STUDIES IN NEWFOUNDLAND EDUCATION AND SOCIETY

VOLUME III

Edited by

Ishmael J. Baksh   George Haché   Amarjit Singh

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Memorial University of Newfoundland
St. John's, Newfoundland
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TABLE OF CONTENTS

VOLUME II

VOLUME IV

PREFACE

This anthology, the fourth in a series, brings together articles which have been published in **The Morning Watch** over the eight-year period, 1991-1999 (i.e., Vol. 19, Nos. 1-2 to Vol. 26, Nos. 3-4). The first anthology appeared in 1977 under the title **Society, Culture and Schooling: Issues and Analysis**. The second was published in 1982 in two volumes, with the title **Society and Education in Newfoundland**. The third was published in 1991, also in two volumes, with the title of **Dimensions of Newfoundland Society and Education** (ISBN O-88901-159-1). All three anthologies were edited by Dr. Ishmael J. Baksh and Dr. Amarjit Singh.

We have written about the origin, history, purpose and orientation of **The Morning Watch**, which may be of some interest to readers, in the prefaces to the previous volumes. Some of the information is now also available on the web-page of **The Morning Watch**. Having **The Morning Watch** on line (World Wide Web) is an indication of an important shift in the context in which the Faculty of Education now functions. Just to keep the story about the evaluation of **The Morning Watch** going, it is perhaps worth noting that in the Fall of 1996, the financial limitations faced by the Faculty of Education made it necessary for **The Morning Watch** to be published electronically. Dr. Marc Glassman assisted us in initiating the first on-line version - the Fall 1997 issue. More recently, Dr. George Haché has taken over the task of further developing the site in the capacity of Technical Editor. Dr. Ishmael Baksh and Dr. Amarjit Singh remain the co-editors. The publication of the Fall 1997 issue marked the twenty-fifth year of the journal.

Seven recent issues of **The Morning Watch** appear on the web-site <http://www.mun.ca/educ/faculty/mwatch/nmwatch.htm>. **The Morning Watch** can also be accessed through the homepage of Memorial University <http://www .mun.ca /educ> by browsing the On-line Publications icon.

The publication of **The Morning Watch** has been possible only because of the financial support provided by a succession of Deans in the Faculty of Education, among them Dr. George Hickman, Dr. George Ivany, Professor Brose Paddock, Dr. Leslie Karagianis, Dr. Robert Crocker and Dr. Alice Collins. Most recently, Dr. Terry Piper and Dr. Clar Doyle (Dean Pro tem) have lent their support, despite the budgetary constraints faced by the Faculty. Also invaluable is the assistance rendered the publication over the years by Bill Griffin, who specialized in design, and by staff in the General Office of the Faculty of Education and in the Printing Services unit of the university, especially by Glenn Taylor. Dr. William J. Gushue's initial assistance, participation and encouragement in launching **The Morning Watch** can never be forgotten by the co-editors. Other individuals who have contributed to the present online version are identified on the on-line **Morning Watch** historic page. Miss Laura Walsh in the General Office has contributed towards the preparation of the manuscript of these four volumes in a very special way. Her commitment, hard work and critical comments are very much appreciated by the co-editors and the Technical Editor. Finally, we wish to thank all the authors who have contributed to **The Morning Watch** since its inception in 1973, particularly those who have written for it more recently. We sincerely hope that others will decide to contribute to **The Morning Watch** as Newfoundland and Labrador society and culture encounter globalization and internationalization as well as concomitant social, cultural, economic, political, and technology and information related changes. The papers in these four volumes testify to the fact that the authors have already begun to articulate many issues emerging in the field of education and schooling in this

province in the context of globalization and internationalization of all aspects of our lives. A full version of the content of this anthology will also be placed in the online site of **The Morning Watch**.

For convenience, we have referenced each article by placing its date of publication under its title.

If there is any merit in publishing this four volume anthology, the credit is due to all those people who have been involved with **The Morning Watch**, including readers consisting of graduate and undergraduate students, colleagues and the larger public. However, the editors and the Technical Editor bear sole responsibility for any shortcoming which this anthology might have.

Amarjit Singh
Ishmael Baksh
George Haché

St. John's
April, 2000

xii

FOREWORD

The Faculty of Education at Memorial University publishes the **Morning Watch**. This publication serves as a vital and essential communication tool for the examination of educational and social issues in the Province of Newfoundland and Labrador. The **Morning Watch** not only comments on current issues but often leads the way in reporting significant research findings and trends. The **Morning Watch** offers articles on wide-ranging topics and agendas. Such writings represent diverse thinking and viewpoints. In this way the journal encourages initiative and debate, which is crucial for any educational community. We encourage you to contribute to this discussion.

Clar Doyle, Professor
Dean (pro tem)
January, 2000

For many years **The Morning Watch** has served as an effective two-way communication link among educational stakeholders in Newfoundland and Labrador. Opportunity has been provided through this publication for the Faculty of Education and its field partners to share research findings, field experiences and "cutting edge" theory. This journal has also served as a pedagogical conduit for both undergraduate and graduate expression; it has functioned as a forum that allows undergraduate students/society to debate issues of the day, while simultaneously providing graduate students with what is often their first experience at publishing research undertakings in public.

The focus of **The Morning Watch** has been sufficiently broad to present an educational and social analysis of a wide array of educational issues. Written and organized to provoke creative thought, challenge traditional modes of operation and provide critical/reflective consideration of the change process, journal articles over the years have served to guide and inspire educational reality in this Province.

This current compendium represents a very special effort to bring together four volumes of **The Morning Watch** comprising some 120 thought-provoking articles spanning the decade of the nineties. To both the editors and authors, thank you for providing your readership with a further opportunity to savour the assimilation of a decade of first rate educational journalism with a Newfoundland and Labrador focus. It is my hope that all of us, as partners in education, will seize this moment to reacquaint ourselves with a journal which has truly served as a beacon for educational initiative over many years.

Dennis Treslan, Professor
Associate Dean, Undergraduate
Programmes
January 26, 2000

As the sole university in Newfoundland and Labrador, Memorial assumes a special obligation to educate the citizens of this province, to conduct research related to the challenges of this province, and to share its expertise throughout the provincial community. Within this context, the Faculty of Education recognizes its mission as related to both the professional preparation of those who will give leadership in education and research related to the improvement of educational practices. Since its inception, the **Morning Watch** has served as a key component of both the University's and the Faculty's provincial mission. It has served as a forum for presenting Faculty research and innovative ideas to the local educational community, thereby creating a critical communication link among practitioners and faculty and student researchers. As well, it has served as a friendly venue for an initial airing of ideas and research findings conducted by graduate students who would otherwise have been reluctant to publish their first scholarly work. As a result, much of the graduate student research that focussed on local educational issues was disseminated throughout the province.

On a review of the contents of this volume, it becomes obvious that the scholarly concerns addressed throughout the period from 1991 to 1999 have been varied. It should be noted as well that, during this period, the **Morning Watch** has evolved as a consequence of advances in information and communication technologies. In 1996, the **Morning Watch** became an on-line journal. It is now not only available within the province but is internationally accessible. As it continues to serve its original mandate of contributing to local knowledge by sharing research findings, articulating differing philosophical viewpoints, and raising issues for debate and discussion throughout the educational community within Newfoundland and Labrador, it is my hope that, in its new on-line format, it will continue to evolve as a scholarly journal that will become more fully recognized internationally.

In conclusion, as an educator who has worked in this province since the appearance of the **Morning Watch**, I would like to extend my personal appreciation to all those who have contributed to articles and I would especially thank and congratulate those faculty members who have served as members of its editorial board.

Bruce Sheppard, Associate Professor
Associate Dean, Graduate Programmes and Research
January, 2000

GLOBAL MARKETPLACE

THE ECOREGIONAL FRAMEWORK FOR A GLOBAL ENVIRONMENTAL EDUCATION

Susan Ahearn
Faculty of Education
Winter 1992

Introduction

In this article I will introduce to educators a framework within which they may work collaboratively to conceive environmental education experiences which will be relevant for the students in the nineties and beyond. This framework transcends the paradigm of the 1970's within which teachers focused on teaching specific concepts and attitudes in creative ways in each subject area at each grade level. It allows opportunities for teachers to develop their own capacities and those of their students as full participants in the Canadian effort (indeed the global effort) to build a sustainable society. It allows opportunities for teachers and students to modify their individual world views so that they come to value the ecological lifestyle and find it difficult to consume resources at the expense of future generations. The understandings: 1) that justice in access to resources (intergenerational and for contemporaries) is essential for sustainability and 2) that poverty is a major cause and effect of global environmental problems (World Commission on Environment and Development, 1987) suggest that an education to benefit the global ecosystem must draw from both an intimate understanding of the reality of local ecosystems and an understanding of how people need to use those ecosystems justly.

The Ecoregional Framework is based on recent advances in peace education (Reardon, 1989) and ecological education (Polozov, 1991) which contribute ideas for a global education based on justice, participation, and ecologically-inspired cultural development. These traditions offer the opportunity for ordinary people to participate in re-orienting inquiries into history and causality, based on their lived realities.

The Ecoregional Framework suggests that teachers re-orient learning experiences to allow students: 1) to become intimate with at least one natural region within which global issues are manifested and universal ecological principles may be demonstrated and 2) to derive meaning from educational experiences because the examples are drawn from a landscape with which they have some intimacy, and 3) to understand the relationship of the home ecoregion to regions progressively larger or far away. The intimacy of understanding of ecological and social concepts and issues which are local manifestations of global concerns can provide substantive knowledge which otherwise would appear abstract.

In this paper I hope to show the reader that although The Ecoregional Framework has a more obvious local focus, it is embedded in global understandings and allows for examining social and ecological phenomena of the local region in a global context. Teachers and students can explore relationships between the home ecoregion and analogous regions (those with similar characteristics and problems). The Ecoregional Framework has evolved from international initiatives for peace and security, the United Nations recommendations for environmental education and global ecological understandings. It should clarify relevant global initiatives in environmental education from the United Nations member states and elucidate possibilities in a Newfoundland and Canadian context. The Ecoregional Framework also has evolved from current

understandings of how children learn and thrive through effective educational experiences.

The Ecoregional Framework contains seven areas to which educators should give attention. The seven areas are:

1) Accepting responsibility as a stakeholder in the move to building a sustainable society; empowering oneself and others with intellectual capacities and cooperative skills for becoming a full participant in an ecological society;

2) Becoming a transformative intellectual by engaging in dialogue and praxis for curriculum development in environmental education at all grade levels in all subject areas which is relevant to the local ecoregion;

3) Identifying and becoming well-informed about innovative, approaches to environmental concern, study and action, being especially careful to investigate the existing local approaches and approaches which explore socio-political, economic, environmental, technological and spiritual aspects;

4) Helping learners develop a sense of belongingness to and responsibility for the local ecoregion; remembering that it is the aggregate of local problems worldwide that define a problem as global;

5) Identifying and learning about the ecoregion at the scale which is most meaningful to students then compiling and synthesizing existing information about the region for use in curriculum development and teaching;

6) Developing a broad repertoire of communication techniques and technologies in order to select appropriate ones for diverse settings a) between diverse groups within the ecoregion, b) within diverse settings within the ecoregion, and c) between groups in other ecoregions especially in analogous ecoregions (biotic counterpart regions) from other parts of the planet which share similar characteristics and problems.

