social Studies programs. As well, question 39 and 28 both being rated in the top five of both importance and utilization re-enforces the belief in the use of a positive approach to teaching and the development of a positive learning environment for the students and the concern by teachers, for the development of higher order thinking skills by students and the attention paid to developing these learned skills. The fact that four of the five questions that all teachers felt were most important to their teaching were also rated as being utilized the most by teachers indicates that what teachers believe are important and what teachers do in the classroom are similar.

When analyzing the results of the lowest rated questions/statements by teachers it was determined that four of the five questions/statements teachers felt were of the least importance in their teaching were also rated as being utilized the least. This indicates there is a degree of consistency in teachers overall ratings on this questionnaire.

Although teachers believe most statements as being important they may lack the time or resources to implement all possible approaches to process education into their teaching. Evidence of this shows in the questions rated lowest in importance and utilization by teachers. The use of pre-tests, skits, student interviews, and student developed videos are not common teaching strategies in Social Studies programs and thus their importance and utilization were rated low. The low rating of the importance of the lecture method is an encouraging sign that teachers do not believe that lecturing is the most beneficial means for the development of student learning. This is also evident in the result of only two questions on the survey (q.36, and 37) having an equal rating of importance and utilization while three questions

had a higher teacher utilization rating than teacher importance rating (q.1,16, and 35).

Questions which showed similar results in level of importance and utilization related to teacher attitude, prior knowledge of evaluation format, good teaching-good assessment, in-class observation, and the use of higher order thinking questions are good indicators that teachers are actively involving students in a positive, challenging manner. These strategies are prerequisites that the business community and universities have been saying are important for the development of a productive worker and a more productive work force.

Although teachers believe that exam content is important to determine student understanding of the material, in Question 1, they rate the utilization of this approach higher than the rating of its importance. This indicates that teachers put more value on creating exams that accurately reflect the level of knowledge attained by their students. This is a key point in process education - the adapting of material to meet the needs of students, and can only occur when the teacher constantly monitors the progress of their students in an on-going manner. Question 16 - the use of group work as part of the evaluation process, indicates that this student-centered, process-oriented, cooperative approach to learning is valued and utilized by teachers, as a part of the learning environment and is part of their teaching strategies.

The use of lectures by teachers having a higher utilization rating than rating for importance signals a cautionary note for conflict in learning philosophy. This approach is not ranked high in either scale but responding teachers did show that it is used as a teaching strategy more than they believe in its importance. When teachers are faced with the decision

(conflict) between content, process and time constraints, the quickest way to cover material is through the lecture method. The good point of this result is that it is rated low both in its level of importance and its level of utilization. Teachers may be shifting away from total reliance of this strategy but find it an appropriate means of completing certain aspects of the required curriculum. Further research should be conducted to determine the long term results on students of what teachers state is important and the degree to which teachers utilize such beliefs in the classroom.

The questions which have the greatest difference in value assigned to level of importance and the level of utilization may indicate that teachers do not possess the necessary equipment to implement certain approaches to learning or that the writing process is not as important as content in the selected Social Studies programs. Computer availability for students in Social Studies courses was rated by teachers as being much more important than the utilization of computer use. The availability of computers to regular classroom teachers is minimal at best, in most high schools. It is not uncommon to find all the computers, at the high school level, segregated in "computer labs", relegated to students of computer science classes and shut off from use by regular classroom teachers (non-computer science teachers).

A priority of the Department of Education is to increase computer literacy of students but this should not be done only through a computer science course. There are many computer programs that are useful in the Social Studies curriculum. Programs such as the "Decisions, Decisions" series of simulation activities are very useful in group decision making strategies as are programs such as "Ecology", several programs on

environmental issues, "MacGlobe" or "PC Globe", the host of "Carmen Sandiego" programs, as well as stock market and other economic simulation activities. If the school can budget for an independent outside phone line that would be used for a computer modem hook-up, then the possibilities of networking with other students in other areas of the country offer great potential for student learning opportunities. Long distance charges may be a prohibitive cost factor but partnerships are now being formed between business, government, and schools to pay for such expenses in order to increase the application of the use of computers to world events. The use of computers should be available to subject teachers as well as computer science classes. This may start as one computer for a department or a subject, as a way of initiating computers into non-computer science classes and build from there.

The use of portfolios and student journals (q.7, and 23), difference in ratings of importance and utilization by teachers indicates that Social Studies teachers believe these statements are important but do not utilize these strategies, to any degree, in their teaching.

A broad generalization that may be made from the results of the Social Studies teachers survey is that it indicates that teachers overall, believe that most of the statements/questions are important aspects of teaching but they do not utilize these approaches frequently in their classroom. Since most of the statements/questions have a greater value of importance assigned than utilization indicates further research needs to be conducted to determine why there is a difference between the level of importance assigned to each statement/question and the level of utilization.

Student interviews were scored lower in utilization by teachers than importance. To the author, this result is understandable. This aspect of

process education is a relatively new concept and is a very time consuming evaluation strategy. Teachers may feel that with already heavy demands placed upon them that to add more demands may be inappropriate. Also, three schools involved in this survey, were implementing the semestering system for the first time and difficulty experienced by teachers in dealing with course content and time factors may have influenced this rating.

Teachers' education level in relation to importance and utilization ratings showed the greatest level of significance in the analysis of the results from the survey. It was determined from the results that teachers with Masters degrees answered the survey questionnaire with higher marks assigned to level of importance and utilization than did teachers with less than a Masters degree. This indicates that the higher the education of the teacher the more they say they should do in class and the more they actually do. These teachers do not just talk about what they will do but they actually do it. The responding teachers seem to utilize process education strategies to a much greater level than teachers with less than a Masters degree.

Upon further analysis of this point, questions were then divided into what was described as "progressive" strategies and those appropriate to be classified as "traditional" strategies. Questions identified as being representative of progressive teaching strategies scored higher in the level of marks assigned to importance ( $p = .065$ ) and to utilization ( $p = .0027$ ) than traditional teachers scored in importance ( $p = .6364$ ) and utilization ( $p = .4172$ ) on the questions identified as representative of traditional teachers. This indicates that teachers with a Masters degree believe in and use more progressive teaching strategies than teachers with less education but they do not believe in and use significantly more



traditional strategies. Therefore, we can conclude that the more educated the teacher the more progressive they appear to be in their teaching strategies.

This chapter has shown the degree to which specific aspects of process education were evident in Social Studies programs at five high schools in the Halifax County-Bedford District School Board.

## CHAPTER V

### IMPLICATIONS AND CONCLUSIONS

The 'Principles of Learning', set forth by the Department of Education, support meaningful, active learning combining prior and on-going knowledge that involves risk-taking in developing solutions to real-life experiences. Taking into account students different learning styles, teachers should use a variety of teaching strategies to enhance students' skill development. Also, if teachers are going to actively involve students in the learning process they must ensure that they assess the process as well as the content. The process learning innovation thus combines elements of teaching variety and different modes of evaluation.

The student-centered approach to learning is a learned skill. When students are first introduced to this method of learning exposure is usually brief. As students develop the social skills necessary to work cooperatively the activities increase in length and complexity. By the time students are at the high school level they should be well rounded in the ways of student-centered and cooperative learning. This means that they can work together to maximize every group member's learning, and feel comfortable with their own learning. Motivating students and providing them with the opportunity to develop responsibility and accepting their role of being accountable to the other group members is a positive outcome of process education. Research has shown that it has positive effects on attitudes towards school, self-esteem, acceptance of academically handicapped students, and the ability to work cooperatively with others.

Who will benefit the most from a student-centered, process-oriented curriculum? Some will argue the teacher, others will say the student, parents, or the administration. It is evident that all groups will benefit from such an approach. However, the students should benefit the most, because of increased levels of self-esteem and confidence derived from learning with a voice in the classroom decision making process. This new involvement also increases retention of learned material, and an appetite for lifelong learning. The student-centered process-oriented classroom is thus a great benefit to students as learning goes beyond the subject content and includes teaching the process of "learning how to learn".

Content is moreover, only one aspect of the learning experience, and the process that students use to complete a task and to reflect on what they have accomplished is a very significant part of their education. Thus, through process education students develop a deeper insight into the subject matter, as well as discovering more about their own methods of acquiring knowledge and learning. Research in Nova Scotian schools hopefully will continue to determine how the student-centered process education approach to learning has progressed.

Through various aspects of process education teachers are creating situations which require application of what students already know in combination with what they presently are learning, to develop a logical thinking process where decisions, conclusions, or judgements can be formulated. As we approach the twenty-first century, the expectation that students who graduate from high school possess higher level critical thinking skills, is a goal of education and a requirement of the business community, post-secondary education, and the information society of this

interdependent global community. Process education thus seems better suited for the learning needs of the next generation.

Process education however, requires new evaluation strategies. If groupwork is employed as a major component of a class requirements then the evaluation strategies should focus on components of groupwork activity such as cooperative skills, shared decision-making, and reflective analysis of the degree of success the group had in accomplishing the required task. The assessment process should be on-going, varied and continuous and allow for flexibility so to adapt evaluation strategies based on the needs of the students.

Alternative forms of assessment such as student portfolios, authentic, and performance assessment show interesting possibilities in providing a greater number of students with the means of achieving at their own level of ability. Teaching to a test has occurred too often in our schools and seems to be an example of an outcome-based performance evaluation. We need therefore, to be cautious in how we move to forms of performance assessment in order to not harm the students we are attempting to help.

Performance-based assessment maybe too costly to implement on a full scale basis as an alternative to the norm-referenced nationally mandated standardized tests. Performance assessment refers to the kind of student responses to be examined; authentic assessment refers to the context in which the response is performed. As performance assessment is more closely related to what is occurring in the classroom it will hopefully become more of a significant part of the learning process by creating opportunities for the implementation and use of higher order thinking skills in the development of course requirements.

Does assessment drives the curriculum? I fear that is the future for the education system in Nova Scotia. Changing the structure and format of assessment will be an important aspect of future school reform. The implications that alternative forms of assessment have on student and teacher accountability may drive "progressive" forms of education into the background, as the demand for accountability within our school systems, caused by calls for the public disclosure of student achievement results for individual schools, reaches new levels.

A solution for the possible crisis in assessment methodology that is quickly approaching in Nova Scotia is to have, particularly at the local or school district level, teachers from throughout the system join together to develop a portfolio of the best forms of performance assessment available, and to determine the criteria for evaluation of the answers against a set level of performance criteria. Over time, as teachers continually added to and refined this portfolio, there would be the creation of internally valid forms of performance assessment. This portfolio of assessment would not have material that was externally mandated and the goal of the portfolio would be its adaptability to local curriculums throughout the province. The scoring rubrics and evaluation criteria would be set prior to the assessment occurring, pre-determining various levels of performance which would be consistent with assessment formats in other parts of the country.

Canada does not have any national, formal assessment strategy, as a requirement for entry to post-secondary education. Students are awarded grades by their teachers and issued a high school diploma when they graduate. The demand for accountability of what a high school diploma represents is thus an important issue for educators of students of the twenty-first century. The demand for accountability of the use of

taxpayer's dollars will lead to increased demands for some form of standard on which to base student's level of achievements. There is a need for national education standards to be adopted in Canada. However, there should be a concern over who sets these standards. It would be irresponsible for education in Canada to be turned over to unidentified and unaccountable 'educational experts' from another time, place, or country. If this was the case, then the regional differences that make up the cultural mosaic of Canada would eventually be denied. This is probably not in the best interest of any educator or student in Canada. Therefore educators must strive, when setting standards, to keep unique regional and provincial approaches to curriculum, which should be done at the provincial, not the national level.

What educators must also guard against is the use of assessment as a negative influence on students. Students must be taught how to learn and not how to fail. National standardized tests, as they are presently suggested, must be kept out of Canadian schools. The knowledge gained from past experiences of standardized testing suggests that teachers will "teach to a test" and students will learn only selected bits of information based on the teacher's past experiences of what was on previous tests. Students will not be taught how to learn but rather how to play the 'test game' of selective question elimination. If a certain question was not on last year's test then there is a good chance that it will be on this year's test. The importance of a topic depends on whether it was, or was not, on the previous year's test. We must never allow this approach to education to ever appear in Canadian schools again.

Walter Parker (1991) suggested that students should cover fewer topics but do so on a more in-depth level. Today, in schools, too much superficial

coverage of material occurs either because of lack of teaching expertise, preset, inflexible course guidelines, time restraints, and content constraints.

In-depth coverage brings improved instruction, as well as, more instructional time being spent on fewer topics. The extra time on each topic may be used to challenge students which leads to deeper and more complex understandings of the topic. The answer to "what topics deserve to be covered in-depth?" will have to be dealt with elsewhere. However, it is apparent that critical thinking and higher order thinking skills can not be developed, to any degree of success, in survey method courses, and thus a movement towards more in-depth study would have supporters.

The research conducted for this thesis indicated that process education is part of Social Studies teachers classroom teaching strategies in the high schools surveyed. Teachers both stated that specific forms of process education were important and were being utilized to cover course content. Teachers placed a high level of importance on a positive classroom environment and for the development of higher order thinking skills by the students. Results were very consistent, showing that what teachers believe is important and what they say they do in the classroom were similar. The results indicated that four of five questions/statements that teachers rated as being the most important were also rated as the highest for utilization. As well, four of five questions/statements that teachers rated as being the least important were also rated the lowest for utilization. Only one questions/statements was not related to process education in either of these rating. This speaks well for teacher commitment to process education.

The low rating teachers gave to the lecture method of teaching was an encouraging sign of teacher commitment to actively engaging students in the learning process in positive, challenging environments. Teachers

facing decisions or conflicts between content, process, and the time factor, often will choose the lecture format of teaching as the quickest way to cover certain aspects of the required curriculum that may not be appropriate to be covered in any other format. The good point of this result is that lecturing is rated low both in its level of importance and its level of utilization in this research.

Teachers indicated that they valued creating exams that accurately reflected the level of knowledge attained by their students. This is a key point in process education. The adoption of material to meet the needs of students can best be achieved through on-going observation of student's performance and work activity and an assessment of the level of knowledge and understanding achieved. If students are empowered to share in the decision making of what they will learn, how they will learn and who they may learn, study, or work with, students will develop more positive attitudes toward learning. The teacher and student, by negotiation and cooperation, will develop ways of evaluating what has been learned, what can be done with the new information that has been discovered, and how the work can be assessed.

Teachers low rating of the importance and utilization of computers in Social Studies indicates their lack of availability to these teachers. There is a definite need for computer literacy for our students but this should also be a part of teaching requirements. If teachers do not have access to computers then there is little need for them to become computer literate. With improved computer literacy of educators there would be more knowledge of the powers of the computer, the availability of software for specific grade and subject areas, and the variety of learning opportunities



available to students by incorporating computer time into course requirements.

One result of this research that may need to be explored further is that the levels of importance assigned to questions/statements were higher than the levels of utilization. Is this because of the design of the questionnaire being too specific, too long or are teachers, in general very traditional in their approaches to teaching?

A result that may provide some insight into this situation is the relationship between teacher education and 'progressive' education strategies. The higher the level of education of teachers the more they indicate a belief in new progressive approaches to education such as process education, and utilize process education strategies to a greater degree. Teachers that have a Masters degree are more progressive than teachers with less education. This goes against the researchers initial belief that young teachers, fresh from university would be the progressive educators and the older teachers with more years of service in teaching would be the more 'traditional' teachers.

Perhaps teachers who are just starting out in teaching or who do not have a permanent contract yet are traditional in their approach to teaching while more senior teachers, who have returned to university and furthered their education completing one or more Masters degrees, are more informed about current changes in the field of education, are more willing to try new approaches to learning and have a greater knowledge base in which to develop and initiate new teaching strategies. The results of this information, with regards to teacher education and continuous teacher training is significant. If this result holds true in future research studies, then the need for school boards to continually in-service teachers on the

most current approaches to teaching, learning, assessment, and the school environment has significantly increased in importance. Teachers with a Masters degree believe in and use more progressive teaching strategies than teachers with less education but they do not believe in and use significantly more traditional strategies. Thus the more educated the teacher is, the more progressive they appear to be in their teaching strategies.

What this research has accomplished is to introduce the concept of process education as a teaching strategy. It also examined various approaches of process education such as cooperative, and student-centered learning and discussed various strategies employed to assess that learning. It has been shown that process education is a better method than forms of education which emphasize only the product of student work. The use of alternative forms of assessment will therefore be necessary with the move to process education, and this should be initiated at the grass roots level immediately. Finally, many positive results were determined to be based on higher levels of teacher education, and this will continue to be important with greater implementation of process education into school systems throughout Nova Scotia.

Process education is a sharing process which will go a long way towards developing a lower level of stress among students, creating more positive student attitudes towards school, and challenging all students at their own level of learning. If student-centered process-oriented learning is used as a teaching and evaluation strategy, and as a planned way of analyzing what has been learned, then all parties involved in the learning process will see it as a positive experience.

## BIBLIOGRAPHY

- Adams, Dennis M., Hamm, Mary E. (1992). Portfolio assessment and social studies: Collecting, selecting, and reflecting on what is significant. *Social Education* 56, 2: 101-105
- Alcorn, Bonnie, Wittgen, Annie (1990). The authority to think: The student centered classroom. *Contemporary Education* 61, 2: 91- 93
- Anderson, S., Ball, S., & Murphy, R. and associates (1975). *Encyclopedia of Educational Evaluation*.. San Francisco: Jossey-Bass
- Anderson-Inman, Lynn (1986). Bridging the gap: Student-centered strategies for promoting the transfer of learning. *Exceptional Children* . 52, 6: 562-572
- Baron, Joan Boykoff (1989). Performance testing in Connecticut. *Educational Leadership* 46, 7: 8
- Bawden, Richard, Macadam, Robert D. (1990). Towards a university for people-centered development: A case history of reform. *Australian Journal of Adult and Community Education* 30, 3: 138-153
- Bennett, Carol Rolheiser, Stevahn, Laurie (1992). Expanding visions of evaluation. *Cooperative Learning Journal* 13, 1: 2-5
- Biddle, James R., Lesley, Thomas J. (1991). *Portfolios and the Process of Teacher Education* . Paper presented at the annual meeting of the American educational Research Association Chicago Il. April 3-7, 1991 (ERIC Document Reproduction Service No. ED 334 165)
- Boomer, Garth ed. (1988). *Negotiating the Curriculum: A Teacher-Student Partnership* . Perth: Ashton Press, University of Western Australia
- Brandt, Ron (1988). On assessment in the arts: A conversation with Howard Gardner. *Educational Leadership* 45, 10: 30-33
- Brandt, Ron (1989). On misuse of testing: A conversation with George Madeaus. *Educational Leadership* 46, 8: 26-29

- Brandt, Ron (1990). On learning styles: A conversation with Pat Guild. *Educational Leadership* 48, 2: 10-12
- Brandt, Ron (1992). On performance assessment: A conversation with Grant Wiggins. *Educational Leadership* 49, 8: 35-37
- Brown, Rexford (1989). Testing and thoughtfulness. *Educational Leadership* 46, 7: 31-33
- Burnett-Strother, Deborah (1990). Cooperative learning: Fad or foundation for learning. *Phi Delta Kappan* 72, 2: 158-161
- Camel, Louis (1988). *The Current Debate in the Social Studies Discipline Regarding an Emphasis on Content and Process*. Presented at the Annual Meeting of the National Catholic Education Association April 5, 1988 (ERIC Document Reproduction Service No. ED 302 475)
- Cannell, John Jacob (1988). Nationally normed elementary achievement testing in America's public schools: How all fifty states are above the national average. *Educational Measurement: Issues and Practices* 7, 2: 5-9
- Chittenden, Edward (1991). Authentic assessment, evaluation, and documentation of student performance. In *Expanding Student Assessment..* Alexandria, Va. Association for Supervision and Curriculum Development
- Civek, Gregory J. (1991). Innovation or enervation? Performance assessment in perspective. *Phi Delta Kappan* 72, 9: 695-699
- Clarke, Judy, Wideman, R., & Eadie, S. (1990). *Together We Learn*. Prentice Hall Canada, Inc.
- Cohen, Elizabeth G., Benton, Joan (1988). Making groupwork work. *American Educator*. 12, 3: 10-17; 45-46
- Cooperative Learning Summer Teachers Institute (1991). Bridgewater, Nova Scotia, August 23-25
- Curry, Lynn (1990). A critique of the research on learning styles. *Educational Leadership* 48, 2: 50-52

- Daniel, Peter A. (1991). Assessing student-led seminars through a process of negotiation. *Journal of Geography in Higher Education* 15, 1: 57-62
- Dippong, Jackie (1992). Two large questions in assessing and evaluating cooperative learning: Teacher challenges and appropriate student tasks. *Cooperative Learning Journal* 13, 1: 6-8
- Donaldson, Henry Carroll (1984). *A Study of the Laboratory Science Teaching Skills of Elementary Teachers*. Department of Curriculum and Instruction College of Education. Kansas State University (ERIC Document Reproduction Service No. ED 248 137)
- Dunn, Rita (1989). *Learning Styles: Key to Improving Schools and Student Achievement*. Curriculum Report National Association of Secondary School Principals, Reston, Va. January 1989 (ERIC Document Reproduction Service No. ED 303 851)
- Dye, Pat (1991). *What Are Open-Ended Questions?*. Washington: Staff Development Workshop, National Council for the Social Studies Conference, D.C. November 20, 1991
- Education for a New Century (1992). Commission on Excellence in Education. Government of New Brunswick Publication
- Evans, Mark, Hundey, Ian (1992). *Authentic Instruction and Authentic Assessment in History and Social Sciences*. Presentation at the National Council for the Social Studies Conference. Detroit, November 20, 1992
- Fitzpatrick, Kathleen A. (1991). Restructuring to achieve outcomes of significance for all students. *Educational Leadership* 49, 5: 18-22
- Frazier, Darlene M., Paulson, F. Leon (1992). How portfolios motivate reluctant writers. *Educational Leadership* 49, 8: 62-65
- Gorman, William J. (1989). Effective student evaluation. *Education Canada* 29, 3 : 4-9,15
- Graves, Leana Nan (1992). Integrating the curriculum with cooperative learning: An interview with Gustavo Rivera. *Cooperative Learning Journal* 12, 3: 12-15

- Haley, Frances, Natoli, Salvatore. & Hollar, Pamela (1990). *Social Studies Curriculum Planning Resources*. Dubuque, Iowa Kendall/Hunt Publishing Company. Iowa 53-59; 94-103; 108-120
- Hanna, Bill (1986). Action research history assignments using student centered resources. *Social Studies Review* 25, 1: 2-7
- Hargraves, Andy, Earl, Lorna (1991). *Rights of Passage: A Review of Selected Research About Schooling in the Transition Years*. Ontario Ministry of Education
- Herbert, Elizabeth A. (1992). Portfolios invite reflection- from students and staff. *Educational Leadership* 49, 8: 58-61
- Herman, Joan L. (1986). *Evaluation for School Improvement: A Multi-Level, Multi-Purpose Model Project: Multi-Level Evaluation Systems..* Office of Education Research and Improvement (ERIC Document Reproduction Service No.ED 293 890)
- Herman, Joan L. (1992). What research tells us about good assessment. *Educational Leadership* 49, 8: 74-78
- Herman, Joan L., Aschbacher, Pamela R., & Winters, Lynn (1992). *A Practical Guide to Alternative Assessment..* Alexandria, Va. Association for Supervision and Curriculum Development
- Hibbard, K. Michael (1992). Bringing authentic performance assessment to life with cooperative learning. *Cooperative Learning Journal* 13, 1: 30-32
- Hiebert, Elfrieda H., Hutchison, Terry A. (1991). Research directions: The current state of alternative assessments for policy and instructional uses. *Language Arts* 68, 8: 662-667
- Hirst, Walter Allen, Bailey, Gerald D. (1983). *A Study to Identify the Effective Classroom Teaching Competencies for Community College Faculty*. Research Report of Kansas Community Colleges (ERIC Document Reproduction Service No. ED 227 890)
- Hoar, Jack N. (1991). *Testing For The Future: The Future Is Now In California*. Long Beach School District Publishing, California  
National Council for the Social Studies Conference, Washington D.C. November 20, 1991

- Hoar, Jack N. (1992). *Assessment for the Future: The Question of Scoring*. Paper presented at the National Council for the Social Studies Conference, Detroit, Michigan, November 21, 1992.
- Houston, James E. ed. (1990). *Thesaurus of ERIC Descriptors*. 12th edition. Oryx Press, Phoenix, Ar.
- Jaeger, Richard M. (1991). Legislative perspectives on statewide testing. *Phi Delta Kappan* 72, 3: 239-242
- Jaouen, Pat (1990). Fostering students' awareness of learning styles. *Educational Leadership* 48, 2: 14-15
- Johnson, David W., Johnson, R.T., & Holubec E.J. (1987). *Revised Circles Of Learning: Cooperation in the Classroom*. Alexandria, Va. Association for Supervision and Curriculum Development
- Johnson, David W., Johnson, Roger T. (1989a). Social skills for successful group work. *Educational Leadership* 47, 4: 29-33
- Johnson, David W., Johnson, Roger T. (1989b). Toward a cooperative effort: A response to Slavin. *Educational Leadership* 46, 7: 80-81
- Johnson, David W., Johnson, Roger T. (1992). Approaches to implementing cooperative learning in the social studies classroom. In *Cooperative Learning in Social Studies Classroom, an Introduction to Social Study*. NCSS bulletin no.87 NCSS publishing, Washington D.C. :44-51
- Johnson, Joseph H. (1988). Improving social studies instruction: Advice to the generalist in a specialized world. *The Clearing House* 62, 4: 152-153
- Kagen, Spencer (1987). *Cooperative Learning Resources For Teachers*. Riverside: School of Education, University of California
- Keefe, James W., Ferrell, Barbara G. (1990). Developing a defensible learning style paradigm. *Educational Leadership* 48, 2: 57-61
- Kilcher, Ann, Warren, Dianne (1985). *Teaching and Evaluation Strategies for Social Studies*. Department of Education. Saskatchewan, Canada