7) Utilizing a model for teaching that offers students an opportunity for: immersion in local natural settings and beyond the four walls of the classroom, inquiry experiences, issues investigation and problem solving, and socially responsible action in the home ecoregion.

2.0   A Universal Basis for The Ecoregional Educational Framework

An ecoregional framework is consonant with United Nations initiatives in environmental education since the seventies as well as current national and international initiatives which focus on common security, sustainable development, and environmental protection. In many international documents and initiatives there is an emphasis on the importance of the local natural region (ecoregion) as the site for intensified concern, study and action. Some of these are discussed below.

2.1   The United Nations

2.11   United Nations Educational, Scientific, and Cultural Organization (UNESCO)

In June, 1972 the International Conference on the Human Environment was held in Stockholm, marking an historic moment when representatives of the world met for the first time to consider the vital question: "How to preserve the global environment and its resources for future generations and yet how to sustainably draw from those resources?'

Since one of the most important aspects of this question was environmental education, subsequent conferences devoted to goals of environmental action and education were convened. In 1975 participants at the Belgrade Conference drew up a charter setting out the goals for environmental action. In the same year UNESCO and the United Nations Development Program (UNDP) launched their International Programme in Environmental Education. Following these landmark events, a worldwide intergovernmental conference on Environmental Education was organized in Tbilisi, Georgia, USSR in which the direction for worldwide environmental education was developed.

These major, globally-focused conferences, involving United Nations member-states, set the stage for many conferences at many levels of society, organized to consider the question of the environment as it is related to development. At the root of the discussions was the knowledge of extremely rapid human population growth with its ever-increasing natural resources demands.

Documents produced through UNESCO have brought into focus various aspects of the global environmental crisis for educators.   Through its various publications UNESCO has synthesized the important goals and concepts for contemporary environmental education, based on current understandings of global phenomena, which educators of the nineties cannot afford to ignore. In 1980 UNESCO published a paper entitled, "Environmental Education in the light of the Tbilisi Conference," which advocated seeking solutions to environmental problems in local communities by the development of knowledge, techniques, and practical action by ordinary citizens. Included were recommendations for educators:

> "It would seem that educational institutions, from schools to universities, should bring themselves into contact with the community and involve themselves with its concerns.   The involvement in questions should be both . physical' and 'institutional.' The school, for example, should no longer be an isolated building, constructed on the outskirts of the community, but should be installed at its very heart, so that pupils, instead of feeling cut off from the community, find themselves conveniently situated for those investigations, experiments and contacts that are central to environmental education. By the same token, the school should open itself up to the life of the district and should make its premises available for community activities: local meetings, cultural associations, clubs. What causes the School to be closed in on itself is not so much administrative or physical obstacles as a certain notion of the student's role. This conception is inevitably called in question as one tries to establish a genuine interaction between educational institutions and the community. As long as pupils and students are excluded from the sphere of social action, interaction between school

and the community can only be superficial. To be effective, it must take the form of a dialogue, of a co-operative exchange between social institutions, with the student-teacher group having the role of a full partner." (UNESCO, 1980, p. 2)

Since UNESCO elucidated the direction of environmental education at the Tbilisi Conference, environmental education has come to be understood as both formal (i.e., sponsored by schools at all grade levels in all subjects) and non-formal (within community groups), incorporating teaching through action where knowledge, attitudes, and skills can assume their full significance in contact with real problems of the environment, giving the persons concerned an opportunity to engage in social decisions which affect their lives. Problem-focused environmental education is not to be considered a component of a curriculum, strictly speaking, but rather a frame of reference against which problems peculiar to a locality, region, or country could be identified. In seeking solutions, UNESCO recommends that educators regard the different natural and social sciences not as independent entities but rather as tools for analysis and synthesis in a more holistic and systemic approach to teaching.

The ultimate aim of environmental education, in the light of the Tbilisi Conference, is to change the attitudes of those in school and other community members so that they are inspired to participate and collaborate in shouldering responsibility in the management, protection, and development of the environment based on a consciousness of the state of the local ecosystems and the socio-cultural environment in which they live. In cities, the need is to offer opportunities for renewed contact with nature and to assess the effects of the products of the consumer society on the lives of the individuals. In rural areas, the need is to contribute to the rational conservation and management of the land, forest, and hydrological resources and the improvement of socioeconomic and cultural development. In both kinds of regions, environmental education means that citizens are learning to form judgements as to the standard of public services and to support measures related to the environment which answer their needs, yet improves the quality of the environment.

In June, 1990, UNESCO published "Basic Concepts of Environmental Education," following the release of the report of the United Nations Commission on Environment and Development (known as the Brundtland Report). The seven concepts which are described are applicable everywhere and educators are encouraged to use them as the core or primary focus of environmental education universally.   The UNESCO concepts are based on the assumption that a beautiful healthy environment is not a luxury but a basic human need, both materially and nonmaterially. The seven UNESCO concepts are:

1)   Levels of Being

"There are three distinct levels of being: social, biological and physical each of which obeys its own laws plus those of all lower levels. They are in reverse order: a) the physical planet, its atmosphere, hydrosphere (waters), and lithosphere (rocks and soils), all of which obey the laws of physical chemistry; b) the biosphere, all living species which obey the laws of physics, chemistry, biology and ecology; c) the technosphere and sociosphere, the human created world of buildings and ma-chines, governments and economies, arts and religions and cultures, which obey physical, chemical, biological and ecological laws, and also further laws of human devising."

Since all environmental phenomena are subject to the same underlying physical laws, they behave, much the same no matter what the location; however, the complexity produces tremendous local variation. Recognizing global similarities while interacting in local situations caused the scientist Rene Dubos to coin the slogan in the eighties, "Think globally, act locally." The levels of being operate on different time scales which makes management difficult. The levels of being are distinguished by profound and mysterious qualities: life, consciousness, and self-awareness.

2)   Cycles

Matter can be neither created or destroyed. The planet's materials stay here undergoing constant transformations powered by the energy of Earth and Sun. There is no "away." The materials of life water, carbon, oxygen, nitrogen, etc.-pass through biogeochemical cycles that maintain these materials for living things. Humans working with the natural cycles, rather than against, can receive great economic and environmental benefit.

The biogeochemical cycles combine to form a complex control mechanism that maintains conditions for self-sustaining, living organisms. The control mechanisms are mediated by life itself. The micro-organisms, in particular, through their biochemical functioning and their population expansions and contractions, keep the earth's atmosphere and the surface temperature regulated. They hold the atmosphere in an anomalous composition of gases, far different than those found in chemical equilibrium on a lifeless planet.

Earth's natural forces which propel the planetary cycles are more powerful than human forces and are easier to work with than against.

3)   Complex Systems

Everything is connected to everything else because Earth is organized into systems with interconnected stocks and flows of non-renewable and renewable resources. The systems are arranged hierarchically, with natural diversity generally increasing resilience.

4)   Population Growth and Carrying Capacity

Populations of living organisms tend to grow exponentially so that one bacterium divides into two which then divide into four and after ten divisions there are over 1000 organisms. After twenty there are one million.

The limit to the rate of production of a renewable resource is an upper boundary or carrying capacity on the number of organisms that can be sustained on the resource base. Human carrying capacity depends on how well we manage our environment. Carrying capacity is defined by its most limiting component rather than its most abundant component. Carrying capacities can be either enhanced or degraded by human action. Using resources efficiently, i.e., doing more with less, can increase the number of people that can be included in the resource base. Restoring degraded environments is much more difficult than preservation.

5)   **Environmentally** Sustainable Development

Environmental degradation does not contribute to sustainable development. There must be enough soils, waters, energy and other materials to meet human needs of at least one more population doubling on Earth if those resources are to be wisely managed and equitably distributed. Since both poverty and affluence can cause environmental problems, economic development and environmental caretaking are compatible, interdependent and necessary.

6)   **Socially** Sustainable Development

Developing more ecologically-oriented societies means that development must be people-centred not production-centred. People must be empowered to participate in the process. The development must be appropriate to the land and resources of the local region, and the culture, history and social systems of the place where it is to occur. Appropriate technology is a key component. The sustainable development process must be based on the principles of equity and fairness. No system can exist over a long period of time when the distribution of goods and access to resources is grossly unjust and when part of the people are subjected to chronic, debilitating poverty. The process of sustainable development involves the breaking down of barriers between freedom and order, groups and individuals, work and leisure, settlements and nature. Development does not have to diminish people and their capacities for expressing themselves creatively and humanely.

7)   Uncertainties

Since humans don't fully understand how the world works, we must make decisions under many grave uncertainties. Since the results of decisions can be irreversible and catastrophic, risks must be understood. Risks must be carefully assessed followed by slow experimentation, and constant honest evaluation of results and flexibility in changing strategies.

These seven UNESCO concepts have been enacted in recent international training seminars for both primary/elementary schools (in Valletta, Malta, May 1991) and secondary schools (in Cairo, Egypt, June, 1991). Through workshops which focused on regional approaches to curriculum development and incorporating an environmental dimension into all subjects taught (a practice known as infusion), educators from around the world continue to demonstrate the evolving environmental education since Tbilisi.

2.12 The United Nations' University for Peace and the Government of Costa Rica: The Declaration of Human Responsibilities for Peace and Sustainable Development

In June, 1989, the government of Costa Rica and the United Nations' University for Peace in San Jose, Costa Rica, drafted a declaration which has become a document for study, reflection, and curriculum development. It links the pursuit of peace with the concepts of sustainability, personal responsibility, and interdependence, bringing a holistic perspective to ecology and environmental studies and offering important implications for the development of personal and planetary resources. This declaration known as the Declaration of Human Responsibilities for Peace and Sustainable Development, was endorsed immediately by the 1990 Chicago First International Conference on Holistic/Global Education, whose participants found it useful for the development of its global curricula. Of particular importance in considering local efforts is Articles 6 and 1 0:

> "Recognize that responsibility is an inherent aspect of any relation in which human beings are involved, is an inalienable creative personal quality, there is no limit to its scope, and **it grows and derives strength through involvement in activities** (emphasis mine)." (UN University for Peace, p. **8).**

> "Develop a sense of responsibility and capacity to think and act in a peaceful manner and to live simply, geared to the fulfilment of the necessary conditions for health and personal development. Act in a manner consistent with those rights inherent to all human beings and to gear one's consumption of natural resources accordingly, thus contributing to the ability of all human beings to fulfil their basic needs." (UN University for Peace, p. 8).

The endorsement of the document by the Chicago group marks the first time that a large body of American **educators,** from outside the peace education community has endorsed the absolute interrelationship between peace and the environment and for the need to develop an educational approach which draws from both areas. It is interesting that social responsibility has now come to mean developing cooperative relationships for living an environmentally sound lifestyle (hence the slogan "live simply so that others may simply live"), participating in local environmental protection or restoration, and assisting those less able to care for themselves.

2.2 Canada's Commitment to Building an Ecological Future

In autumn, 1991, the federal government of Canada announced its intentions to distribute $52 million over the next five years in order to enact its national plan for reversing the damage being done to the environment today and in years gone by. Canada's Green Plan for a Healthy Environment is the result of extensive consultations with Canadians of all walks of life. It is a national effort to build economic strengths in harmony with the environment which is the basis of health and prosperity. It describes twenty three goals to ensure that Canada works towards becoming a sustainable society. Of note is that one goal in particular reaffirms the understanding of the importance of focusing on natural **regions** in building a sustainable society:

> "Canada's Goal: Strengthen the nation's environmental science and technology, with a special emphasis on understanding regional ecosystems." (Government of Canada, 1990, p. 26)

Indeed, as I observed in the two rounds of local consultations leading up to the development of the Green Plan, there was a strong voice for preservation of areas that were representative spaces of each of Canada's ecoregions. This focus already has been endorsed by the conservation biologists of Newfoundland and Labrador who have contributed scientific data and advice in the development of the text by local botanist Sue Meades (1990), **The Natural Regions of Newfoundland and Labrador,** which will inform the development of the Newfoundland Conservation Strategy. The international community of conservation biologists already support this kind of effort as evidenced by their endorsement of the World Conservation Strategy developed by the International Union for the Conservation of Nature and Natural Resources which informed the Newfoundland group.

Not only the Newfoundland Conservation Strategy, which is being developed, but Nova Scotia's 'theme regions" for environmental education, described by Davis and Smith (1 987), correspond to the ecoregion concept. The Canadian Council on Ecological Areas (CCEA) provides the foundation for the Canadian National Reserves System Plan and it is based on the ecoregion concept. The network of protected areas in Canada, which will be completed by the year 2000, is based on the need to protect representative ecosystems within each ecoregion.

3.0   The Ecoregional Concept

The natural region as a determinant of human activity and ecological well-being has been observed by astronauts such as Mohammed Ahmad Faris of Syria:

> "From space I saw Earth-indescribably beautiful with the scars of national boundaries gone." (in Kelly, 1988, p. 77)

and American astronaut Russ Schweikart as he viewed Earth from space:

> "There are no frames, no boundaries." (in Kelly, 1988, p. 144)

Earth is divided into natural regions defined by natural characteristics rather than human politics or conflicts. The ephemeral nature of political boundaries throughout history has become quite apparent to everyone who has observed in recent years the changing face of Eastern Europe. The boundaries of political maps may reinforce an archaic paradigm of conflict, rather than the new thinking of interdependency and cooperation.

The natural regions of Earth, the ecoregions, form a complex arrangement of patterns based on distinctive variations in vegetation and soil, controlled by climate. This geographical concept can be visualized as a set of nested units. Like the matrioshka, the Russian nested dolls containing progressively smaller dolls embedded within one another, so the ecoregions of Earth form an interlocking, interdependent set of patterns and processes. Each ecoregion gives rise to unique cultural patterns and assemblages of life forms. These ecoregions represent important landscapes at various scales upon which educators can develop appropriate understandings between young people and the environment.

The key to unlocking the motivation to engage in environmental action or appropriate environmentally responsible daily behaviors, may be the opportunity for people to observe and benefit directly from improvements to the local, familiar landscape.   The area surrounding a person's home can be the site for socially meaningful behavior which is real, concrete, and bound up with a person's sense of "belongingness" and immediate need for affirmation and/or recognition.   The local landscape is more familiar to each person than are distant regions, and its specific features may hold personal significance for the residents.

3.1   The Ecosite

The smallest unit of the natural region, with which students may be intimate, is the ecosite. This is a specific place, the boundaries of which may be easily observed by a person standing at some distance away.   Around the Avalon Peninsula of Newfoundland several examples of ecosites may be: 1) Long Pond (near Memorial University), 2) Bell Island in Conception Bay, or 3) Shoe Cove (near Pouch Cove). The ecosite is an easily observable area which can become the focus of environmental action with dramatic results which are obvious to local people. This scale of ecoregion offers a tangible unit upon a landscape that is familiar to local students. Educators can organize investigations of environmental and social concerns around the ecosite and students can interact with friends, family, and neighbors in community service projects or restoration of the ecosite. Generally since the ecosite is not abstract but a concrete and visible place, it is an appropriate scale on which to focus environmental education for elementary students.

In 1990, a local citizen's group in Pouch Cove decided to draw public attention to the demise of Shoe Cove, a beautiful but degraded ecosite nearby. This site had experienced a steady decline in environmental quality since the 1960's. They applied for and received funding from the Environmental Partner's Fund of the federal government and from Shell Canada to remove hundreds of old car wrecks on the unstable slopes surrounding the cove. Battery fluid from the cars was leaking and being transported by gravity to the clear stream below. Garbage dumping was common. The funds acquired also were intended to develop public awareness and educational programming about the ecosite. The citizen's group was able to remove all car wrecks by hiring a local contractor. They organized town meetings in the local school so that youth and parents could be informed about the progress of the restoration project and to solicit suggestions from them for a park master plan. Oral histories were collected in the community by students and teachers as well as by a local folklorist. Currently a source book is being developed for teachers which will highlight this ecosite as the focus of environmental education, action, and development of socially responsible behaviors.

3.2   The Ecosection

The next largest scale of natural region is the ecosection. Generally we can think of this landscape scale as most appropriate for secondary school students. This scale may be somewhat abstract since the parts of it may not be observable by a person standing in a single spot. The best example of an ecosection is a watershed such as the Waterford River Basin in St. John's. A watershed offers a positive sense of what is a boundary. This kind of boundary defines concretely the space within which each person must become environmentally and socially responsible. In thinking about the boundary between one watershed and another it is better to think of it more as a

permeable membrane than a border since it allows for the flow of objects, forces, and processes through it. The higher elevations above a stream which delineate one watershed from another, distinguish the area in which a person is a resident from the watershed in which he/she merely is a neighbor. This distinction focuses attention on the individual residents' ultimate area of primary responsibility towards Earth. Water does not flow according to human desires in most watersheds but according to physical land contours.

In Newfoundland where water is a distinguishing characteristic of the landscape, the quality of the waters may be preserved, under increasing population and development pressures, by a heightened understanding of the watersheds in which we live and the sense of responsibility that citizens develop to the local watershed of their residency. Whatever pollutants we put onto the land, usually end up in the watershed by the action of precipitation and gravity. Preservation of water quality and human health certainly can be enhanced by educational development which focuses on the community of life within a watershed.

In St. John's, members of the citizens' group Friends and Lobbyists of the Waterford (F.L.O.W.) have organized environmental action and public attention on the Waterford River which flows from the city of Mt. Pearl to the harbor of St. John's. Cleanups and restoration work have been accomplished by a handful of dedicated residents who value the qualities provided by a beautiful free-flowing stream in their community. Now in their second year of work, plans are being made to develop educational activities for youth groups and curricula for schools within the Waterford Watershed which will focus on developing environmentally responsible behaviors. Building the identity and knowledge of local residents to this distinct and familiar landscape, which is a natural region, is the task to be accomplished if the Waterford Watershed is to remain healthy, supported by the continuing presence of an environmentally literate citizenry in subsequent generations.

3.3   The Ecodistrict, Ecoregion, and Ecoprovince

Other larger sized natural regions which have significance for developing of long-term preservation of ecological processes and biological diversity include the ecodistrict, ecoregion, and ecoprovince. In Newfoundland, the ecodistrict may be represented by the Southeastern Barrens Subregion (described by Meades, 1990), the ecoregion as the Newfoundland Maritime Barrens, and the ecoprovince, beyond provincial borders may be the Atlantic Uplands of the Southeastern Oceanic Boreal Forest. Each scale of natural region (ecoregion refers to the natural region in general) represents progressively larger scales, which at some point are too abstract to the ordinary citizen to be meaningful.

4.0   The Empowerment of Teachers

4.1 Getting Started

The primary task of the progressive educator of primary, elementary, and secondary school students is to decide upon a scale of natural region which is most meaningful to his/her students. Unlike other parts of North America where educators are attempting to clarify their natural regions for environmental education, much of the work already has been done for Newfoundland and is available in Sue Meades' text or

from a map of the watersheds of the province developed by the Department of Environment and Lands (Water Division). One should not, however, be overly concerned by the names attributed to specific natural regions but rather simply understand what is a distinct region of interest for your own environmental education purposes and begin to become intimate with specific processes, phenomena, characteristics, issues, etc.

4.2 Developing Intimacy With the Home Ecoregion as a Basis for Substantive Areas of Study

Becoming intimate with the region for which you are ultimately responsible means that you transcend old paradigms, which erode or deny the child's sense of belongingness to familiar environments. It means digging deeper into the realities present, both social and ecological, and devising ways in which to cooperate and collaborate effectively with other groups in environmental or social restoration in familiar locales. It means developing substantive knowledge about ecological processes and the human ecology of the region and envisioning what it might look like in ten, twenty or thirty years or even in seven generations. It means developing more substantive activities for students than cleaning up litter without examining more severe abuses to the health of the people and the integrity of their ecoregion (toxic waste dumping, for example, which are more far reaching and difficult to eradicate). It means focusing on fostering in children a sense of relatedness to the other parts of the landscape so that when the land within the home ecoregion is degraded there is a feeling of being personally diminished. Finally, from an understanding of the region, students and teachers may want to bestow upon it a name which symbolizes ecological interrelationships or a major physical feature present there.