- Kohn, Alfie (1991a). Don't spoil the promise of cooperative learning: Response to Slavin. *Educational Leadership* 48, 5: 93-94
- Kohn, Alfie (1991b). Group grade grubbing versus cooperative learning. *Educational Leadership* 48, 5: 83-87
- Kon, Jane Heckley, Martin-Kniep, Giselle O. (1992). Students' geographic knowledge and skills in different kinds of tests: Multiple-choice versus performance assessment. *Social Education* 56, 2: 95-98
- Livdahl, Barbara J.(1991). *The Learner-Centered Classroom: Explorations into Language and Learning*. North Dakota University, Grand Forks Center for Teaching and Learning (ERIC Document Reproduction Service No. ED 335 701)
- Livingston, Carol, Castle, Sharon, & Nations, Jimmy (1989). Testing and curriculum reform: One school's experience. *Educational leadership* 46, 7: 23-25
- MacCormick, Frank (1992). *Cooperative Discipline: A Teacher Workshop*. Sackville N.S. February 18, 1992
- MacLean, Gail (1990). *Listening*. Nova Scotia Department Of Education, Minister's Advisory Committee On Teaching Effectiveness
- Madeaus, George F. (1991). The effects of important tests on students: Implications for a national examination system. *Phi Delta Kappan* 73, 3: 226-231
- Madeaus, George F., Kellaghan, Thomas (1992). A national test or testing system: Issues for the social studies community. *Social Education* 56, 2: 89-91
- Maeroff, Gene I. (1991). Assessing alternative assessment. *Phi Delta Kappan*. 73, 4: 273-281
- Martinez, Michael E., Lipson, Joseph I. (1989). Assessment for learning. *Educational Leadership* 46, 7: 73-75
- Marzano, Robert J. (1992). *A Different Kind of Classroom: Teaching with Dimensions of Learning*. Alexandria, Va. Association for Supervision and Curriculum Development



- McAllister, Peter J. (1992). *A Canadian Perspective of Nationally Mandated Standardized Testing in Canada*. Paper presented at National Council for the Social Studies Conference. Detroit, Michigan November 21, 1992.
- McCutcheon, Karl ed. (1987). *Making The Grade* . Prentice Hall Canada, Inc., Toronto, Canada
- McKinnon, Norma M. (1991). *A Comparison of Teaching Learning Styles by Nursing Instructors and Nursing Students at Northern Maine Technical College*. Applied Educational Research and Evaluation. March 1991. (ERIC Document Reproduction Service No. ED 331 549)
- McMurtry, John (1992). National testing. *Canadian Social Studies* 26, 3: 94-95
- Metzger, Devon J. (1985). Process vs content: The lost illusion. *The Social Studies* 76, 3: 115-119
- Meyer, Carol A. (1992). What's the difference between authentic and performance assessment. *Educational Leadership* 49, 8: 39-40
- Meyers, Joel, Lytle, Susan (1986). Assessment of the learning process. *Exceptional Children* 53, 2: 138-144
- Myers, Jamie (1986). Making invitations that encourage active learning. *Journal of Reading* 32; 6: 562-564
- Myers, John (1992). Cooperative learning: A window into the mind. *Cooperative Learning Journal* 13, 1: 24-26
- National Council For the Social Studies: (1991). Testing and Evaluation Policy Statement. NCSS Testing and Evaluation Committee
- National Training Laboratory (1990). *Retention of Learning Pyramid*. Bethal Maine
- Newfoundland Department of Education: (1990). *The Evaluation of Students in the Classroom : A Handbook and Policy Guide*. St. John's, Newfoundland. Government of Newfoundland and Labrador

- Nova Scotia Department of Education (1992). *Principles of Learning*. Halifax, N.S.
- Nova Scotia Department of Education (1992). *Product vs Process-Oriented Classroom*. Halifax, N.S.
- Nova Scotia Department of Education (1992). *Emphasis on Evaluation*. Halifax, N.S.
- Nova Scotia Department of Education (1992). *Vision of Nova Scotia Education..* Provincial Advisory Committee on Education
- Nuttall, Desmond L. (1992). Performance assessment: The message from England. In *Readings from Educational Leadership on Performance Assessment*. Alexandria, Va. Association for Supervision and Curriculum Development. 107-110
- O'Neil, John (1992). Putting performance assessment to the test. *Educational Leadership* 49, 8: 14-19
- Ontario Schools: (1987). *Intermediate and Senior Divisions*. Department Of Education, Waterloo County, Ontario
- Parker, Walter C. (1991). *Renewing the Social Studies Curriculum*. Alexandria, Va. Association for Supervision and Curriculum Development
- Paulson, F. Leon, Paulson, Pearl R., & Meyer, Carol A. (1991). What makes a portfolio a portfolio?. *Educational Leadership* 48, 2: 60-63
- Perrone, Vito (1991). Moving towards more powerful assessment. In *Expanding Student Assessment* Alexandria, Va. Association for Supervision and Curriculum Development
- Pollock, Jane E. (1992). Blueprints for social studies. *Educational Leadership* 49, 8: 52
- Pope, Sharon (1989). *So You Want Their Heads Off The Desk*. Paper presented at the National Council for the Social Studies Conference. St. Louis, Missouri. November 19,1989.
- Pritchard, Jay (1988). A ten-step process for program planning. *The Canadian School Executive* 8, 6: 17-20

- Radford, Keith W. (1990). Observing the class. *Education Canada*. 30, 4: 36-39
- Redding Nora (1992). Assessing the big outcomes. *Educational Leadership* 49, 8: 49-53
- Reid, Jo-Anne, Forrestal, Peter (1989). Small group learning in the classroom. *English in Australia* 75, 4: 1-21
- Rogers, W. Todd (1991). Educational assessment in Canada: Evolution or extinction . *Alberta Journal of Educational Research* 37, 2: 179-192
- Savage, John (1992). Child-centered system goal of education. *The Teacher* 31, 1:1
- Schwartz, Robert M., & Cramer, Ronald L. (1989). *Planning Process Lessons: A Guide to Independent Learning* . Classroom Teaching Guide. Reading/ Language Arts Department, School of Human and Educational Services. Oakland University, Rochester Mi. February 1989 (ERIC Document Reproduction Service No. ED 311 401)
- Shepard, Lorrie A. (1989). Why we need better assessment. *Educational Leadership* 46, 7: 4-9
- Shepard, Lorrie A. (1991). Will national tests improve student learning? *Phi Delta Kappan* 72, 3: 232-238
- Simmons, Jay (1992). Adapting portfolios for large scale use. In *Readings from Educational Leadership on Performance Assessment* Alexandria, Va. Association for Supervision and Curriculum Development
- Slavin, Robert E. (1988). Cooperative learning and student achievement. *Educational Leadership* 46, 2: 31-33
- Slavin, Robert E. (1990). *Achievement Effects Of Ability Grouping In Secondary Schools: A Best-Evidence Synthesis*. A John Hopkins University Research published by University Of Wisconsin-Madison, Wisconsin Center For Educational Research
- Slavin, Robert E. (1991a). Group rewards make groupwork work. *Educational Leadership* 48, 5: 89-91

- Slavin, Robert E. (1991b). Synthesis of research on cooperative learning. *Educational Leadership* 48, 5: 71-82
- Stahl, Robert J. (1992). From "academic strangers" to successful members of a cooperative learning group: An inside-the-learner perspective. In *Cooperative Learning in Social Studies Classroom, An Introduction to Social Study* . NCSS bulletin no. 87 NCSS publishing, Washington D.C. 8-15
- Stahl, Robert J., VanSickle, Ronald L. ed. (1992). *Cooperative Learning in Social Studies Classroom, An Introduction to Social Study* . NCSS bulletin no. 87 NCSS publishing, Washington D.C.
- Stahl, Robert J., VanSickle, Ronald L. (1992). Cooperative learning as effective social study within the social studies classroom: Introduction and an invitation. In *Cooperative Learning in Social Studies Classroom, An Introduction to Social Study* . NCSS bulletin no. 87 NCSS publishing, Washington D.C. 1-7
- Stock, Patricia L., Robinson, Jay L. (1987). Taking on testing: Teachers as test researchers. *English Education* 21, 1 :93-121
- Stover, Lois T. (1990). Modeling a student-centered approach in the secondary teacher education program. *Action in Teacher Education* 12, 1: 35-42
- Teacher To Teacher; Opening Our Doors, (1988). Halifax County Bedford-District School Board Publication
- Teters, Peggy, Gabel, Dorothy (1984). *1982-83 Results of the NSTA Survey on the Needs of Elementary Teachers Regarding the Teaching of Science*. National Science Teachers Association. Washington D.C. January 20,1984 (ERIC Document Reproduction Service No. ED 253 398)
- Thorpe, Steven (1985). Searching for social studies excellence among the reports on schooling. *Social Studies Review* 25, 1: 25-34
- Thornton, Stephen J. (1990). *How Does Instruction Vary Across the Social Studies Subjects?*. Paper presented at the annual meeting of the American Educational Research Association Boston April, 17,1990 (ERIC Document Reproduction Service No. 320 818)

- Valencia, Sheila (1990). A portfolio approach to classroom reading assessment: The whys, whats and hows. *The Reading Teacher* 43, 4: 338-340
- Valencia, Sheila, Pearson, P. David (1987). Reading assessment: Time for a change. *The Reading Teacher* 40, 8: 726-732
- Valeri-Gold, Maria, Olson, James R., & Deming, Mary P. (1992). Portfolios: Collaborative authentic assessment opportunities for college developmental learners. *Journal Of Reading* 35, 4: 298-304
- Van Sickle, Ronald L. (1992). Cooperative learning properly implemented works: Evidence from research in the classroom: In *Cooperative Learning in Social Studies Classroom, an Introduction to Social Study* NCSS bulletin no. 87 NCSS publishers Washington, D.C. 16-20
- Waxman, Hersholt C., Eash, Maurice J. (1983). Utilizing students' perceptions and context variables to analyze effective teaching: A process product investigation. *Journal of Educational Research* 76, 6: 321-325
- Weiser, Margaret G. (1982). *Assessment: A Teaching Prerequisite*. Research Report. Early Childhood and Elementary Education Department. University of Iowa, Iowa city, Iowa (ERIC Document Reproduction Service No. ED 225 676)
- Wiggins, Grant (1989). A true test: Toward more authentic and equitable assessment. *Phi Delta Kappan* 70, 9: 703-713
- Wiggins, Grant (1989a). Teaching to the (authentic) test. *Educational Leadership* 46, 7: 41-47
- Wiggins, Grant (1989b). The futility of trying to teach everything of importance. *Educational Leadership* 47, 3: 44-59
- Wiggins, Grant (1991). A response to Civek. *Phi Delta Kappan* 72, 9: 700-703
- Wiggins, Grant (1992). Creating tests worth taking. *Educational Leadership* 49, 8: 26-33

- Wolf, Dennie Palmer (1988). Opening up assessment. *Educational Leadership* 45, 2: 24-29
- Wolf, Dennie Palmer (1989). Portfolio assessment: Sampling student work. *Educational Leadership* 46, 7: 35-39
- Wolfe, Denny (1989). In defense of "vague" assignments. *The Clearing House* 62, 5 :199-201
- Womack, Sid T. (1989). Models of instruction: Expository, demonstration, inquiry, individualized. *The Clearing House*. 62, 5: 205-210
- Yager, Robert E., Bonnstetter, Ronald J. (1990). *The Practice of Teachers Who Develop Exemplary Science Programs* .Iowa Honors Workshop (ERIC Document Reproduction Service No.ED 328 416)
- York, Ontario, School Board (1986). *Cooperative Learning*. York School Board Publication
- Yinger, Robert J. (1989). A study of teacher planning. *The Elementary School Journal* 90, 2: 107-127
- Zessoules, Reineke, Gardner, Howard (1991). Authentic assessment: Beyond the buzzword and into the classroom. In *Expanding Student Assessment* Vito Perrone (ed.) Alexandria, Va. Association for Supervision and Curriculum Development

## Appendix A

### Emphasis Of Evaluation

#### Increased Attention

- Assessing what students know know and how they think about a subject
- Assessment as an integral part of teaching
- Focus is on a broad range of tasks taking a holistic view of the of the subject
- Development of problem situations requiring the application of a number of ideas
- The using of multiple assessment techniques such as written, oral, and demonstrations
- Using technology and manipulatives in assessment

#### Decreased Attention

- Assessing what students do not know
- Assessment for the correct answer on tests for the purpose of assigning grades
- Focus is on large number of specific and isolated skills
- The using of exercises or problems requiring only one or two skills
- Teacher uses only written tests
- Excluding technology and manipulatives from the assessment process

## Appendix B

The following work was provided by Sharon Pope, Texas, at a workshop presentation entitled "So You Want Their Heads Off The Desk" at the NCSS annual conference in St. Louis Missouri, November, 1989.

### **SOME SUGGESTED WAYS TO USE PEER AND COOPERATIVE LEARNING**

- A. **Playing cards** - worksheets done by every student, but only one is graded. A group grade is given.
- B. **Jigsaw technique** - can be used for testing, product, or a combination of both.
- C. **Team competitions** for test score improvement - bonuses.
- D. **Specific team product suggestions/strategies:**
  - 1. Writing For Young Readers - students write stories, myths, cartoons, poetry or textbook entries which could be comprehended, if not read alone, by a much younger child. Should be informative, should not cause fear. Can use illustrations. Textbook entry is good strategy - can learn a concept more fully by "teaching" a younger learner.
  - 2. News item for television news - give students time limits (30 or 45 seconds is good). Specify details about film, graphics and text to include.
  - 3. "Scenarios" - application exercises using scenarios (hypothetical case studies) provided by the teacher or created by students. Identifying alternative courses of action and predicting consequences should be part of any scenario activity.
  - 4. Inventions - students create a new product/tool/machine to remedy a problem assigned. They must explain how the invention works, why it is useful. Ideally, students should do a drawing and a written explanation.