4.3 Necessary Steps for Teachers

Teachers who want to engage in environmental education using The Ecoregional Framework could follow this progression:

694

1)   **Ecoregion Identification**

Identify the home ecoregion at the most useful scale for specific children (Ecosite-Elementary; Ecosection/Watershed-Secondary); find out what analogous regions (biotic counterpart regions) exist in other parts of the world which may be of interest to students (for example, Newfoundland and Russia are both involved in the North Atlantic fishery, they have similar vegetation (boreal forest), indigenous peoples, problems of economic development, resource extraction, and acid rain; find out what environmental dependencies exist between resource-based and resource-dependent regions (for example, Colombia, South America and Newfoundland share many of the same migratory birds which are susceptible to forest destruction in both the northern and southern parts of their range);

2)   **Structure Collegial Dialogue and Praxis**

Find other teachers, either within the same school or within the same natural region, from diverse disciplines and grade levels, etc., to begin to build histories of the local ecoregion based on significant questions which have been constructed by the consensus of the group (see sample questions provided here); through this dialogue teachers can compile what they know about the natural region (social and ecological), and by this process create a new synthesis of information grounded in personal experiences, individual realities and local phenomena;

3)   **Compiling Ecoregional Information**

Records can be kept of the discussions which build the histories of the natural region; these histories can be as detailed as memories will allow, citing specific ordinary people and local spots which are known to most residents of the region, especially the children; where there are gaps in desired areas, literature research and interviews with local citizens can augment the discussions;

4)   **Developing Resource Materials for Teachers in the Ecoregion**

Records from the discussions may be transformed into themes for curriculum development; for example, teachers may want to organize their records around themes suggested by the seven UNESCO concepts; another way to organize the information into substantive areas of study is to use Kearney's (1984) seven components of a world view: Self, Other, Relationships Between Self and Other, Classification of the Other, Causality (how things came to be), Time, and Space (sample questions are given at the end which elucidate this idea);

5)   **Curriculum Development Through Dialogue and Praxis**

Teachers can break into smaller interest area groups for devising specific ideas for teaching their students using the newly compiled resource materials for their natural region; these ideas are informed by the reality of implementation in real classrooms and modified as needed; regular dialogue between the teachers, and between the teachers group and students can inform the development, modification, and evaluation of the ecoregional environmental education materials.

6)   **Local Issues in the Global Context**

Develop communication with classrooms in analogous regions or regions which are interdependent; explore the capabilities of existing global computer networks and Distance Education Technologies (currently available through Memorial University, Faculty of Education); study social histories, natural histories and local issues with classes in another part of the world, to compare how global problems are manifested in that ecoregion; share problem-solving strategies and take action in the local community-based on shared ideas from the international
discussions.

4.4   Structuring Experiences Within The Ecoregional Framework

4.41   A Learning Cycle

A model which allows for multidimensional and multisensory experiences is the Integrated Education Model (Ahearn, 1991). In the first part of this cycle, the **Immersion** phase, students are immersed in a natural setting of the ecoregion and asked to participate in an experience in which they become familiar with other elements of the ecoregion (The "Other"). The value of immersion experiences in changing behaviors has been well-documented in the literature on experiential education. Students can become introspective and may learn to deal with their own powerlessness within the forces of nature. They may be guided in curbing destructive behaviors, learning restraint, and self-control. Transcendent experiences are possible where the Self and the Other are perceived of differently.

In the **Explanations** phase, students are given the explanations of causality, i.e. why things are as they are, derived from beliefs, facts and theories. Students explore various ways of perceiving the world around them based on these explanations and learn to decide for themselves which explanations are functional. In this phase, students may be exposed to community members who have a commitment to environmental well-being and public participation as well as an interest in young people. Teachers may plan ways in which to involve these mentors of the community in various projects so that students may learn from their skills and ideas.

During the **Participation** phase, students engage in laboratories, field, or community investigations which will broaden their understanding of the ecoregion and of themselves as participants in the community of life. In this phase, students and teachers communicate with people in other regions, initiating discussions and problem-solving based on mutual issues or investigations.

During the **Integration** phase, student demonstrate to themselves and to others their newly found understandings by creating a new synthesis of ideas from their immersion experiences, investigations and international discussions. The teacher working collaboratively with community members (mentors, resource management personnel or other community workers) may guide the students in developing and carrying out a responsible collective action in the ecoregion. This action may be restoration work, environmental monitoring, or sharing creative efforts with the larger community.

4.42   Teaching Styles

Teaching styles used in the process of education convey as much to the learner as does the content. To educate for public participation it is important to select teaching models that allow for active participation of students. The role of the teacher changes in participatory teaching models. **Participative Teaching** includes the dissemination of power for finishing a project to all members of a class and the teacher participates as well as facilitates. This approach is most essential in investigations beyond the classroom, especially in the natural environment. **Directive Teaching** includes conventional methods such as lecturing or demonstration. This approach may be reserved for situations in which students have had some common experience related to the subject, so that the teacher may focus on points related to the common experience. **Permissive Teaching** invites the learner to formulate an idea, determine effective ways to proceed and then to do it! The teacher assists, coaches, and advises. This approach is most appropriate after basic study of a topic has occurred and students have a basis for exploring some interesting aspect of the topic. This approach is most effective in laboratory, field, and other community studies.

The learning setting which the teacher selects will determine which combination of teaching styles to use. A learning setting with rigidly fixed chairs and desks is not conducive to cooperation. Directive Teaching is certain to fail in the outdoor setting which contains many distractions and is more conducive to investigations and making observations of the multisensory stimuli present.

In the Integrated Model, describe above, the teacher moves from Participative Teaching in creating a meaningful experience to Directive Teaching in order to focus students' attention on the meaningful aspects of the previous experience. In the third phase the teacher returns to Participative Teaching to reestablish the role as of the students as co-responsible for the learning. This is followed by Permissive Teaching to allow students to assume responsibility for the "Other" within the ecoregion and to develop skills in social responsibility.

5.0   Conclusion

Recent environmental activities worldwide have arisen from the understandings that the natural region (ecoregion) is the major theme in conservation today. It is an important construct for relevant, meaningful education and for the development of socially responsible behaviors and it is a natural laboratory, a living museum, a stage upon which the individual's identity becomes formed and a person's relationship to nature becomes defined. The Canadian experience of developing conservation strategies and plans for sustainable development in each province illustrates how one nation is beginning to redirect Itself towards an ecological future with the natural region/ecoregion as the organizing unit.

Educators are responding to the need for and student's desire for relevant experiences in education based on global realities. As educators become involved in the move toward sustainability, the need has never been greater for public participation and dialogue in determining ways in which to proceed. As voices around the world are speaking out for greater participation in determining their futures, educators are reassessing their roles. As the world wrestles with issues of war and peace, authoritarianism and democracy, ecosystem collapse and ecological restoration, educators are in a position to decide whether or not to participate in the transformation to a sustainable-ecological order producing common security based on the equitable process of public participation. There are no models, guidebooks, footpaths, or experts

in this venture. The primary key to success is an ecological education which is meaningful to students. Nothing is to be gained on the well-trodden path into the future. We can step into the future with the hope that by creating new opportunities for more intense ecological understandings and cooperative experiences at home and between regions students can develop global understandings and skills in reshaping the future.

Questions to Inform Dialogue and Praxis Based on the Seven World-view Universals

1. What does it mean to be a student, a school, a group of learners within the Waterford River Watershed of the Newfoundland Maritime Barrens? (Self-identity)

2. Who are the other members of this ecoregion, human and nonhuman? How might we become acquainted with them and begin to take responsibility for our shared well being? (Other)

3. How do the lives of this ecoregion interrelate with one another? How are we alike? What are our common needs? How do our lives interrelate or parallel the lives of other regions? How might we celebrate and affirm our relatedness? What barriers prevent us from developing an understanding of the relatedness of ecoregional members? (Relationship between Self and Other)

4. What kinds of social and ecological processes and problems exist globally and within our ecoregion? What violence is occurring towards people and the land within the ecoregion which threatens our well-being? How will human needs be met in the future in this ecoregion? What resources are limited, what is extracted? What renewable resources (forests, soils, wildlife, etc.) should be replenished? Which resources should remain undisturbed and for how long? Which resources should be used and for how long? Who determines use and who benefits from the extractions? (Classification)

5. What are the contributing factors to these processes and problems? How might we overcome differences in order to collaborate and cooperate to affect positive change? How might we weave ecological relationships into our teaching? How can we transform our relationships from ones of domination and competition to ones of partnership and cooperation? What behaviors must be developed here that will respect the capacity of this region to sustain the human community? What skills must be developed in order to live more simply and solve problems less violently? What can be done to restore degraded areas or to allow some areas to remain undisturbed? (Causality)

6. In what ways do the citizens of this ecoregion and in the analogous regions perceive of and utilize the landscape? What indigenous and ecological knowledge exists in the ecoregion and how can we use it effectively? Which patterns of use are ecologically sustainable and which are problematic? What technologies might we use to overcome distances in communicating with the analogous regions? (Space)

7. What do we want our ecoregion to look like in the future? How can we develop a perception that time, within the immediate landscape, has continuity throughout the past, present, and future and that varying perceptions of time (linear, zigzag, or cyclical) (geological, historical, spiritual) may be useful in developing ecological

lifestyles? How can a deeper understanding of time contribute to a sense of enchantment and desire to participate fully in the work of sustaining life in this ecoregion? (Time)

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**CROSS-NATIONAL CONSULTATION IN
INTERNATIONAL COLLABORATION**

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Introduction

Increasingly faculty members at Memorial University, including the Faculty of Education, are thinking about doing cross-national consultation in international collaboration in different professional areas. In fact, a number of people at Memorial have been involved in overseas consulting and collaboration for a long period of time. This paper uses research material which I have collected over the years pertaining to my interest in the area of international consultation and collaboration (e.g. see Hamnett, M., Singh, A., et. al. 1984). It is basically written for sensitizing purposes. That is to say that this paper is not a review of literature on consultation. It is hoped that the paper may facilitate the work of colleagues who aspire to participate in the field of national and international consultation and collaboration.

The material presented in this paper is drawn from personal interviews with twenty-five consultants, who were asked to describe their experiences and vignettes pertaining to periods of their consultation overseas. Their responses provide us with rich insights into the processes of consulting that may be subjected to rigorous social science analysis. However, the immediate purpose is to (1) conveniently classify and briefly describe the experiences of these consultants, (2) identify salient factors that interact during consultation, (3) highlight broad background factors that give rise to specific issues and problems in consultation, and (4) formulate working hypotheses relevant to policy directed towards (a) national development plans, and (b) development programs within the terms of global interdependency.

Problem of Definition

The dictionary meaning of the word consult is to seek information. Consulting means giving advice and consultation means the act of consulting. One thing is clear: that is, at least two persons are interacting. Who seeks information, from whom, under what conditions and with what purposes give specific character to consultation. Since interaction always occurs in a social setting, consultation can scientifically be studied only by taking into account the nature of that context. And since definition of a situation is often problematic, consulting has to be problematic too. The problematic nature of definition of a situation requires us to focus on another set of complex questions: (1) why persons (actors) choose to consult, and (2) how consulting is carried out in a social meeting.

These questions compound the problem of definition. Therefore, for convenience, I decided to postpone the task of defining consultation for the time being. Suffice it to mention that all the respondents perceived consulting as a role (a task or a function) to be carried out in a given social setting to get things done, and that most of them perceived the role of a consultant in a variety of ways, i.e., they labeled it in many different ways. We can only assume that different ways of labeling are associated with some conceptual categorizations and that these categorizations or labels are used

as guidelines for actions. It is therefore useful to recognize the <u>multivarious</u> ways in which people classify and depict the consultant's role. However, the basic problem of conceptualization in research remains unresolved. If we perceive consultation as a role, we should keep in mind that it can be articulated in the framework of a variety of interactionist theories--to name a few. Other well established theoretical traditions in the social science literature can be used in studying consultation, e.g., varieties of structural and ecological theories; not to mention economic theories, information and decision making theories. This problem provides substance for another working paper.

Types of Consulting Organizations

The interview data suggest that consulting is organized into two broad sectors: (1) Private, and (2) Public.

1. **Private Sector**. In the United States, three general modes of consulting in the private sector are identified: (a) the large firms, (b) small partnership and (c) "administrative bodies."

   (a) **Large Firms**. These firms maintain a stable staff who work towards purposes and goals of the firms. They bid for large scale consulting contracts at national and international levels and rarely sub-contract their work. Most of the work is carried out by their own staff. The focus is on maintaining a constant-flow of contracting. Since many consulting contracts require specialized knowledge in various fields, these firms cannot maintain a core staff who can consult in ever increasing specialized disciplines. Thus, the staff seems to lack proper interdisciplinary orientation, which leads to poor planning, evaluation, policy formulation and resource allocation. Because of their sheer size and investment, the big firms seem to exert greater influence in shaping the consulting market. Also, they lead in inventing "buzz" phrases and jargon which conditions negotiation of consulting contracts. Finally, they seem to exert influence by inventing and then setting up criteria for evaluation of consultation.

   (b) **Small Partnerships**. These consist of two or three persons forming a partnership and bidding for consulting contracts in some sectors. This kind of partnership seems to be built on a very fragile alliance because the partners often split. Another characteristic is that the partners themselves do not consult. Instead, they seek out low-cost experts-cum-consultants. That is, consulting is delivered through cheap sub-contracts. The style is to throw "bodies" (persons) in the client situation to create the impression that consultants are doing something. More often, this style of consulting feeds on less sophisticated clients in the sense that the clients have no measure to ensure quality of the consultation, professional integrity of the consultant, and ethical behavior of consultants.

   (c) **Administrative Bodies**. This type of consulting organization does not have any core staff or partners. These are only administrative systems for getting contracts. Once the contract is acquired, these bodies reach out and find experts who blend their expertise and carry out the assigned tasks. The style is intensive involvement by experts in consultation.

2.   **Public Sector**.   In this sector two modes of consulting are identified: (a) government agencies, and (b) international bodies. We know that there are numerous government agencies and international bodies that are involved in consulting. We may decide to focus on some of them.

Besides the above modes, consulting seems to be organized in terms of (i) level, and (ii) duration of involvement.

First, consulting takes place at primary or secondary levels. At the primary level of consulting, consultants are involved in the task from the very beginning, while in the secondary level consulting, they are involved in "cleaning up" operations. In other words, at the secondary level of consulting the major effort is to make sense out of what the previous consultants have done to client's project or program.

Secondly, consulting takes place at the village, county, town, city, region, state and national levels. And thirdly, consulting is done at different levels of technical and professional expertise.

In terms of duration there are short and long term consulting. Short-term consulting varies from one day to several weeks while long-term consulting lasts for a year or more.

Conditions Under Which Consulting Takes Place

The interview data suggest that consultation occurs under three general conditions:

1.   When rapid socio-economic-cultural changes at the international level require fundamental changes in the existing social and cultural institutions of a society at all levels.

2.   When there is a crisis situation. That is, when there is stress, urgency, and immediacy in a situation. Consulting is sought at the last minute to get the task done. The expectation is that the consultant will bail the consultee out of difficult situation.

3.   When there is bond of "brotherhood" between the consultant and consultee. That is, depending upon previous acquaintances and institutional linkages experts at national and international levels seek consultation from each other.

Problems in a Consulting Situation

Consultants encounter many problems which are located in four general areas: (1) organization of consulting agencies, (2) local social structure, (3) cultural misunderstanding, and (4) supportive systems.

1. **Organization of Consulting Agencies**. It was suggested by many persons that the structure and function of a consulting organization affect the delivery of consulting. Often the role of consultant vis-a-vis the role of consultee is misplaced. Similarly, the purpose of consultation is often confusing and the locus of accountability is unclear. Organizational studies of consulting agencies may throw light on how consulting is delivered and what are the consequences of a particular mode of delivery system for the client situation.

2. **Local Social Structure**. Another set of problems related to consulting is located in the organization of local institutions and their capacities to carry out certain tasks in the changing environment. There are often internal rivalries and competition among local institutions which are reflected in the local politics. Unrealistic expectations on the part of consulting agencies about the capacities of local institution to achieve certain goals may conflict with the goals of these institutions and aspirations of persons in them. Thus, lack of familiarity by consultants with local institutional structure and internal politics often acts as a barrier to successful consulting.

3. **Cultural Misunderstanding**. Another set of problems related to consulting is located in the larger context of culture and politics. Numerous factors such as values, ethics, beliefs, communication styles, perceptions, language, speech patterns, socialization, stratification, status and other interests, self-image and definition of the situation, to name a few, lead to cultural misunderstanding during consultation. All the consultants interviewed have their own anecdotes and stories to tell which provide us with rich insights into cultural factors affecting consultation. For convenience and also for lack of space, I am not including them in the main body of the paper. This kind of material will be restored in a note form elsewhere for reference purposes. The important point for us is that the persons interviewed attached great importance to cultural variables in consultations. Some of them even went so far as to mention that ninety percent of interaction in any successful consulting effort requires subtle understanding of political and psychological meaning of consultee's culture (for that matter consultant's own) that underlie his/her communication pattern, and behavior.

4. **Supportive Systems**. A successful consulting effort is contingent on the presence of supportive structures in a situation, on the nature of these structures, and on the degree that these are accessible to consultants and to their counterparts in order for them to carry out the assigned role. Even when supportive systems are present, many times these are inaccessible both to consultants and their counterparts. In other situations these are available to consultants only. Data suggest that a sound understanding of the organization of supportive systems in client situation, and the dynamics of political processes that affect functioning of these structures, will enhance consulting efforts. Studies of the local supportive structures may be conducted along with the studies of local social structure in general.

Factors Affecting Consulting Identified

Data suggest that factors affecting consulting may be grouped as follows: (A brief description of the interplay between these factors is provided later in this paper under the heading of general commentary.)

I.   **Demographic and socio-economic factors** include such factors and income as sex, age, color, nationality, ethnicity, bi-culturalism, bi-lingualism, education, occupation, and income.

II.   **Cultural and social-psychological factors** include factors as expectations, aspirations, self-image, attitude, respect, honesty, friendship, hospitality, ego involvement, reward, competition, language, speech pattern, anxiety, fear, jealousy, mystique surrounding consulting, empathy, status, and prestige.

III. **Structural and institutional factors** include factors such as social control, authority, mode of communication (formal or informal), bureaucracy, mode of role relationship, line of communication, mode of internal institutional conflicts, nature of projects (on going or new project), mode of seeking consultants, mode of selecting counterparts, resources available (natural, physical and human), availability of supportive structure, nature of responsibilities (complex or simple), style of administration, mode of consulting (large firms, small partnership, administrative system, primary, secondary and public), level of consulting (village, town, city, regional, state, national and international), duration of consulting (short and long term), cost of consulting, and timing of consulting.

IV.   **Methodological and theoretical issues** include factors such as nature of data collection, mode of analysis, and nature of information available.

Varieties of Consulting Roles Identified

The role of a consultant was perceived in a variety of ways. These are identified and grouped into four categories, along with a brief description of each role as I understood them during the interviews. As the reader will note, we need to describe them in a more precise way in another working paper. Various roles (e.g. role of an interpreter, a mediator, etc.) have already been articulated in the social science literature and could be useful for our research purposes. The categories are:

I.   **Social Relation Roles Located At The Field Level**

1. as a giver and taker role
2. as a game playing role
3. as a massaging role
4. as a listening role
5. as a back seat role
6. as a do gooder role
7. as a catalyst role
8. as a therapist role
9. as a friend role

II.   **Bureaucratic Roles Located Mainly At The Institutional Levels**

1. as a decision making role
2. as a human relation role
3. as a link building role
4. as an evaluator role
5. as a regulatory role
6. as a hatchet man role
7. as an alien/stranger role
8. as a legitimizing role

III. **Technical Expertise Roles Located At Both the Field and Institutional Levels**

1. as a "pure" expert role
2. as a generalist role
3. as a policy/monitoring/standard setting role
4. as an interpreter of technical language role

IV. **Business Roles Located At Both the Institutional and Field Levels**

1. as a manufacturer of "buzz" words role
2. as a marketing strategist role
3. as a salesman role
4. as a dependency producing role

A very sketchy and brief description of most of the roles identified above are as follows:

1. **As a giver and taker**: A consultant gives as well as consumes information, advice, etc. It is perceived as a two way process.

2. **As a pure expert role**: A consultant sticks to his/her role as a provider of technical information only. He/she does not get involved in the interpretation of the social situation.

3. **Consulting as a game**: A consultant perceives the situation as game playing and is only interested in the rules of the game and playing it well. He/she is not so much concerned with the socio-cultural, economic and political implication of consulting.

4. **Consulting as a decision making role**: A consultant is only interested in knowing and affecting decision making process.

5. **As a massaging role**: A consultant is involved in massaging the problem and not in getting anything done.

6. **As a listening role**: A consultant listens to the counter part carefully and creates the situation in which the counterparts can work on their own problems and come up with solutions. Only occasionally the consultant gives technical advice.

7. **As a back seat role**: A consultant lets the local counterpart take the initiative for action and enjoy the credit for the action taken. The counterpart is in the driver's seat, so to speak.

8. **As a do gooder**: A consultant behaves condescendingly in a client situation. In other words, a consultant patronizes.

9. **As catalyst**: A consultant facilitates on-going activities through his/her presence.

10. **As human relation activity**: A consultant mainly focuses on the human relation aspect of the situation.

11. **As a link-building**: A consultant is instrumental in linking bureaucratic channels and communication gaps in the situation.

12. **As a generalist**: A consultant is aware of broad-based implications of on-going activities and instrumental in sensitizing the counterparts about multifaceted and multidisciplinary nature of consulting.

13. **As a policy/monitoring role**: A consultant focuses on the monitoring aspect of the situation.

14. **As an evaluator**: A consultant evaluates and passes judgment on the ongoing activities.

15. **As a therapist**: A consultant aids consultee in clarifying his/her own ideas, reinforces consultee's line of action and often does what the counterparts want him/her to do.