5. Letters - compose letters expressing feelings about an issue, ideas to resolve problems. Persuasive and expository writing techniques are appropriate here. Specific person, group or agency should be addressed (corporation, editor, board, officer, etc.).

6. Biography of a Product - creative writing assignment that forces students to analyze components of an object. Could also be an autobiography if product told how it was created, component parts, how parts function within the whole, etc.

7. Designing a Survey or Questionnaire - students formulate hypothesis, create survey instrument, decide who should be surveyed. Give examples of different types of surveys as models.

8. Poetry - use students' Language Arts training to have them write standard rhyming poems, limericks, Haiku, or song lyrics.

9. USA TODAY Debate Page - have students use real examples of this feature and blank model sheet to summarize background information, write "man on the street" opinions, draw cartoon and write "opposing viewpoint" editorials about one issue or problem.

10. Designing Magazine Covers - highlight the focus of articles inside. Students design a cover, write the "Table of Contents" page, write a short "Message From the Publisher" paragraph. Use issues of Time, US News as models. For Social Studies classes. assigning "Man/Woman of the Year" (decade, century) or "The Year \_\_\_\_ in Review" (decade, century) is effective.

11. Designing Gameboards - using such games as "Monopoly", "Candyland", "Chutes and Ladders", have students design games which illustrate important aspects of concepts, units, time periods studied. Have specific requirements as to board, "game pieces", "chance" cards, and instructions for play.

12. Skits - use role play strategies in real or hypothetical cases. Sometimes it is helpful to give students fixed characters; in other situations, allow them to make their own characters. Make requirements/objectives clear. Good way to have students demonstrate mastery of important terms, vocabulary, if they are required to use such terms in their dialogue.

13. Soap Operas - use skit strategy but in soap opera format. Develop names for each group's assignment based upon actual television shows. Encourage students to be hams, use exaggerated emotions and body movements.

14. Public service or commercial ads - vary so that the medium is sometimes given to them (full-page newspaper or magazine), billboard (let them use assigned portions of the chalkboard and lots of colored chalk), radio, television (with time constraints), and mailers.

15. Telegrams - give them a word limit. 25 words is a good and realistic limit. This forces students to determine critical attributes. It is an excellent closure activity.

16. Museum Project - if students are divided into six groups, have two groups focus on an important person, two an important event, and two an important idea from a specific unit of study. Depending upon the subject matter, other "important" focus points might be used (inventions, discoveries, terms, examples of concepts, etc.). Groups may select person, event, idea, invention, etc., that they feel is most significant in the study. They are to develop a museum exhibit to showcase their selection. Money is no object! Emphasize the selection of details as important to justify their exhibit.

17. Audio-tapes - if equipment is available in the classroom, tapes may be used again and again. This is often a good choice activity (allow a group the option of presenting their findings or their "report" on tape rather than in another form such as poetry or letters).

18. Video-tapes - this is usually most practical if reserved for “out of class” assignments. Have objectives and requirements clearly stated. A written outline/pseudo script requirement makes students take assignments more seriously. Requiring a bibliography is also helpful. In- class videotaping is effective if equipment is available.

19. T-shirts - have students design t-shirts which illustrate important aspects, significant ideas or accomplishments, persuasive messages, etc. Have blank t-shirt forms printed on paper as well as on transparencies.

20. Graffiti boards - divide chalk boards so that each group has its own space. Allow them to use chalk to create graffiti boards which illustrate feelings and attitudes appropriate to reflect what they have just read or studied.

21. Illustrated Obituary - write obituary entries describing lifetime achievements of a significant person. Illustrate with drawings and symbols to emphasize accomplishments.

22. Cartoons - interpret cartoons, write captions for cartoons, create original cartoons.

23. Cartoon strips - give each group one “box” of a cartoon strip to complete. Each “box” is one step of a story. Put together the “boxes” to tell the complete story.

24. Illustrated Timelines - have students identify the most important events of a designated time period (a suggested number is helpful, i.e., 7-10 events). Each group designs a timeline and illustrates with people, inventions, art, events of note.

25. Major Events Charts - like the timelines, “Major Events Charts” require groups to reach consensus as to the most important events of a specific time period. Finished product is a chart of these events in chronological order. This can also be expanded to have events

categorized by labels such as “Economic”, “Cultural”, “Political”, etc. It can also be used to identify cause and effect relationships.

26. Newspaper “Front Pages” - good closure for study of a specific time period. Each group is assigned a specific year. For that year, they design a front page of a newspaper highlighting a specific event as well as other trends and movements. Specific years during wars and revolutions work well (WWI, WWII, Vietnam, Korea, Civil War, etc.)

27. Interviews - each group can design interview questions for real or hypothetical subjects. They can use primary source material to write questions which would have produced these pieces as responses. Can individually interview subjects, combine responses into a group product which showcases conclusions. They can put oral history interviews together into an audio-tape.

28. “Empty Chair” Interviews - use an empty chair (literally!) to have students imagine details about a significant person about whom they have read. Groups write questions to ask of the “empty chair” where this person will be sitting. Students from other groups answer for the interview subject. Take turns using dice or playing cards to determine who will ask and who will answer questions next.

29. Peer Critiques - in groups, have students critique each others individual written work. Pass around work until all group members have read every member’s work. Train them to use the “critique sandwich” idea. Start with positive statement (bread), list suggested changes or improvements, end with, positive statement (more bread).

30. “Making Connections” - after reading about events of a certain time period, have students use other materials to illustrate events occurring at the same time but in different places (local history, or in other parts of the world, etc. )

31. Reaction Statements - post provocative statements in prominent places in the classroom for a week or two with no comment. Have

students discuss statements in groups. Give choices for group reactions: written reaction statement responses, posted by the original; reactions on graffiti board section of chalkboard; letter to editor, etc.

32. Diary Entries - this is a good way to make abstract concepts more easily understood with concrete examples. Have groups write a "Dear Diary" entry for real or hypothetical individuals in response to an event or a development.

33. Murals - use chalkboard section to let groups illustrate concepts, events, people studied. Colored chalk is needed here.

34. Headlines - have groups of students write headlines to summarize events or concepts studied. Tell them the number you expect (6, 8, or 10 for example). Try also to have students think beyond just events to the application level. For example, have them write 10 hypothetical headlines of how this concept might be observed in another time period or in another culture.

35. "Speed Round" Activities - have groups of students race against other teams to complete an activity as quickly and as accurately as possible. The winning team must finish first with no errors on their product.

36. Time Capsules - give an empty coffee can to each group at the end of a unit of study. Have students put sketches, words, phrases, and "artifacts" into their time capsule to illustrate significant events, people, and ideas from the time period. Have the groups decorate the outside of their capsules to illustrate the sealed contents. Use the decoration sheet as an envelope for contents at the end of the class period so that coffee cans can be used again;

37. Graphs & Charts - it is important to have students interpret charts and graphs. It is also important to have them take data and make their own charts and graphs. Show them unusual ways to make graphs besides just pies, lines, and bars.

38. Worksheets - have students complete a worksheet as a group. Using playing card assignment strategy to determine which paper will be read for group grade makes all students responsible for completing their own paper with group answers.

39. Crossword Puzzles - have groups of students work together to solve puzzles or to create original puzzles of their own. Have a "Scrabble" set and graph paper on hand for the original ones they like to work out.

40. Maps - have groups create maps of their own to test other students understanding. Use the "Map of Errors" idea. Have each group create a map relevant to the topic of study which has a certain number of errors as well as most items correctly identified and labelled. They should indicate how many items are wrong and prepare a separate key. They can also be encouraged to make up locational questions for "Geography Pursuit" review games.

41. Mobiles and Collages - the same items which may be sealed in a time capsule can be hung in mobile form from coat hangers which may be reused. This need not be limited to an historical time period, however; any concept may be represented in this way.

42. Bumper Stickers - this is a good, fast group product for closure. Like the t-shirt strategy, students are forced to reach consensus as to how best to illustrate main ideas, contributions, characteristics, desired outcome, etc.

43. Review Games - groups may be made responsible for writing review questions to be used in a variety of team competitions. The writing of the questions is often as valuable in helping students bring together facts from long units of study as is the review game itself. Rewards for this activity are bonus points on the test which follows for the winning teams.

44. "Scavenger Hunts" - you may use textbook materials, supplemental materials, newspapers, magazines, and the library to have teams of students find specific answers or specific examples of broad categories of things you are studying. The secret is to have many questions, and have a nice variety of easy and difficult tasks.

45. Fairs and Contests - some contests such as History Fair encourage group entries. Cooperative learning teams are very effective in such contests. Even if most contests are for individual entries, both the early hypothesizing and the later refinement stages of project work are enhanced by having students work in groups for critiquing and feedback.

46. Brainstorming - brainstorming in groups encourages divergent thinking. Give groups a set time period for generating ideas (one minute). The fluency of ideas leads to more ideas. Categorizing of like items on group lists then helps students focus their thinking. Look for the commercially produced game called "Outburst". It is another way to think of brainstorming.

47. "Pictionary", Win, Lose or Draw, "Charades" - these very active team games can be used effectively as focus, closure, or review games activities. The chalkboard and overhead are both effective since both are usually denied to students.

48. Fine Art - have students in small groups use photographs and art pieces as the "prompt" for brainstorming. Give them two minutes to call out every word they can think of that comes to mind when they look at this piece of art. Have the recorder write these on paper or on the group's section of the chalkboard. They can then use these words to write a fully developed paragraph about the concept represented. Use song lyrics as poetry. Print the words but also have students actually stand and sing folk songs, labor songs, protest songs, etc.

49. Five Senses - find opportunities for small groups of students to use their five senses to imagine and then describe a concept. For example, have them develop a definition for a word such as "anarchy". Then have them complete the stems, "Anarchy smells like ...tastes like ...feels like ...looks like ...and sounds like ..." This strategy may be applied in many learning situations. "Digestion", "For the slave, slavery", "Lemon juice"...

50. "Update Letters" - have students in small groups write to historical figures to "bring them up to date" as to the impact their actions or inventions have had on the course of human development.

51. Flags, Money - have students design flags, currency, coins, passports, and seals for nations, units of government, and cultures (real or hypothetical). They must be prepared to justify symbols used.

52. Five W's - students in groups write brief reports about historical or current events by answering the five "W" questions: what, when, why, where, and who?

53. Rewrite Documents - have students paraphrase and rewrite historical documents and legal documents in order to make them more readily understood.

54. Ads - have groups create classified ads. They can write personal ads for real or hypothetical persons in which they describe how that person might wish to be perceived. They might also do the same for contemporary persons. They could write employment ads seeking people to fill positions (real or hypothetical, historical or contemporary), or employment ads for people seeking work.

55. Symbols - groups may design logos or symbols which illustrate critical attributes of an organization, idea, movement, party, nation, or product.

56. Code - students may create a list of rules or a code for a particular group of people after reading about the values they shared or have had imposed on them.

57. Songs - students, in groups, may write song lyrics to be sung to a familiar tune.

58. "Top 10" - have students make a list of top 10 achievements, events, favorites, etc., based on their study.

59. Debates - teams of four can prepare to debate a topic with their responsibilities "jigsawed" for research and gathering background information.

60. Rebus Stories - have students use pictures, symbols, and letters to design "rebus" boards for other teams to decipher. A rebus story board is most easily explained to students as the type of puzzle used on the quiz show "Concentration". It is an excellent way to have students "image" a name or idea for longer retention.



## Appendix C

This information was prepared by Jack N. Hoar Consultant, Long Beach Unified School District and a member of the California Assessment Program History Social Science Advisory Committee. It was revised for distribution at the National Council for the Social Studies (NCSS) Annual Meeting - Detroit, Mi 11/92.