16. **As a hatchet man**: A consultant does the job for the counterpart which he/she considers "dirty".

17. **As imposed alien/stranger**: A consultant is in the situation without any real invitation from the counterparts.

18. **As a manufacturer of buzz words**: A consultant is involved in the generation of new phrases and jargon which may serve some special purpose.

19. **As a salesperson**: A consultant is involved in selling consultation as a business. In other words he is selling a "consulting package" which may be useful in various situations with few adjustments.

20. **As a marketing strategist**: The main interest of a consultant is to create need for continuous consulting for client situations.

21. **As a dependency producing role**: A consultant works in a manner that keeps the counterparts dependent on him/her for a long time.

22. **As a legitimizing role**: A consultant legitimizes on going activities through his/her prestige, status, and presence.

Purposes, Problems and Implications of Consulting: A Commentary and Summary

The consultants whom I interviewed went to various countries (mostly in Southeast Asia and the Pacific) with the purpose of consulting in one of the following areas:

1. Development of manpower at various levels
2. Management of on-going programs in specific areas
3. Development of institutional structures
4. Development of Educational and Training materials
5. Development of service delivery systems
6. Planning and developing of community services
7. Developing of plans for funding purposes
8. Participating in seminars and conferences in specialized areas as a resource person.

Many of the consultants have written formal reports on their assignments, while others have reported their activities in the form of "trip" reports. These reports may be obtained on request for in depth understanding of the specific purposes of the programs in which they were involved. I have only mentioned the broad areas in which these consultants have been involved. This should give us some idea about the nature and scope of their involvement.

I have suggested earlier that several of the problems which arise during consultation can be grouped into four larger categories: organization of consulting agencies; local social structure; cultural misunderstanding; and the availability of supportive systems in the local setting. Now I discuss some of the specific problems that were identified during interviews to increase our familiarity with their nature and scope.

One of the major problems in a consulting situation is to clarify purposes, goals and expectations of consultation. Often the consulting agencies have unrealistic goals which cannot be operationalized under the existing local social structure and institutional arrangements. Similarly, counterparts expect a consultant to perform miracles. This creates potential problems in establishing a consulting and professional relationship. Therefore, some mutually agreeable procedures that will aid in setting up realistic goals and expectations need to be devised.

Secondly, there are problems of selecting, recruiting and training the local persons. It was mentioned during the interview that in a short term, one-shot consultation situation, no provision is made to train the client in specific areas of competencies. Also, there is no provision to up-grade the skills of the clients and for follow-up consultations to ensure that the client has attained the required or needed skills. By implication, this kind of situation tends to perpetuate a dependency relationship. The client is overwhelmed by the mystique surrounding the consultants (i.e., the feeling that consultant will "fix" our problems). This encourages consultants to feed on the situation. In some cases, the client does not know how to use the consultants. Consequently, it is not uncommon to note that some consultants destroy organizations and "kill" programs without damaging the market for consultations. The lack of competencies on the part of the client does not allow them to challenge consultants' activities.

Thirdly, there are problems surrounding the questions of evaluation, effectiveness, credibility and accountability of consulting. In many situations, the needs of clients are dictated by the sponsoring agencies, who also play a decisive role in

setting up of evaluation criteria and the definition of the effectiveness. Thus, the credibility and accountability of consultants tend to be located in the structure of sponsoring agencies and not in the client situation. As a result of this, consulting often becomes a unilinear and one-sided activity in which there is no room for learning and feed-back. That is, generally there is no built-in mechanism in a consulting situation whereby the client could set up some procedures for evaluating the consultant's report.

In many cases it seems that consultation tends to be a required activity of the consulting organization. What makes the consulting organizations behave in this manner, how they manage to penetrate the client situation and create need for constant - flow of consulting contracts needs to be studied. Moreover, such studies will be most fruitful if carried out in the larger context of global socio-economic-political and cultural interdependency.

Also, under what conditions does consulting becomes a two-way process, a learning situation? What are the implications of a two way consulting situation for the selection of consultants and their training? This leads us to the fourth problem identified.

Often the receiving party does not have much choice in the selection process of the consultant. It so happens that many consultants are insensitive to cultural values of the clients. Technical expertise is only one factor in the selection of consultants. In specific cases, age, sex, class, ethnicity and race of the consultants play important roles in establishing a successful consulting and professional relationship. Also, the knowledge of local language and familiarity of local customs seem to add to successful consulting situations. Nationality of consultants seems to create initial difficulties in establishing healthy communication between the consultant and the consultee. For example, when an American consultant in India states that "population growth is a problem because it affects the national interest of the United States", nationality becomes a negative factor in consulting.

This is also an example of cultural insensitivity on the part of consultants. Several other such examples were given in support of the significance of cultural factors in consulting, which constitute the fifth problem area.

Suggestions For Improvement

Following are some suggestions that were made to improve consulting:

1. Consulting should not be a one-shot activity.

2. Implications of long/short term consulting should be well thought out before hand.

3. In general, consulting should be a well planned activity.

4. Sense of realism should be grasped as it relates to the purposes and expectations of consultations.

5. Assessment of participants (both the consultant and the consultee) should be included in consulting proposals.

6. In a majority of cases, money and other needed material goods should be sent to the client situation and not the consultants.

7. Cultural sensitivities of the people should be taken into account during consulting.

8. Experience in living in the client situation and interacting with counterparts should be an important variable in selecting consultants.

9. Personality and socio-cultural background of the participants should be taken into account in the selection process.

10. Consulting should be considered as art form.

11. Consulting should be considered a two way process; essentially as a learning process.

12. Consulting should be approached from a larger socio-cultural perspective.

13. Local and international societal conflicts should be well understood by the consultants.

14. Upgrading of clients skills and competencies should be built into the consulting contract.

15. Most of the training should be done in the client's country using local examples.

16. A majority of the participants should be local people.

17. Follow up procedures should be included in the consulting contract. A retainer system should be worked out. That is, a consultant should be retained who will come and work with the consultees whenever the need arises.

18. Procedures should be worked out to evaluate consultant reports.

19. The need for consultation should be determined by the clients.

20. Consulting organizations should invest in research and development activities that are directly related to the client's situations. (e.g. research and development of appropriate technologies).

21. A super-consulting structure may be devised to catalog the activities and capabilities of various consulting institutions with the purpose of providing the client more adequate information about the quality of consultation. This information may help the client in selecting the consultants and in evaluating their work effectively.

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**JOB TRAINING FOR THE GLOBAL MARKETPLACE?
EDUCATION AND THE "NEW ECONOMY"**

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At The Crossroads is the apt title of a booklet issued by the Economic Recovery Commission in March 1994. The crossroads of the title are sign-posted "The Old Economy" and "The New Economy." The former, we are told, is based on large-scale resource industries, with domestic markets, worked by a confrontational manual labour force; its citizens generally are dependent, lacking in enterprise, and have only basic education. The New Economy, however, will be run by self-reliant, knowledge-based information processors with "advanced" education, working in small businesses enjoying cooperative labour relations, with a firm focus on the global market place.[1] The Commission is firmly convinced -- indeed it was brought into being to demonstrate -- that the New Economy will prove the solution to Newfoundland's present crisis.

The differences between the two economies, as presented, are stark, almost melodramatic. Nor are the contrasts between the types of education applicable to each any less graphic -- and they present us with a similar crossroads situation. Is the education system to be based on the liberal-humanist conception we have known for so long, with its roots in Newfoundland's traditions and cultural heritage? Or is it to become, in effect, the hand-maid of business, with curricula decided by the demands of the marketplace, and students trained to be "productive agents of the economy"? Teachers, educators and academics should be aware that the latter scenario may well come to pass if present government policy is fully put into practice.

Little debate and less criticism greeted the publication, in June 1992, of the government policy document **Change and Challenge: A Strategic Economic Plan for Newfoundland and Labrador**, yet its proposals may change all our lives. Although the main focus of the report centred on the revitalization of the economy, education occupied an important place as "the key to economic development." The theme of the document, as the title states, is "change" -- change in education, in the income security system and in taxation and, significantly, a change within people. Each segment of the plan is seen as part of an interlocking whole, for the revamped education system will train a flexible workforce with an entrepreneurial outlook suitable to the new economy, to which business will be attracted by favourable tax rates. A reformed income security and unemployment insurance system will reduce people's alleged dependence on government assistance and foster an independent, competitive spirit. These transformations will require a partnership between government, business, labour, the academic world and community groups.[2]

The rationale put forward for this revolution in the Province's socio-economic life is the emergence of the New World Order. Since the so-called "collapse of communism" in 1989, the world has divided into highly-competitive multinational trading blocs; there has been a shift from labour-intensive to knowledge-intensive industries, especially in parts of the third world, giving rise to new technologies and uses of human resources.[3]

Given this picture of the world in the 1990s, economic salvation for Newfoundland (and indeed for Canada) lies, it is argued, in the creation of a positive

economic and social climate, in which the private sector of the economy -- seen as "the engine of growth" and to be armed with a "competitive edge" -- can respond to new opportunities in the global market place. To achieve this goal, education will be subordinated to the immediate demands of production. The workforce must be educated, or trained, to become more skilled, adaptable and flexible, and the whole educational system imbued with the spirit of entrepreneurship as the means to the formation of an "enterprise culture."[4]

A Royal Commission on Education, entitled **Our Children Our Future**, the Report of which was issued almost simultaneously with **Change and Challenge**, also embodied, to some extent, similar ideological positions. A section on "Changing Economic Conditions" reiterated much of the rationale of the New Economy, and the Commission advocated new forms of education, linked to the economy and providing skills by which students could function in the global market place.[5] **Our Children Our Future**, however, did not abandon humanist aims and content, and devoted much space to the denominational system, for which a cautious rationalization was suggested.

Although **Change and Challenge** looked to the future, its ideological content and many of its proposals can be traced to a document of the mid 1980s: The Report of the Royal Commission on Employment and Unemployment, entitled **Building on Our Strengths**, issued with an Education Report entitled **Education for Self-Reliance**. The occasion for the Commission was undoubtedly the significant rise in unemployment during the previous decade - from 13.0% in 1974 to 21.3% in 1985; if "discouraged workers" were included, the rate had reached 26.3% by 1985.[6] Despite the focus on employment, the Report of the Commission was a thorough and detailed investigation of the whole socio-economic landscape of the province. It began with the premise that there was "something fundamentally wrong" in Newfoundland -- too much poverty, unemployment and dependence on government, too little initiative and too little education, and an overall feeling of pessimism about economic prospects. The way forward from this depressing situation was to put aside any idea of a return to a "mythical past" of independent, subsistence-based fishing outports, or to "lost industrial dreams", and boldly go forward into "a post-industrial society."[7]

Its main characteristics would be computerization, modern transport and communication systems, and a vibrant service sector, which would revitalise the rural communities. Education would function as a process of upgrading "human capital" rather than a means of training people for specific jobs. Training would be scientific, entrepreneurial, generic and flexible and, together with a reform of unemployment insurance to eliminate the "psychology of dependency", would generate "a new kind of self-reliance appropriate to the post-industrial age."[8]

The proposals sounded both exciting and new, without wholly repudiating Newfoundland's social and cultural traditions. Nevertheless, the Report's ideological origins are to be found in earlier decades and in another country -- in the human capital theories and the New Right ideology of the USA.