### **Scoring Rubrics of Performance Assessment in the California Assessment Program; History-Social Science**

#### **Level I. Minimal Achievement**

##### **Group and Cooperative Learning**

- Little interaction in groups
- Very brief conversations
- Exclusive reliance on a spokesperson
- Some students are disinterested or distracted

##### **Critical Thinking**

- Demonstrates little understanding and only limited comprehension of scope of problem or issues involved
- Employs only the most basic parts of information provided
- Mixes fact and opinion in developing a viewpoint
- States conclusion after hasty or cursory look at only one or two pieces of information
- Does not consider consequences

##### **Communication of Ideas**

- Position is vague
- Presentation is brief and includes unrelated general statements
- Overall view of the problem is not clear
- Statements tend to wander or ramble

## **Knowledge and Use of History**

- Reiterates one or two facts without complete accuracy
- Deals only briefly and vaguely with concepts or the issues
- Barely indicates any previous historical knowledge
- Relies heavily on the information provided

## **Level II. Rudimentary Achievement**

### **Group and Cooperative Learning**

- Sporadic interaction in groups
- Conversation not entirely centered on topic
- Only one or two persons in group actively participate
- Strong reliance on spokespersons

### **Critical Thinking**

- Demonstrates only a very general understanding of scope of problem
- Focuses on a single issue
- Employs only the information provided
- May include opinion as well as fact in developing a position
- States conclusion after limited examination of evidence with little concern for consequences

### **Communication of Ideas**

- Presents general and indefinite position
- Only minimal organization in presentation
- Uses generalities to support position
- Emphasizes only one issue
- Considers only one aspect of problem

## **Knowledge and Use of History**

- Provides only basic facts with only some degree of accuracy
- Uses analysis of information to explain at least one issue or concept in general terms
- Limited use of previous historical knowledge without complete accuracy
- Major reliance on the information provided

## **Level III. Commendable Achievement**

### **Group and Cooperative Learning**

- Attentive reading of documents and listening
- At least half the students confer or present ideas
- Some evidence of discussion of alternatives
- Some ability to participate in groups is evident

### **Critical Thinking**

- Demonstrates a general understanding of scope of problem and more than one of the issues involved
- Employs the main points of information from the documents and at least one general idea from personal knowledge to develop a position
- Builds conclusion on an examination of information given with some consideration of consequences

### **Communication of Ideas**

- Takes a definite but general position
- Presents a somewhat organized argument
- Uses general terms with limited evidence that may not be totally accurate
- Deals with a limited number of issues
- Views problem within a somewhat limited range

### **Knowledge and Use of History**

- Relates only major facts to the basic issues with a fair degree of accuracy
- Analyzes information to explain at least one issue or concept with substantive support
- Uses general ideas from previous historical knowledge without complete accuracy

## **Level IV. Superior Achievement**

### **Group and Cooperative Learning**

- At least 3/4 of students actively participate
- Lively discussion centers around the task
- Students show adeptness in interacting

### **Critical Thinking**

- Demonstrates clear understanding of scope of problem and at least two central issues
- Uses the main points of information from the documents and personal knowledge that is relevant and consistent in developing a position
- Builds conclusion on examination of the major evidence
- Considers at least one alternative action and the possible consequences

### **Communication of Ideas**

- Takes a clear position
- Presents an organized argument with perhaps only minor errors in the supporting evidence
- Deals with the major issues and shows some understanding of relationships
- Gives consideration to an examination of more than one idea or aspect of the problem

### **Knowledge and Use of History**

- Offers accurate analysis of the documents
- Provides facts to relate to the major issues involved
- Uses previous general historical knowledge to examine issues involved

## **Level V. Exceptional Achievement**

### **Group and Cooperative Learning**

- Almost all students enthusiastically participate
- Responsibility for task is shared
- Students reflect awareness of others' views and opinions
- Includes references to other opinions or alternatives in presentation and answers
- Questions and answers illustrate forethought and preparation

### **Critical Thinking**

- Demonstrates a clear, accurate understanding of the scope of the problem and the ramifications of the issues involved

- Employs all information from the documents and extensive personal knowledge that is factually relevant, accurate, and consistent in the development of a position
- Bases conclusion on a thorough examination of the evidence, an exploration of reasonable alternatives, and an evaluation of consequences

### **Communication of Ideas**

- Takes a strong, well-defined position
- Presents a well-organized persuasive argument with accurate supporting evidence
- Deals with all significant issues and demonstrates a depth of understanding of important relationships Examines the problem from several positions

### **Knowledge and Use of History**

- Offers highly accurate analysis of the information
- Provides a variety of facts to explore major and minor issues and concepts involved
- Extensively uses previous historical knowledge to provide an in-depth, accurate understanding of the problem and to relate it to past and possible future situations

## Appendix D Guidelines for Test and Examination Construction

The following are guidelines for test or exam construction adapted from the Saskatchewan Department of Education evaluation program.

1. The test should be long enough to adequately measure student learning, but short enough to be practical.
2. Some items should be simple enough for all students to answer.
3. A test should consist of no more than three types of items, and all items of one type should be included in the same section.
4. The test items should be clear, concise, and without the confusion of unnecessary words or unusual vocabulary.
5. The test directions should be clear and explicit.
6. How the test is to be scored should be considered, and the test prepared accordingly.
7. The test should be typed and reproduced clearly.
8. The test should be appropriate to the age level and ability of the students.
9. The questions should be arranged in the order of increasing difficulty.
10. Grouping of questions should be considered; in some cases, questions relating to the same content area or instructional objective are best placed together.

## Appendix E

This information was prepared by Jack N. Hoar Consultant, Long Beach Unified School District and a member of the California Assessment Program History Social Science Advisory Committee. It was revised for distribution at the National Council for the Social Studies (NCSS) Annual Meeting - Washington, DC 11/91.

### **PORTFOLIO ASSESSMENTS IN HISTORY- SOCIAL SCIENCE**

#### **What is an assessment portfolio?**

An assessment portfolio is a collection of student work over a period of time that provides a window into the classroom instructional process and student learning. Student work collected in the portfolio provides a means of judging student achievement and progress in history-social science.

One way to think about portfolios is to visualize a student whose work in a classroom has been monitored using a video camera--recording all work, activities, verbal and written communicating, the students working individually or in groups, and products generated. The video, however, is too cumbersome and impractical, the portfolio provides a practical approximation to what we would like to achieve through a video camera.

A portfolio is not the same as a student folder. A student folder may contain all of the student's work or only the student's finished work, while the portfolio contains a carefully selected sample of work and might even include drafts or other material. Collecting a sample rather than all the student work keeps portfolio management less cumbersome, yet it reflects a true picture of student work. The success of the portfolio as a means for assessment depends on how the sample was chosen.

#### **Why use a portfolio?**

The portfolio-assessment method of evaluating student progress has advantages over other traditional methods of assessing student progress.

The portfolio method takes into consideration emerging new ideas regarding the teaching and learning of history-social science.

**These ideas include:**

1. **Integrated assessment:** There is a shift from curriculum-free assessment to an assessment that is **integrated** with instruction. The portfolio allows for the assessment of students' progress in the context of their classroom instruction.

2. **Student-centered curriculum:** There is a shift from teacher-centered instruction to that of student-centered instruction. Current notions of students' acquiring knowledge is that of active learners who are engaged in active meaning-making. This means that children are actively involved in projects that require them to collect data, explore, analyze, verify, and communicate through discussion and writing. Portfolios provide an improved method for collecting and assessing products of learning.

3. **Thinking, understanding, and problem solving:** There is a shift from students learning many discrete skills in isolation to learning to think, understand, and solve problems by engaging in rich situational activities. Examining student work in a portfolio can reveal what a student really knows and understands about history-social science, including any misconceptions he/she may have about a particular concept or content. The products include models, graphs, maps, charts, problems solved, position statements and written work.

4. **Service of curriculum:** There is a shift from an assessment-for-assessment sake to an assessment that can be used in the service of curriculum. The portfolio provides assessments of students' work when they are engaged and working at their best. If students are aware that their work will be recognized, their accomplishments valued, and used as a medium to communicate with parents, they will take an interest in their day-to-day work collected in their portfolios. Additionally, portfolios, in conjunction with staff in-service, have the potential to promote teacher coordination and learning as they review each other's work.

### **Observations about portfolio usefulness**

**Assessment of learning:** Teachers reported that portfolios allowed them to see not only **what** students have learned, but how they have learned.



How students learned was found to be much more interesting and useful by teachers.

**What works in the classroom:** Teachers reported that portfolios provided an assessment of their own classroom process--what kinds of strategies for teaching history-social science concepts are working and which concepts cause students difficulty and why.

**Writing:** Teachers found that writing was the most effective way of learning about children's understanding and thinking. Also, teachers emphasized that writing should happen in the classroom when there is a need to write and when there is something important to write about.

**Resource for communication:** Teachers reported that portfolios provided an effective vehicle to communicate with their students. When teachers evaluated portfolios in a group with other teachers, they gained insights into strategies used by other teachers about teaching history-social science. Teachers also found portfolios were very useful in explaining to parents what students learned in their classes.

**Student self-confidence:** Teachers reported that portfolios increased student self-confidence, especially in traditionally low-achieving and high-risk students. These students showed pride in their work and were much more enthusiastic in sharing their thoughts with the teacher and other students.

### **Recommendations about instructional strategies**

Teachers suggest that unless classroom instruction emphasizes understanding and thinking, student work in the portfolio is likely to be disappointing, particularly in light of the criteria for evaluating portfolios. They made the following recommendations about student work assignment, classroom discussion with the teacher and among students, and an active engagement of students in rich situational-based units.

- Rather than assigning worksheets, students should be given rich situational-based problems.
- Rather than giving answers, students should be engaged in discussion using questioning techniques that require them to think. For example, discussion can be enriched so that students can see a concept from several perspectives, relate it to other similar

problems or situations, and compare it to what they have already learned.

- Rather than focusing on the correct answer, students should be provide opportunities to explore and the degree to which they show perseverance and resourcefulness should be recognized.
- Rather than giving problems requiring one answer, students should be given problems that require collecting data; making graphs, maps, charts, diagrams, and models; conjecturing and hypothesizing; explaining; and making judgments.

### **Guidelines for portfolio assessment**

The following sections discuss the need for a frame of reference, representative selection of pieces, content and number of pieces, and scoring as major steps for portfolio assessment.

#### **Frame of reference**

Pieces included in the portfolio should have information to orient the reader (for discussion with other teachers at the school site) about the context in which student work was performed in order to make a judgment about student work. Teachers recommend that the following information be included with each piece in the portfolio:

- Each piece should have the date, and project papers should be stapled together.
- The actual assignment should accompany student work. Also, resources available to the student should be specified.
- It should be noted whether the task was completed as a group or an individual project.
- It should be noted which papers are corrections or "second tries," and which are drafts.
- For ESL students and those who have difficulty in writing, a record can be included by the teacher that summarizes, from oral responses, student's thinking.

### **Representative selection of pieces**

Portfolios should contain typical samples of work as well as best efforts of the student.

**Typical sample:** Portfolios should contain samples of typical student work so that an evaluation can be made about the growth in learning and the breadth and richness of student experience. These samples should be selected by the teacher and should include work done during the beginning of instruction as well as near the end of instruction.

**Exhibition sample:** These pieces should be selected by the student in consultation with the teacher. These pieces will indicate the result of students' best effort and the level of perseverance. Exhibition samples should accompany student writing to tell the reader why the student selected his/her piece. Parents may also be involved in the selection process.

### **Number of pieces in the portfolio**

The following recommendation assumes a total of 6 or 7 pieces in the portfolio; however, teachers can modify this number to meet their needs.

### **Judging portfolios**

The criteria for evaluating portfolios are still evolving. The basic questions are:

1. Can we judge the progress of students reliable so that two or more teachers arrive at the same judgment for a portfolio?
2. Can we judge portfolios efficiently, i.e., in a reasonable amount of time?
3. Can we give information to students and parents that will lead to further understanding of history-social science for the student?

### **Potential Purposes for Portfolio Assessment**

- to examine growth over time, progress in student's writing
- to involve students in a process of self-evaluation
- to study curriculum and effective teaching practices

- to observe growth in second language students
- to allow for better staff communication
- to serve as an alternative to standardized testing
- to reduce the paperload
- to identify school strengths and needs for improvement
- to help students and teachers set goals
- to build in time for reflection about students' accomplishments
- to examine writing in different disciplines
- to build a sequence in writing instruction
- to serve as a college application/high school placement vehicle
- to replace competency exams
- to validate how students learn a new language
- to individualize writing instruction
- to provide student ownership, motivation, sense of accomplishment, participation
- to look at revision/process
- to serve as a grade or end-of-year culminating activity
- to establish an "esprit de corps" within departments and faculties
- to provide more reasons/opportunities to write
- to set up an apprenticeship situation
- to account for curriculum implementation
- to access curriculum needs
- to provide program evaluation
- to foster professionalism and collaboration
- to connect reading, writing and thinking
- to evaluate the kinds of assignments we give students
- to serve as a vehicle for publication
- to accommodate schoolwide projects: artwork, graphs, writing from community, parents, teachers, et. al.
- to serve as a vehicle for changing our conversations with the public
- to supplement or substitute for other tests
- to aid in parent conferences
- to give importance to daily writings
- to extend the amount of time devoted to practice in writing

**NOTE:** The materials in this handout have been selected and modified from "Guidelines for the Mathematics Portfolio" developed under the guidance of the California Mathematics Assessment Advisory Committee, California Assessment Program.

## Appendix F (Part A & B)

### Principles for Effective Groupwork and Characteristics of Effective and Ineffective Groups

#### Part A.

The following have been adapted from “Guidelines for Effective Teamwork”. Classroom teachers can adapt these guidelines to suit their own needs and classroom situation. Although there are no set formulas for being an effective group, there are some basic principles that can help group members work together efficiently and productively. Use these principles as guidelines for your group efforts.

- Responsibility for the group is shared by all group members. Identify with the group and its goals -- if the group fails, it's both your fault and the group's fault.
- Decisions should always be agreed to by the group. They are not made by the leaders, any individual, or any clique—all important policies should be decided by the group. The group should have a voice in its own goals and the techniques that should be used to accomplish them.
- Use methods which allow as many as possible of the group members to participate. Let the group work frequently in subgroups. Bring out minority and individual opinions by asking frequent questions of group members.
- Be flexible. Be flexible in rules, agenda, and in all procedures. Establish a plan for your activities, but always modify it when you find that you need to. Tasks and how they are done should change as the skills, needs, and interests of the group change.
- Cut down the threat to individual members. Get group members acquainted with each other. Use informal procedures, minimize rules, separate the members of cliques or friendship circles, discuss the problem of status, use subgroupings to get members accustomed to working as a group.

- The group should continually evaluate its progress. This may be done by evaluation sheets, progress reports, subgroup discussions, suggestion boxes, etc. The important point is that it should be done often, briefly, and well.
- Group members should be conscious of the importance of the roles that they play. Study the different roles that people can play, analyze the roles they play, consciously play roles that are helpful to group progress.
- Let the group be active. Let group members try a variety of tasks, encourage a risk-free atmosphere where no one fails, consciously provide for the skill development and appropriate participation of all members.