The New Right, largely identified with Reaganism in America and Thatcherism in Britain, embraces three intertwined ideological strands - neo-conservatism, economic liberalism and moral traditionalism, stemming from the interests of international corporations, big business and their political associates and apologists. Very broadly, adherents of the New Right seek to reduce or eliminate governmental and democratic restraints on corporate activities, to develop a free market for entrepreneurial talent and to oppose all restrictions -- e.g. regulations, high taxes, all forms of government welfare,

minimum wages, publicly-owned enterprises, union restrictions -- which threaten wealth creation by business; the moral traditionalist wing stresses family values, moral restraint and the like, and opposes all forms of "permissiveness."[9]

Intertwined with New Right thinking is the theory of human capital, which arose in the USA in the 1960s as an explanation of the post-war surge in the American economy. The theory assumes that the amount of a country's general education, together with the production of knowledge, makes a significant contribution to national economic growth. Education is thus seen as investment rather than consumption, and an essential element in economic productivity; human beings must become "income-producing agents of the economy", and the curriculum needs to be restructured along scientific-technological lines to create the most effectively productive workforce. The mis-called "educational reform movement", buttressed by corporate-academic organisations, has utilised human capital theory in an attempt to gain for the U.S.A. a "competitive edge" in the global market place.[10]

As in the U.S.A., so in Canada. A proliferation of government-corporate-academic institutions and think tanks has disseminated various aspects of New Right ideology. In the early `90s The Steering Group on Prosperity published **Inventing Our Future**, The Information Technology Association **A Knowledge-Based Canada: The New National Dream**, and the Corporate - Higher Education Forum **Learning Goals for K-12 Education**. The general aim of these, and other, documents is to transform the educational system in order to capture Canada's "share" of the global economy. Stronger links between school and the workplace, employer - led training in a variety of skills, the use of computers and information technology in learning, the measurement of school performance by "indicators", are some of the necessary ingredients of the new education. The hoped-for product will be a compliant workforce (i.e. with "positive attitudes, behaviour and values"), possessing generalised ability in a variety of skills.[11]

Change and Challenge can thus be understood as an attempt -- an almost desperate attempt -- to overcome Newfoundland's problems on the basis of New Right ideology. And, as the document recognises, these problems are serious: average earned income only 60% of the Canadian level, Gross Domestic Product about the same and an unemployment rate 210% higher than that of Canada as whole.[12] But if the problems are peculiar to Newfoundland, the ideological underpinning of the strategy for recovery is derived from sources alien to Newfoundland's cultural and educational traditions, and represents a sharp break with the aims and objects of education that have developed in the island since the first public elementary Education Act of 1836. Moral-religious in the nineteenth century, these aims shaded into liberal-humanism in the early twentieth. In fact, whether we look at the Commission on the Curriculum of 1934, with its insistence on education for its own sake rather than for utilitarian purposes, at statements of educators in the later 1930s, or at the numerous reports and commissions of the Confederation era,[13] we find an insistence on education as a means to the fullest development of the individual in order fully to participate in society.

The Smallwood government gave an official stamp to this tradition in 1959 with the publication of **The Aims of Public Education for Newfoundland**. Although they have been criticised for the assertion that individual development could be achieved only in "a Christian democratic society", nevertheless they stressed the liberal-humanist aims of individual development, the inculcation of moral values, critical thinking, appreciation of the human heritage, and social responsibility. Nowhere was there any linking of education to the demands of the economy or governmental imperatives.[14] The

pamphlet was reprinted in 1964, 1965 and 1984, shortly after which last date its contents were promptly criticised in **Education for Self-Reliance** for their lack of objectives which would further pupils' understanding of economic development or their ability to take part in it.[15] In 1993, members of the Board of the Advisory Council on the Economy expressed themselves "astounded" that the government had not repudiated the wording of the **Aims**.[16]

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The mid-`80s can thus be seen as a turning-point, when official thinking on education forsook the liberal-humanist path of the previous century and a half and plunged into the chilly waters of utility, technology and entrepreneurship. The reasons for this change are complex and not entirely clear, but part of the explanation probably lies in the perception of the growing socio-economic crisis, and the appeal of the readily-available ideology -- and seeming panacea -- of the New Right to the urbanised, educated and more sophisticated and "Canadianised" intellectual elite that had been the chief beneficiary of Confederation. There was no other innovative policy at hand, and entrepreneurship in the global market place appeared to some to be an attractive option.

Particularly, perhaps, to certain sectional interests. "In a capitalist society such as Newfoundland," **Building On Our Strengths** informs us, "the business sector, both small and large, is generally the main well-spring of entrepreneurship."[17] Events of recent years bear this out. The Newfoundland business sector, as represented by the Board of Trade in St. John's, the business centre of the Province, has developed aggressive policies on entrepreneurship as part of an agenda that has close ties to human capital theory and New Right positions. The Board, moreover, has direct influence on government by means of annual meetings with cabinet ministers to present pre-budget and general policy briefs, special meetings with cabinet committees, luncheon meetings with the Premier, and so on.[18] No doubt the government is closely in touch with and takes note of the policies of many special interest groups, but the similarity of Board of Trade positions to government policy is remarkable. The Board, in fact, frequently asserts that the government is "listening to the business community" and that its concerns are "actively addressed" by the administration.[19]

The Board of Trade, in addition to promulgating policies which might be expected of business -- reduction of profit-eroding taxes, privatization, a "tougher stance" on labour relations, the creation of an "enterprise culture", and so on[20] -- also devotes a large share of attention to education which, it states, "has become a key concern... in recent years."[21] Basically, the Board views the education system as critical to the diversification of the economy, but insists that it become more responsive to "the skill requirements of the business community", and able to meet "the future demands of the marketplace."[22]   As "skilled human capital" will ultimately fuel economic development, the Province needs "a more highly-skilled, better-educated and more flexible workforce" (familiar words!) willing to accept further education and training. To these ends the curriculum must emphasize science, mathematics, computer services, business courses and the creation of an entrepreneurial spirit, with upgrading of teachers in these areas. Above all, the system must be "publicly accountable in terms of its efficiency and cost-effectiveness"; as part of this objective, the denominational system should be rationalised.[23]

It will readily be seen that **Change and Challenge** and the **Royal Commission on Education** embody many of these policy directives on education and the economy (and not a little of their wording), as the Board of Trade has noted.[24] Only on the issue

of facing up to the Churches over the reconstruction of the denominational system does the government appear to be dragging its feet. Otherwise the proposals in **Change and Challenge** are being implemented as far as economic conditions allow, even if the status report of January 1994, **Meeting the Challenge**, gives the impression that more recommendations are "in progress" or "under study" than actually completed.

Educational priorities in **Meeting the Challenge** include the establishment of a Royal Commission Implementation Secretariat (to report in June 1995) and the elaboration of a series of "performance indicators" (of a kind that provoked a furore among British teachers) to collect and report information on school students at several key stages in their education, and linked to national and international monitoring. In addition, criterion- referenced tests in six core curriculum subjects, plus a school-profiling system, are in process of development, plus plans to give a sharper focus to science, technology, computer linkages, enterprise and co-operative education in schools.[25]

If many government initiatives are in the planning stage, the Board of Trade has, since the early 1990s, operated a wide network of projects focused on schools. A Career Development and Training Directorship (founded 1991) has helped found an Initiative Project, which in turn has developed a Speakers Bureau Program and a Job Shadowing Program, plus a Career Directory, all aimed at school students. In addition, the Board has co-ordinated a Business-Education Partnership between Northern Telecom and Bishops College, hosted career sessions with schools, presented a Career Information Partnership Committee Conference, sponsored business speakers at colleges, and so on.[26] **Creating an Enterprise Culture** (1992), a brightly-written school text by three teachers (with "information and support" from officials of the Economic Council of Newfoundland and Labrador, the Economic Recovery Commission and Enterprise Newfoundland and Labrador) has taken the enterprise gospel into the classroom,[27] which is rapidly becoming the site of business training. Between 1991/92 and 1993/94, the proportion of senior high school students participating in enterprise or entrepreneurship courses rose from 3.4% to 18.1%; in the same period the number of schools participating in cooperative education (i.e. courses linked to business and industry) increased from 14 to 51.[28]

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At this point several questions present themselves. First, is the type of education envisaged for the New Economy desirable? More "training" than "education", it inevitably appears as aridly one-sided and "non-human" -- scientific, mathematical, technological, computer-based, machine-oriented.   We search government and business literature in vain for any conception of a balanced curriculum or a place for the humanities in the new education. Students are viewed less as human beings with creative abilities and potentialities than as future productive units in the economic process, with roles and functions circumscribed by the imperatives of the market. Whatever the level of skill the workforce of the new economy may reach (and this is unclear) will bright, ambitious young people be attracted to a life as "information processors" and the like, liable to have to change jobs and locations -- in other words be "flexible" -- at the behest of market-driven business? Training and employment in the New Economy may well not prove to be quite as stark as this, but this is the manner in which they are currently being presented.

Before opting for this future, would it not be wiser to review the possibilities inherent in existing, basically liberal-humanist forms of education before it is too late?

Probably the last full elaboration of the aims and content of this type of education was made in 1979, by the authors of **The Task Force on Education**, to whom it was "self-evident" that the fundamental goal of education was "to help each person to achieve his fullest development both as an individual and as a member of society." A set of "guiding principles for education in Newfoundland" included the development of the intellectual, social-cultural, moral-religions and physical attributes of all individuals, geared to the unique characteristics and traditions of the Province.[29] Fully implemented, these goals would undoubtedly develop the diverse potentialities of human beings, producing intelligent, well-rounded, critical and socially-aware citizens, not only a desirable object in itself but also productive of a reservoir of talent able to meet the demands of any form of society.