## Part B

### Characteristics of Effective and Ineffective Groups

#### Effective Group

1. The atmosphere tends to be informal, comfortable. People are involved and interested.
2. There is a lot of discussion in which everyone takes part. Everyone keeps to the point.
3. Everybody understands the task they have to do.
4. The group members listen to each other. Every idea is given a hearing.
5. There is disagreement. The group is comfortable with this, and works towards sorting it out. Nobody feels unhappy with decisions made.
6. People feel free to criticize and say honestly what they think.
7. Everybody knows how everybody else feels about what is being discussed.
8. When action needs to be taken, everyone is clear about what has to be done, and they help each other.
9. Different people take over the role of leader from time to time.
10. The group is conscious of how well it is working and of what is interfering with its progress. It can look after itself.

#### Ineffective Groups

1. The atmosphere reflects indifference or boredom.
2. Only one or two people talk. Little effort is made to keep to the point of the discussion.
3. It is difficult to understand what the group task is.
4. People do not really listen to each other. Some ideas are not put forward to the group.
5. Disagreements are not dealt with effectively. They are put to the vote without being discussed. Some people are unhappy with decisions.
6. People are not open about what they are thinking. They grumble about decisions afterwards.
7. One or two people are dominant. What they say goes.
8. Nobody takes any interest in what has to be done, and nobody offers to help others.
9. Only one or two people make the decisions and act as group leaders.
10. The group does not talk about how it is working or about the problems it is facing. It needs someone to look after it.

## Appendix G

The following information was taken from an article by Wiggins, Grant (1989). Teaching to the Authentic Test. *Educational Leadership* 46, 7: 45

### **Characteristics of Authentic Assessment**

#### **A. Structure and Logistics**

1. Are more appropriately public; involve an audience, a panel and so on.
2. Do not rely on unrealistic arbitrary time constraints.
3. Offer known, not secret, questions or tasks.
4. Are more like portfolios or a season of games (not one-shot).
5. Require some collaboration with others.
6. Recur—and are worth practicing,, for, rehearsing, and retaking.
7. Make assessment and feedback to students so central that school schedules, structures, and policies are modified to support them.

#### **B. Intellectual Design Features**

1. Are "essential"—not needlessly intrusive, arbitrary, or contrived to "shake out a grade
2. Are "enabling"—constructed to point the student toward more sophisticated use of the skills or knowledge
3. Are contextualized, complex intellectual challenges, not "atomized" tasks, corresponding to isolated "outcomes."
4. Involve the student's own research or use of knowledge, for which "content" is a means.
5. Assess student habits and repertoires, not mere recall or plug-in skills.
6. Are representative challenges—designed to emphasize depth more than breadth.
7. Are engaging and educational .
8. Involve somewhat ambiguous ("ill-structured") tasks or problems.

#### **C. Grading and Scoring Standards**

1. Involve criteria that assess essentials, not easily counted (but relatively unimportant) errors.
2. Are not graded on a "curve" but in reference to performance standards (criterion-referenced, not norm-referenced).
3. Involve demystified criteria of success that appear to students as inherent



in successful activity.

4. Make self-assessment a part of the assessment.
5. Use a multifaceted scoring system instead of one aggregate grade.
6. Exhibit harmony with shared schoolwide aims—a standard.

#### **D. Fairness and Equity**

1. Ferret out and identify (perhaps hidden) strengths.
2. Strike a constantly examined balance between honoring achievement and native skill or fortunate prior training.
3. Minimize needless, unfair, and demoralizing comparisons.
4. Allow appropriate room for student learning styles aptitudes, and interests.
5. Can be -should be- attempted by all students, with the test "scaffolded up," not "dumbed down," as necessary.
6. Reverse typical test-design procedures: they make "accountability" serve student learning (Attention is primarily paid to "face" and "ecological" validity of tests).

## **Appendix H**

The following information was part of a presentation by Mark Evans and Ian Hundley, "Authentic Instruction and Authentic Assessment in History and Social Sciences", at the NCSS conference, Detroit, Michigan, November 20, 1992.

### **AUTHENTIC PERFORMANCE ACTIVITIES IN HISTORY AND CONTEMPORARY STUDIES**

#### **EXPLORING REAL ISSUES - PAST AND PRESENT**

- LOCAL ISSUES
- NATIONAL ISSUES
- WORLD ISSUES

#### **DEVELOPING THE SKILLS OF HISTORIANS & SOCIAL SCIENTISTS**

- SKILLS WHICH ARE THE ESSENCE OF THE DISCIPLINE
- SKILLS USED BY PRACTITIONERS

#### **DEVELOPING BASIC SOCIAL SKILLS**

- SKILLS OF CO-OPERATION & COLLABORATION
- SKILLS FOR WORKING IN THE COMMUNITY

#### **CONTRIBUTING AS A RESPONSIBLE MEMBER OF THE COMMUNITY**

- SHARING LEARNING WITH THE COMMUNITY
- UNDERTAKING COMMUNITY SERVICE
- PARTICIPATING IN THE POLITICAL PROCESS

#### **EXPLORING CAREER LINKS**

- INTERVIEWING PRACTITIONERS
- JOB-SHADOWING
- MENTORSHIPS
- CO-OPERATIVE EDUCATION PLACEMENTS

## Appendix I

This parable was part of a presentation at the NCSS annual conference in Detroit, Michigan, November 20, 1992 entitled "Authentic Instruction and Authentic Assessment in History and Social Sciences", by Mark Evans and Ian Hundley.

### **The Parable of the House Builders**

Long ago in a far-away land there was a severe housing shortage. To solve the problem, the community leaders decided to establish a school for young people where a small group of older, experienced craftsmen would provide instruction so that there would be more house builders. After some time, people continued to ask, with no small amount of anxiety, if there would be enough house builders to provide shelter for the growing populace. So Prince Superintendent went to visit the school and asked the leaders what they were teaching the young apprentices and if they were learning what they needed to know. He said he needed information to take back to the people to prove that they were making gains. He suggested that they have someone develop an instrument to measure student learning. So they called in some test makers who assured them they could develop such an instrument. The test makers asked the experienced craftsmen to describe what they taught the students.

"Well, they have to design a house to fit the location. They have to have a decision of what the house will look like and how best to...."

"Wait, wait," interrupted the test makers, "we're not talking about that. You have to be more specific about what they need to know."

"They have to know how to frame a house, to see the overall structure so they can... "

"No, no, more detail. We have to get to something that's measurable."

"Well, they have to know how to nail boards to the frame."

The test makers seemed less impatient. "Now, you're getting closer...but what do they have to know to nail the boards?"

Looking dubious now, the craftsmen shrugged their shoulders, looked at each other, and said, "Well, they have to know what kind of nails to use."

"That's great. So they have to know the difference between different kinds of nails.

"Yes, sure, but it's really not something that...."

Interrupting again, the test makers took control of the conversation. "So they have to know, for example, the difference between ten-penny nails and carpet tacks."

"Well, they do, but there's so much more..."

"But those are specific objectives we can measure," insisted the test makers. "We can assure the people that these youngsters are learning what they need to know."

And so they devised an instrument to measure specific skills, and, more importantly, the elders learned what they should teach. And when students had trouble telling the difference between nails, they sent them to a special class and they worked on recognizing nails and matching nail shapes with their names.

And so it was for many years...and the people were satisfied that there were more house builders, but they weren't always happy with the houses that were built. After a while, a few villagers began to question the direction that had been taken. Questions were raised about what they really wanted students to learn. One individual asked rather naively: "Do we only want students to study nails? Don't we really want to teach students to build great houses?" And when one of the old test makers started to object about the difficulty of measuring what they wanted to teach, a novice test maker spoke up and protested: "Yes. If we want students to build great houses, we should just look at the houses they build."

And that is what is known as performance assessment.

## Appendix J Teacher Questionnaire

IMPORTANCE	QUESTION / STATEMENT	UTILIZATION
1 2 3 4 5	1. Exams accurately reflect student knowledge or understanding of material.	1 2 3 4 5
1 2 3 4 5	2. A teacher's method of evaluation should accurately reflect student knowledge or understanding of material	1 2 3 4 5
1 2 3 4 5	3. Students evaluate, question, or judge each others work	1 2 3 4 5
1 2 3 4 5	4. Test items are matched to content taught	1 2 3 4 5
1 2 3 4 5	5. Students are informed about how they will be evaluated in the class	1 2 3 4 5
1 2 3 4 5	6. The use of observation of student, in-class work used as an evaluation tool	1 2 3 4 5
1 2 3 4 5	7. The use of portfolios of student work as part of the evaluation process	1 2 3 4 5
1 2 3 4 5	8. The use of oral reports used as part of class requirements	1 2 3 4 5
1 2 3 4 5	9. The use of skits used as part of class requirement	1 2 3 4 5
1 2 3 4 5	10. Student or peer editing of student work as part of the evaluation process	1 2 3 4 5
1 2 3 4 5	11. Student presentation(s) use as part of class requirements	1 2 3 4 5
1 2 3 4 5	12. Class debates use as a teaching strategy	1 2 3 4 5
1 2 3 4 5	13. The use of the library for individual or group research	1 2 3 4 5
1 2 3 4 5	14. Pre-tests use as a teaching strategy	1 2 3 4 5
1 2 3 4 5	15. The use of student interviews as part of the evaluation process	1 2 3 4 5
1 2 3 4 5	16. The use of group work as part of the evaluation process	1 2 3 4 5
1 2 3 4 5	17. The use of independent learning as part of the evaluation process	1 2 3 4 5
1 2 3 4 5	18. Student developed videos as an evaluation instrument	1 2 3 4 5
1 2 3 4 5	19. The use of simulations used as a learning strategy	1 2 3 4 5
1 2 3 4 5	20. The use of project work as a method of evaluation	1 2 3 4 5
1 2 3 4 5	21. The need for students to use research material other than that available in the school library	1 2 3 4 5
1 2 3 4 5	22. Student creativity and "risk-taking" as part of the learning process	1 2 3 4 5
1 2 3 4 5	23. Student journals used as reflective or critical thinking aspects of the writing process.	1 2 3 4 5
1 2 3 4 5	24. The effect on student performance by positive teacher attitudes.	1 2 3 4 5
1 2 3 4 5	25. Student participation in class decisions effects on student performance?	1 2 3 4 5
1 2 3 4 5	26. Tests accurately reflect student knowledge or understanding of material	1 2 3 4 5
1 2 3 4 5	27. Good teaching is inseparable from good assessment	1 2 3 4 5

## Appendix J Teacher Questionnaire

1 2 3 4 5	28. Different levels of questions (memory, application, or analysis) are asked to raise the students' level of understanding	1 2 3 4 5
1 2 3 4 5	29. Only lower level questions (memory or understanding) are asked of students	1 2 3 4 5
1 2 3 4 5	30. The role of the teacher as a resource person for students	1 2 3 4 5
1 2 3 4 5	31. The use of a textbook as part of teaching	1 2 3 4 5
1 2 3 4 5	32. Computer availability for students in Social Studies	1 2 3 4 5
1 2 3 4 5	33. The use of work sheets as part of teaching strategy?	1 2 3 4 5
1 2 3 4 5	34. The role of negotiation of due dates for projects and tests	1 2 3 4 5
1 2 3 4 5	35. The lecture method as a teaching strategy	1 2 3 4 5
1 2 3 4 5	36. The time sequence for course material is planned for the whole year or semester	1 2 3 4 5
1 2 3 4 5	37. Students are told the sequence of topics in the course and the purpose of the sequence	1 2 3 4 5
1 2 3 4 5	38. Students should be shown how to organize their notes for study purposes.	1 2 3 4 5
1 2 3 4 5	39. Interest in the subject and its importance is conveyed to students during classroom presentations	1 2 3 4 5
1 2 3 4 5	40. Time is spent in class to help students become acquainted with each other in order to increase participation in class discussions and group work	1 2 3 4 5
1 2 3 4 5	41. Students are encouraged to participate and contribute to class discussions	1 2 3 4 5
1 2 3 4 5	42. Students' suggestions are used to clarify or improve their understanding of the subject	1 2 3 4 5
1 2 3 4 5	43. Questions that will be asked of the students are planned for the classroom presentation	1 2 3 4 5
1 2 3 4 5	44. Students' questions are redirected to other students to increase class participation	1 2 3 4 5
1 2 3 4 5	45. The use of analogies to illustrate the relationship of new material to previous instruction	1 2 3 4 5
1 2 3 4 5	46. The need to change directions or procedures during class time to accommodate the students' responses to the lesson	1 2 3 4 5
1 2 3 4 5	47. The varying of class lessons to match the material to be studied	1 2 3 4 5
1 2 3 4 5	48. Planning the use of audio-visual material for classroom presentations	1 2 3 4 5
1 2 3 4 5	49. "Teacher directed" learning's value as part of teaching?	1 2 3 4 5
1 2 3 4 5	50. The students' contribution to the learning process are respected by the teacher	1 2 3 4 5
1 2 3 4 5	51. A teacher who lacks information to a student question should admit to not knowing the answer	1 2 3 4 5
1 2 3 4 5	52. The use of time at the end of class to summarize major points of the lesson	1 2 3 4 5
1 2 3 4 5	53. The use of educational journals as part of your professional development	1 2 3 4 5

## Appendix J Teacher Questionnaire

1 2 3 4 5	54. "Time" as a restriction to your methods of teaching	1 2 3 4 5
1 2 3 4 5	55. The course content / subject relationship to the students' needs and desires?	1 2 3 4 5
1 2 3 4 5	56. Students questioning the relevance of subject matter?	1 2 3 4 5
1 2 3 4 5	57. Student prior knowledge is important to student learning	1 2 3 4 5
1 2 3 4 5	58. The importance of reflective thinking to student learning?	1 2 3 4 5
1 2 3 4 5	59. Students' attitude effects on teaching strategies	1 2 3 4 5
1 2 3 4 5	60. Questions asked in class which allow students to apply or interpret their knowledge	1 2 3 4 5
1 2 3 4 5	61. New material is introduced by relating the subject to the students' current interests	1 2 3 4 5
1 2 3 4 5	62. At the end of class time new material is tied to previously learned knowledge for continuity purposes	1 2 3 4 5
1 2 3 4 5	63. At the end of a class period time is planned to help students organize the material for review purposes	1 2 3 4 5

Appendix K Principal and Teacher letters of introduction

November 2, 1992

Dear Principal:

I am writing this letter to ask for your help in completing a graduate research project through St. Mary's University, entitled "Aspects of Process Learning in Secondary Social Studies Programs".

Your school has been selected to participate in this research project that has been approved by the Director of Program for the Halifax County-Bedford District School Board, Dr. Trider, as well as the Department of Education at St. Mary's University.

This study is concerned with the extent in which aspects of process learning and teaching are occurring in your school board. The study will provide needed information about teachers' perceptions in regard to the teaching of student- centered, process learning.

Social Studies teachers will be asked to complete a questionnaire by circling a number which corresponds to the degree of importance each question/statement has for the teacher. The survey should not take more than fifteen minutes to complete.

Please ask cooperating teachers to complete this questionnaire by noon of Thursday, November 5th. Be assured that teacher anonymity will be guaranteed with the research findings.

If you have any questions regarding the research, please contact me, Peter McAllister, 13 Swan Crescent, Halifax, B3M 1T7, telephone number 443-7548. Your cooperation is very much appreciated.

Sincerely,

Peter McAllister



November 3, 1992

Dear Colleague:

Social Studies teachers at selected schools in the Halifax County-Bedford District School Board are being asked to complete a questionnaire entitled "Aspects of Process Learning in Secondary Social Studies Programs".

Your school has been selected to participate in this research project that has been approved by the Director of Program for the Halifax County-Bedford District School Board, Dr. Trider, as well as the Department of Education at St. Mary's University.

This study is concerned with the extent in which aspects of process learning and teaching are occurring in your school board. The study will provide needed information about teachers' perceptions in regard to the teaching of student centered, process learning. Any participation in this research is strictly voluntary. A definition of process education could be an *"educational system which emphasizes the learning and demonstration of generalizable skills (eg. observation, classification, measurement, prediction, communication and inference"*.

Social Studies teachers will be asked to complete a questionnaire by circling a number which corresponds to the degree of importance each question/statement has for the teacher. I would greatly appreciate your taking time (not to exceed fifteen minutes) from your busy schedule to complete the questionnaire which will be collected Thursday, November 5th. Be assured that teacher anonymity will be guaranteed with the research findings.

If you have any questions regarding the research, please contact me, Peter McAllister, 13 Swan Crescent, Halifax, B3M 1T7, telephone number 443-7548. When the research is completed results will be made available to any participating teacher. You may contact me at the above address. Your cooperation is very much appreciated.

Sincerely,

Peter McAllister

## Appendix L Teacher demographic information sheet.

### "ASPECTS OF PROCESS LEARNING IN SECONDARY SOCIAL STUDIES". QUESTIONNAIRE FOR HIGH SCHOOL SOCIAL STUDIES TEACHERS

The following pages contain a list of teaching competencies, strategies and evaluation questions identified in research as essential to the classroom teacher for effective teaching of student-centered process learning. Consider the **IMPORTANCE** of the statement or question **FIRST** and record this on the scale on the left hand side of the paper. Then record the **UTILIZATION** of the statement or question on the scale on the right hand side of the paper. As you evaluate the questions perhaps consider one class that is most characteristic of your teaching. The following statements interpret the two scales.

#### **IMPORTANCE**

1. **Not important** - question/statement has no effect on teaching.
2. **Little importance** - question/statement is useful but not essential for teaching success.
3. **Important** - question/statement is necessary and has planned usage in the classroom.
4. **More important** - question/statement is vital to teaching success.
5. **Highly important** - question/statement is a major behavior of the teacher.

#### **UTILIZATION**

1. **Never used** - question/statement would never be used.
2. **Rarely used** - question/statement may be used but never planned in advance.
3. **Occasionally used** - question/statement is planned for use at opportune times.
4. **Frequently used** - question/statement is planned nearly every class period.
5. **Constantly used** - question/statement is a major method of your teaching behavior.

Example: Circle one number in each of the two scales for each question/statement listed.

Scale A		Scale B
<b><u>IMPORTANCE</u></b>	<b><u>question/statement</u></b>	<b><u>UTILIZATION</u></b>
1 2 3 4 5	To what extent are throw back questions used to stimulate student discussion?	1 2 3 4 5

These responses indicate that throw back questioning is **important** and used **frequently**.

#### **DEMOGRAPHIC INFORMATION**

SCHOOL: \_\_\_\_\_

Sex: Male \_\_\_\_\_ Female \_\_\_\_\_

Highest degree earned \_\_\_\_\_

Present TC license \_\_\_\_\_

Number of years teaching High School Social Studies \_\_\_\_\_

Number of years teaching \_\_\_\_\_

Current subject(s) taught \_\_\_\_\_

Age group: check one \_\_\_\_\_ 21-25, \_\_\_\_\_ 26-30, \_\_\_\_\_ 31-35, \_\_\_\_\_ 36-40, \_\_\_\_\_ 41-45,  
\_\_\_\_\_ 46-50, \_\_\_\_\_ 51-55, \_\_\_\_\_ 56-60, \_\_\_\_\_ 61-65, \_\_\_\_\_ 66+

Thank you for your time and participation. Please feel free to add any comments of your own. If you wish to be recognized for your contribution to this research please include your name with your comment.

I will collect this questionnaire Thursday afternoon, November 5th.

Peter McAllister

**Comments:**

## Standard Dev. and Mean

### X<sub>1</sub>: Q1(lmp)-exams/knowledge

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.231	.863	.169	.745	26.709	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	84	290	0

### X<sub>2</sub>: Q2(lmp)-method/know

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5	.707	.139	.5	15.713	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	117	539	0

### X<sub>3</sub>: Q3(lmp)-peer judge

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.308	1.05	.206	1.102	31.73	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	86	312	0

### X<sub>4</sub>: Q4(lmp)-test/content

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5	.648	.127	.42	14.402	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	117	537	0

### X<sub>5</sub>: Q5(lmp)-know how marked

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.731	.452	.089	.205	9.562	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
4	5	1	123	587	0

## Standard Dev. and Mean

### X<sub>1</sub>: Q1(ut)-exam/knowledge

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.769	.815	.16	.665	21.629	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	98	386	0

### X<sub>2</sub>: Q2(ut)-Method/know

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.845	.166	.714	20.724	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	106	450	0

### X<sub>3</sub>: Q3(ut)-peer judge

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.115	.816	.16	.666	26.198	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	81	269	0

### X<sub>4</sub>: Q4(ut)-Test/content

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.346	.745	.146	.555	17.147	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	113	505	0

### X<sub>5</sub>: Q5(ut)-know how marked

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.692	.471	.092	.222	10.031	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
4	5	1	122	578	0

## Standard Dev. and Mean

### X6: Q6(imp)-observation

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.269	.667	.131	.445	15.619	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	111	485	0

### X7: Q7(imp)-portfolios

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.154	1.084	.213	1.175	34.376	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	82	288	0

### X8: Q8(imp)-oral reports

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.731	1.079	.212	1.165	28.926	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	97	391	0

### X9: Q9(imp)-skits

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.346	1.198	.235	1.435	51.066	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	61	179	0

### X10: Q10(imp)-peer editing

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.346	1.164	.228	1.355	34.792	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	87	325	0

## Standard Dev. and Mean

### X6: Q6(ut)-observation

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.154	.784	.154	.615	18.885	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	108	464	0

### X7: Q7(ut)-portfolios

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.231	1.306	.256	1.705	58.527	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	58	172	0

### X8: Q8(ut)-oral reports

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.5	1.175	.23	1.38	33.564	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	91	353	0

### X9: Q9(ut)-skits

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.115	1.211	.237	1.466	57.24	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	55	153	0

### X10: Q10(ut)-peer editing

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3	1.265	.248	1.6	42.164	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	78	274	0

## Standard Dev. and Mean

### X<sub>11</sub>: Q11(imp)-presentations

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	.796	.156	.634	20.294	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	102	416	0

### X<sub>12</sub>: Q12(imp)-debates

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.538	.989	.194	.978	27.955	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	92	350	0

### X<sub>13</sub>: Q13(imp)-library

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.849	.167	.722	20.262	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	109	475	0

### X<sub>14</sub>: Q14(imp)-pretest

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.192	1.167	.229	1.362	53.225	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	57	159	0

### X<sub>15</sub>: Q15(imp)-student Interviews

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.769	1.032	.202	1.065	37.26	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	72	226	0



## Standard Dev. and Mean

### X<sub>11</sub>: Q11(ut)-presentations

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.692	1.158	.227	1.342	31.369	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	96	388	0

### X<sub>12</sub>: Q12(ut)-debates

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.038	1.183	.232	1.398	38.92	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	79	275	0

### X<sub>13</sub>: Q13(ut)-library

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.731	1.079	.212	1.165	28.926	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	97	391	0

### X<sub>14</sub>: Q14(ut)-pretest

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.846	1.008	.198	1.015	54.582	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	4	3	48	114	0

### X<sub>15</sub>: Q15(ut)-students Interviews

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.269	.962	.189	.925	42.374	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	4	3	59	157	0

## Standard Dev. and Mean

### X16: Q16(imp)-group work

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.885	1.071	.21	1.146	27.56	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	101	421	0

### X17: Q17(imp)-Indep. learning

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.952	.187	.906	23.131	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	107	463	0

### X18: Q18(imp)-student videos

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.808	1.201	.235	1.442	42.763	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	73	241	0

### X19: Q19(imp)-simulations

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.231	1.275	.25	1.625	39.452	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	84	312	0

### X20: Q20(imp)-project work

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.749	.147	.562	17.875	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	109	471	0

## Standard Dev. and Mean

### X16: Q16(ut)-group work

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	1.055	.207	1.114	26.902	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	102	428	0

### X17: Q17(ut)-Indep. learning

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.808	1.132	.222	1.282	29.731	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	99	409	0

### X18: Q18(ut)-student videos

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.115	1.143	.224	1.306	54.027	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	55	149	0

### X19: Q19(ut)-simulations

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.808	1.167	.229	1.362	41.559	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	73	239	0

### X20: Q20(ut)-project work

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.688	.135	.474	16.884	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	106	444	0

## Standard Dev. and Mean

### X21: Q21(imp)-outside resources

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.154	.881	.173	.775	21.199	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	108	468	0

### X22: Q22(imp)-creativity

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.688	.135	.474	16.884	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	106	444	0

### X23: Q23(imp)-journals

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.038	1.148	.225	1.318	37.79	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	79	273	0

### X24: Q24(imp)-pos.t. makes pos. per.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.538	.582	.114	.338	12.819	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	118	544	0

### X25: Q25(imp)-st. class decisions

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.845	.166	.714	20.724	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	106	450	0

## Standard Dev. and Mean

### X21: Q21(ut)-outside resources

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.731	1.002	.197	1.005	26.866	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	97	387	0

### X22: Q22(ut)-creativity

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.462	1.174	.23	1.378	33.918	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	90	346	0

### X23: Q23(ut)-journals

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.308	1.35	.265	1.822	58.485	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	60	184	0

### X24: Q24(ut)-pos.t.makes pos. per.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5	.707	.139	.5	15.713	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	117	539	0

### X25: Q25(ut)-student class decisions

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.808	1.021	.2	1.042	26.803	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	99	403	0

## Standard Dev. and Mean

### X26: Q26(imp)-tests reflect

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	.977	.192	.954	24.895	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	102	424	0

### X27: Q27(imp)-teaching/assess.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.269	.724	.142	.525	16.966	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	111	487	0

### X28: Q28(imp)-levels of questioning

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.577	.578	.113	.334	12.624	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	119	553	0

### X29: Q29(imp)-low level questions

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.977	.192	.954	23.956	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	106	456	0

## Standard Dev. and Mean

### X26: Q26(ut)-tests reflect

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.808	.849	.167	.722	22.308	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	99	395	0

### X27: Q27(ut)-teaching/assess.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.694	.136	.482	16.552	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	109	469	0

### X28: Q28(ut)-levels of questioning

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.423	.703	.138	.494	15.888	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	115	521	0

### X29: Q29(ut)-low level questions

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.885	1.033	.202	1.066	26.58	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	101	419	0

**X1: Q30(lmp)-resource person**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.385	.697	.137	.486	15.902	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	114	512	0

**X2: Q30(ut)- resource person**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.962	.871	.171	.758	21.984	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	103	427	0

**X3: Q31(lmp)- textbook**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.308	1.087	.213	1.182	32.862	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	86	314	0

**X4: Q31(ut)- textbook**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.154	.925	.181	.855	29.325	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	82	280	0

**X5: Q32(lmp)- computer**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.538	1.104	.216	1.218	31.195	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	92	356	0



**X<sub>6</sub>: Q32(ut)- computer**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.923	1.197	.235	1.434	62.267	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	50	132	0

**X<sub>7</sub>: Q33(imp)- worksheets**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.231	1.07	.21	1.145	33.115	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	84	300	0

**X<sub>8</sub>: Q33(ut)- worksheets**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.115	1.033	.202	1.066	33.143	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	81	279	0

**X<sub>9</sub>: Q34(imp)- negotiation**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.308	1.192	.234	1.422	36.046	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	86	320	0

**X<sub>10</sub>: Q34(ut)- negotiation**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.231	1.142	.224	1.305	35.354	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	84	304	0

**X<sub>11</sub>: Q35(lmp)- lecture method**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.885	.816	.16	.666	28.294	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	75	233	0

**X<sub>12</sub>: Q35(ut)- lecture method**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.923	.891	.175	.794	30.481	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	76	242	0

**X<sub>13</sub>: Q36(lmp)- time sequence**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.731	1.282	.252	1.645	34.374	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	97	403	0

**X<sub>14</sub>: Q36(ut)- time sequence**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.731	.962	.189	.925	25.774	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	97	385	0

**X<sub>15</sub>: Q37(lmp)- seq. of topics**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.909	.178	.826	22.086	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	107	461	0

**X16: Q37(ut)- seq. of topics**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.864	.169	.746	20.99	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5	3	107	459	0

**X17: Q38(lmp)- organize notes**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.038	.999	.196	.998	24.743	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	105	449	0

**X18: Q38(ut)- organize notes**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.462	1.174	.23	1.378	33.918	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	90	346	0

**X19: Q39(lmp)- teacher Interest**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.615	.571	.112	.326	12.374	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	120	562	0

**X20: Q39(ut)- teacher Interest**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.423	.758	.149	.574	17.127	26
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
3	5	2	115	523	0

**X<sub>1</sub> : Q40(imp)- stud. aquainted**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.769	.951	.187	.905	25.234	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	98	392	0

**X<sub>2</sub> : Q40(ut)- stud. aquainted**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.423	1.137	.223	1.294	33.23	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
1	5	4	89	337	0

**X<sub>3</sub> : Q41(imp)- stud. encouraged**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.615	.637	.125	.406	13.808	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
3	5	2	120	564	0

**X<sub>4</sub> : Q41(ut)- stud. encouraged**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.801	.157	.642	19.105	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	109	473	0

**X<sub>5</sub> : Q42(imp)- students' suggest**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.269	.667	.131	.445	15.619	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
3	5	2	111	485	0

**X6 : Q42(ut)- students' suggest**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.038	.774	.152	.598	19.156	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
3	5	2	105	439	0

**X7 : Q43(imp)- quest. planned**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.615	.983	.193	.966	27.187	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
1	5	4	94	364	0

**X8 : Q43(ut)- quest. planned**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.231	1.142	.224	1.305	35.354	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
1	5	4	84	304	0

**X9 : Q44(imp)- redirect quest.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.796	.156	.634	19.528	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
2	5	3	106	448	0

**X10 : Q44(ut)- redirect quest.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	1.017	.199	1.034	25.918	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
2	5	3	102	426	0

**X<sub>11</sub> : Q45(imp)- analogies**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.634	.124	.402	15.115	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
3	5	2	109	467	0

**X<sub>12</sub> : Q45(ut)- analogies**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.077	.744	.146	.554	18.254	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
3	5	2	106	446	0

**X<sub>13</sub> : Q46(imp)- change directions**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.231	.765	.15	.585	18.072	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	110	480	0

**X<sub>14</sub> : Q46(ut)- change directions**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.816	.16	.666	19.832	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	107	457	0

**X<sub>15</sub> : Q47(imp)- varying**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.694	.136	.482	16.552	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
3	5	2	109	469	0

**X<sub>16</sub> : Q47(ut)- varying**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.766	.15	.586	18.604	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3	5	2	107	455	0

**X<sub>17</sub> : Q48(imp)- AV planning**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.192	.694	.136	.482	16.552	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3	5	2	109	469	0

**X<sub>18</sub> : Q48(ut)- AV planning**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.962	.871	.171	.758	21.984	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2	5	3	103	427	0

**X<sub>19</sub> : Q49(imp)- teacher directed**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.654	1.093	.214	1.195	29.923	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	5	4	95	377	0

**X<sub>20</sub> : Q49(ut)- teacher directed**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.538	.948	.186	.898	26.788	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	5	4	92	348	0

**X21 : Q50(imp)- stud. contribution**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5	.707	.139	.5	15.713	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3	5	2	117	539	0

**X22 : Q50(ut)- stud. contribution**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.346	.745	.146	.555	17.147	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3	5	2	113	505	0

**X23 : Q51(imp)- not knowing**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.654	.977	.192	.955	21.003	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	5	4	121	587	0

**X24 : Q51(ut)- not knowing**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.462	1.067	.209	1.138	23.915	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	5	4	116	546	0

**X25 : Q52(imp)- summarize time**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	.744	.146	.554	18.97	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3	5	2	102	414	0



X26 : Q52(ut) summarize time

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.577	1.027	.201	1.054	28.7	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	93	359	0

X27 : Q53(imp)- ed. journals

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.615	1.098	.215	1.206	30.377	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	94	370	0

X28 : Q53(ut)- ed. journals

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.077	1.197	.235	1.434	38.917	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	80	282	0

X29 : Q54(imp)- time restrict.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.615	1.061	.208	1.126	29.352	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	94	368	0

X30 : Q54(ut)- time restrict.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.346	.977	.192	.955	29.211	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	87	315	0

**X31 : Q55(imp)- content/needs**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.808	.849	.167	.722	22.308	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	99	395	0

**X32 : Q55(ut)- content/needs**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.615	.941	.185	.886	26.038	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
2	5	3	94	362	0

**X33 : Q56(imp)- subject relev.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.538	1.067	.209	1.138	30.154	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
1	5	4	92	354	0

**X34 : Q56(ut)- subject relev.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.192	1.059	.208	1.122	33.174	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
1	5	4	83	293	0

**X35 : Q57(imp)- prior knowledge**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.654	.977	.192	.955	26.751	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	* Missing:
1	5	4	95	371	0

**X36 : Q57(ut)- prior knowledge**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.5	.949	.186	.9	27.105	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
1	5	4	91	341	0

**X37 : Q58(imp)- reflect. thinking**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.231	.765	.15	.585	18.072	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
3	5	2	110	480	0

**X38 : Q58(ut)- reflect. thinking**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.808	1.021	.2	1.042	26.803	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
2	5	3	99	403	0

**X39 : Q59(imp)- students' attitudes**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.423	.703	.138	.494	15.888	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
3	5	2	115	521	0

**X40 : Q59(ut)- students' attitudes**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4	.8	.157	.64	20	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	* Missing:
3	5	2	104	432	0

**X41 : Q60(imp)- interpret quest.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.385	.697	.137	.486	15.902	26
Minimum:	Maximum:	Range:	Sum:	Sum of Squ.	* Missing:
3	5	2	114	512	0

**X42 : Q60(ut)- interpret quest.**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.115	.766	.15	.586	18.604	26
Minimum:	Maximum:	Range:	Sum:	Sum of Squ.	* Missing:
3	5	2	107	455	0

**X43 : Q61(imp)- new material**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.962	.871	.171	.758	21.984	26
Minimum:	Maximum:	Range:	Sum:	Sum of Squ.	* Missing:
2	5	3	103	427	0

**X44 : Q61(ut)- new material**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.923	.845	.166	.714	21.537	26
Minimum:	Maximum:	Range:	Sum:	Sum of Squ.	* Missing:
2	5	3	102	418	0

**X45 : Q62(imp)- continuity**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.154	.881	.173	.775	21.199	26
Minimum:	Maximum:	Range:	Sum:	Sum of Squ.	* Missing:
2	5	3	108	468	0

X46 : Q62(ut)- continuity

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.769	1.07	.21	1.145	28.384	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	98	398	0

X47 : Q63(imp)- organize/review

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.385	1.023	.201	1.046	30.22	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	88	324	0

X48 : Q63(ut)- organize/review

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.038	1.076	.211	1.158	35.423	26
Minimum:	Maximum:	Range:	Sum:	Sum of Sq.:	# Missing:
1	5	4	79	269	0

One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TI

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	1	7.057	7.057	.417
Within groups	24	406.327	16.93	p = .5246
Total	25	413.385		

Model II estimate of between component variance = -.778

One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TI

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
B.Ed. or less	15	57.4	4.05	1.046
Masters or above	11	58.455	4.204	1.268

One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TI

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
B.Ed. or less vs. Masters ...	-1.055	3.371	.417	.646

One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TU

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	1	34.015	34.015	2.337
Within groups	24	349.37	14.557	p = .1394
Total	25	383.385		

Model II estimate of between component variance = 1.533

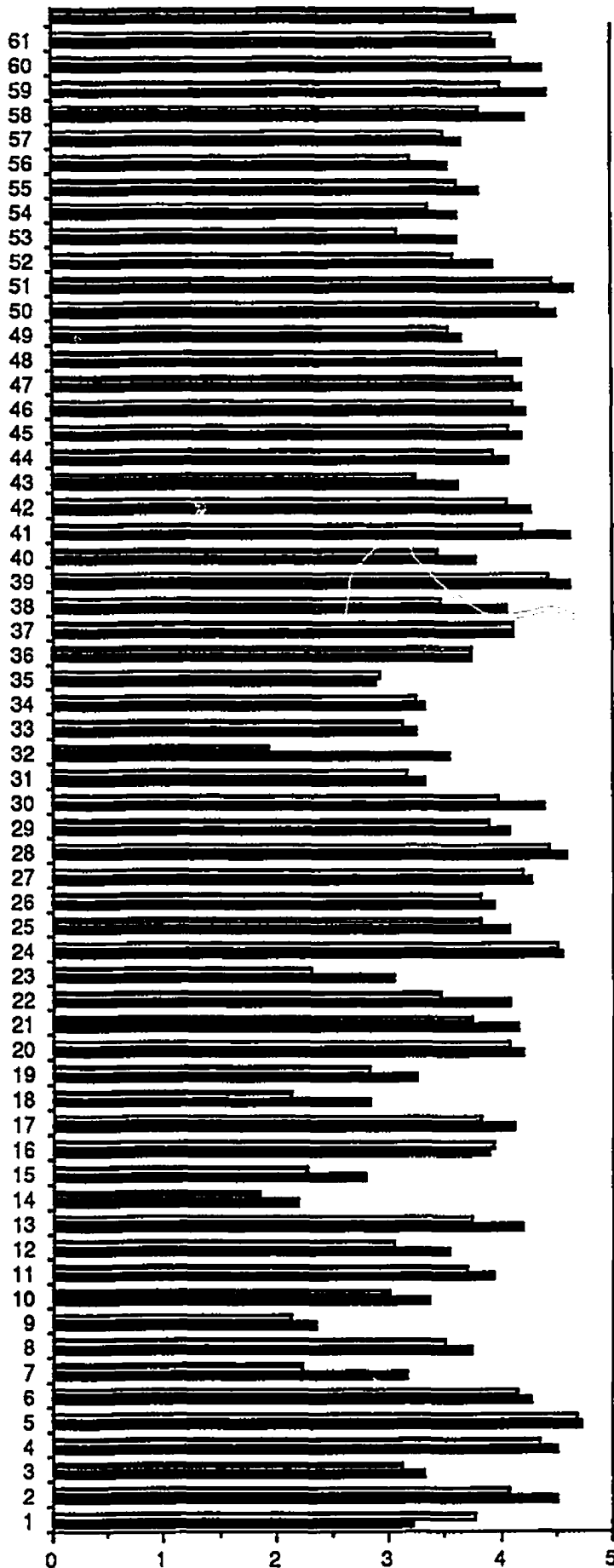
One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TU

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
B.Ed. or less	15	54.867	3.907	1.009
Masters or above	11	57.182	3.683	1.11

One Factor ANOVA X<sub>1</sub> : Highest Degree 2 Y<sub>1</sub> : Total TU

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
B.Ed. or less vs. Masters ...	-2.315	3.126	2.337	1.529

Questions



## Mean Scores

■ Import. Mean  
▨ Utiliz. Mean

Import. & Utiliz. Means



One Factor ANOVA X<sub>1</sub>: Highest Degree 2 Y<sub>1</sub>: Tot-1-63-UT.

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	1	3119.106	3119.106	6.439
Within groups	24	11626.279	484.428	p = .0181
Total	25	14745.385		

Model II estimate of between component variance = 2634.678

One Factor ANOVA X<sub>1</sub>: Highest Degree 2 Y<sub>1</sub>: Tot-1-63-UT.

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
B.Ed. or less	15	215.467	19.313	4.987
Masters or above	11	237.636	25.307	7.63

One Factor ANOVA X<sub>1</sub>: Highest Degree 2 Y<sub>1</sub>: Tot-1-63-UT.

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnnett t:
B.Ed. or less vs. Masters ...	-22.17	18.034*	6.439*	2.537

\* Significant at 95%