Second, allowing for the sake of argument the success of the **Change and Challenge** strategy, can the proliferation of (mainly small) businesses generate sufficient wealth and employment to solve the crisis? Will concentration on non-productive technological developments -- computerization, "infomatics", STEM-Net, knowledge processing, the information highway and the rest, create wealth or merely circulate it? Will the subordinate position of the basic industries in the "new economy" -- the "flagship" economic departments are now Industry, Trade and Technology and Tourism and Culture[30] -- prove a mistaken strategy? The prognosis is not good; for the Strategic Economic Plan to succeed over the medium term (5-10 years), the Provincial Gross Domestic Product will have to grow between 4.4% and 12.3% a year to reach the Canadian average.[31] The actual growth rates for 1993, 1994 and 1995 (estimated) are 0.0%, 1.5% and 1.0% respectively.[32]

Third, are the projections and expectations of the New Economy as soundly based as their proponents would have us believe? Recently, social scientists have questioned the basic belief of the corporate agenda -- that "competitiveness" is the cure for a country's economic ills, i.e., on the analogy of competing corporations, if we can invade another country's domestic market all our economic problems will be solved. However, unlike large corporations, it is argued, countries do not go out of business if they fail to win markets; in fact competing countries can still form one another's export market, and in any case most of a country's output is for domestic use, rather than a means of breaking into a foreign market.[33]

Privatization has been shown to concentrate wealth in the already rich; economic improvements and the "trickle down" effect have proved elusive, and security of employment and levels of training have tended to deteriorate.[34] Currently existing labour market "flexibility" more often than not has proved to be a synonym for "insecurity", conspicuously in the U.S.A., accompanied by a fall in real wages.[35] The information highway, even in its early stages, is showing signs of becoming a channel for sleaze, gossip and racist ideas.[36]

Even some of the cherished arguments of New Right educational apologists are proving difficult to sustain -- namely that the higher the level of education, the greater the chance of personal prosperity, coupled with the prediction that skilled computer operatives will stand the best chance of employment in the short or medium term. But a recent study has shown that the proportion of well-educated poor in Canada doubled from 14% to 29% between 1981 and 1991.[37] Employment predictions for the period 1990-2005 hardly bear out the thesis that the market is open for highly skilled and/or computer-based jobs; the greatest demand will be for retail salespersons, nurses, cashiers, clerks, truck drivers, managers, janitors and cleaners, nursing aides, food-counter workers, and waiters.[38] Nor is the computer world per se proving a major

source of new employment; only 17% of new jobs in Canada in 1994 were in computing industries, as against 50% in manufacturing and construction.[39]

In short, the case for the New Economy, equally for the new education that would be part of it, seems to be highly problematic. Few would deny that the Newfoundland economy is in dire straits, not to mention that of Canada, and many would argue for a thorough revitalization of the education system. But are the nostrums of self-serving interest groups, even those with the ear of the government, necessarily those to be adopted? Particularly when a good part of their case rests upon supposed attitudinal defects in the population and alleged archaic ideals in the education system as the causes of economic decline, rather than on possible structural flaws in the system or mistaken policies of administrations.

It is an essential element of the democratic process that governmental policies be debated, analysed, and subject to rational criticism. Never was this more true than of the educational and economic policies currently adopted by the present administration. Students, teachers, educators and administrators should now address themselves to this important task.

ENDNOTES

1. Economic Recovery Commission, *At the Crossroads: The New Economy in Newfoundland and Labrador* (St. John's, March 1994), Fig. 1, p. 5.

2. *Change and Challenge: A Strategic Economic Plan for Newfoundland and Labrador* (St. John's, June 1992), *passim*.

3. *Change and Challenge*, pp. 3-4.

4. *Change and Challenge*, pp. 23-8.

5. *Our Children Our Future: Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education* (St. John's, March 1992), xv; pp. 31-3.

6. *Building on Our Strengths: Report of the Royal Commission on Employment and Unemployment* (St. John's 1986), Table 3.1, p. 57; Table 3.12, p. 75. "Discouraged workers" are defined as persons not in the labour force who sought work in the last six months but are not now looking for work for market-related reasons.

7. *Building On Our Strengths*, p. 18 ff.

8. *Education for Self-Reliance: Education Report of the Royal Commission on Employment and Unemployment* (St. John's, 1986), pp. 1-20, *passim*; *Building On Our Strengths*, p. 19; p. 279.

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13. *Report of the Commission of Enquiry into the Present Curriculum of the Colleges and Schools in Newfoundland*. (St. John's 1934); Newfoundland Teachers' Association: *Addresses Broadcast During Education Week, March 4-6, 1936* (St. John's 1936); *A Report of the Conference on Education Held November 3rd-7th, 1958* (St. John's 1958).

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15. *Education for Self-Reliance*, p. 26.

16. *Evening Telegram*, 6 July 1993.

17. *Building On Our Strengths*, p. 32.

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19. *Business News*, February 1990; January 1991; July 1992.

20. E.g. *Business News*, January 1991; June 1993.

21. *Business News*, March 1991.

22. *Business News*, February 1990; March 1991.

23. *Business News*, September 1990; March 1991; May 1993; January 1994.

24. *Business News*, June 1992.

25. *Meeting the Challenge: Status Report on the Implementation of the Strategic Economic Plan* (St. John's, January 1994), pp. 15-20.

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30. *Meeting the Challenge*, p. 1.

31. *Change and Challenge*, p. 9.

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33. Peter C. Newman, "The Myth of the Competitiveness Cure", *Maclean's*, 4 April 1994; Paul Krugman, "Competitiveness: A Dangerous Obsession", *Foreign Affairs*, Vol. 73, No. 2, 1994.

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37.   *Globe and Mail*, 22 September 1994.

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GLOBALIZATION: SOME IMPLICATIONS FOR EDUCATORS

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Today, when discussing educational and schooling issues, it is not uncommon to include references to the world of corporate business. This occurs in spite of vast differences and because of common factors that exist between the two. The corporate and schooling worlds, in their more specific elements, are vastly different.

These differences exist both in their intent and in their content. For example, schools are not usually regarded as small or large businesses. They do not exist for 'profit', that is, in the corporate sense of the word. Corporations deal with commodities, such as microchips, which are mass produced and over which corporations exercise absolute control. Schools on the other hand deal with persons, and more specifically, persons as learners. Learning is processed through developing human persons over which schools exercise only a modicum of control and which cannot be mass produced. Learning is not produced in the 'production' sense of the word.

Indeed learning, which is the raison d'etre of schooling, is only cultivated and processed over long periods of time and only through interaction with human subject. Microchips on the other hand are produced very quickly and are completely devoid of interaction.

However, given the above differences in the two worlds of business and schooling they do share one common bond, namely, a common socio/cultural/economic place in society. That is to say, they are both heavily influenced, and to a large extent controlled by, the socio/cultural/economic milieu in which they exist. One of the specific forces operating within the socio-economic-cultural milieu today and impacting very heavily on education and corporations is the rapid development and growth of Globalization.

The term globalization, now a household word, has been described by corporate researchers such as Ohmae (1989), and educational writers such as Hargreaves (1994), as instant access to information about ideas, goods and services from all over the globe. This access to information is not limited to the network of electronic communications such as computer, internet or the visual/audio/print messages of television, but to actual physical interconnectedness as well. One only has to travel to places like Canada, China, Israel, Japan, Australia, Russia, Thailand, Hong Kong, the United States, Indonesia, etc., and observe the masses of people from various countries visiting and interacting with one another. We know for example that some ten million Japanese travel outside their country every year. Easy access to previously inaccessible continents brought on by swift and affordable jet travel, coupled with knowledge attained through television etc. has made such intercontinental visitation a reality for people who some twenty years ago thought it impossible. Some years ago the growing intercommunication network around the earth led people to refer to the earth as The Shrinking Globe. Today, thanks to the accelerated growth in the communication field and the fast pace in the development of telecommunications and transportation, we no longer refer to the earth as the "shrinking globe". People today are citizens of the world and are actually living in, and experiencing, the 'shrunken' globe. We have been 'globalized' not necessarily by choice but by circumstance.

This easy access to travel, and instant availability of information in particular, has had an immense impact on our youth of today. Youth, who are both the present and future consumers of the educational and corporate worlds, have become people of the globe and citizens of the world. They are the participants and consumers in the globalized world. They are members of the new wave socio-economic milieu which Ohmae (1989) refers to as the ILE or the interlinked economy. The ILE, which, in the main, consists of the USA, Canada, the European Community, and Japan and which will soon incorporate the growing economies of such places as Hong Kong, Taiwan and Singapore, is a powerful entity both from a socio-cultural and socio-economic point of view. The ILE has been created, and continues to grow, based on the need for more liberal trading alliances. Freer trading relations necessarily implies and requires a more closely knit and interconnected socio-cultural relationship. To survive politically and be economically viable, the ILE will need more than just freer trade in the so called economic commodities. It will also need greater socio/cultural/educational and political understanding and interaction (interconnectedness) Ohmae (1989).

To live and indeed to function economically and culturally in this interlinked economy requires a major change, both cognitively and emotionally, in the way people view other cultures. They must learn how to work with other peoples who hold varied and sometimes contradictory values that foster different cultures from their own. This necessitates living with differences, letting go of some held values and adopting and/or adapting to those held by others. This implies not only changing the way they think but more importantly, changing the way they do things. In reality, this means adapting to the changes and developments of the new age world or what has been termed the postmodern society. It is within the context of this postmodern world (era) that globalization and such economic arrangements as the ILE has developed and are seen to flourish.

Postmodernism, which I believe to be inextricably tied to the globalization phenomena, has been defined as an emerging set of social, cultural and economic and educational (my own addition) conditions that have come to characterize the age of global capitalism and industrialism (Aronowitz and Giroux, 1991; Jenks, 1989). Within the context of this Ism, education, not unlike economics, is going through a period of transition and hence change. While change is generally positive it can also sometimes be negative. One of the more negative aspects of this rapid change is the danger of retreat to the past by the weak hearted. An example of this in education can be seen in the strong movement in Britain, Australia and in Canada towards centralisation of education both in policy and curriculum. This is a paradoxical situation. On the one hand the postmodern philosophy with its proposals for globalization and devolution of power and authority calls for decentralisation, whereas these school systems, which had their development during the modernist era, are retreating to centralisation. In many instances this centralisation of power is enshrouded within the postmodern term, empowerment.

Governments, and bureaucrats specifically, centralise the power of educational administration in bureaucratic institutions while at the same time they promote power to parents, for example, in the guise of school councils. However, these councils can be, for the most part, under the direct control of the principal who is under direct control of the bureaucrats. This paradoxical situation weakens the educational system's attempts at globalization and to a large extent renders change neutral. The 'retreating reaction' to change is one of the many fear responses to the reality of globalization and negatively impacts on the development of education.

Another reaction to globalization has been the development of an identity crises within many nations. With the fact of globalization comes the necessity to become equal/sharing partners with peoples of other nations who may have different/cultural/religious/educational values. This mixing and crossover of cultures somehow raises fear in people that they will all become like robotic newts and lose their own specific 'national' characteristics. In other words, it raises the ugly head of Nationalism (for example, the long fight in Northern Ireland over the issue of British/or Irish identity or the often impassioned debate in Canada over French/English identity). This fear of loss of national identity can also be seen in the Islam movement, or among the West Bank Palestinians, who fear losing their identity and being absorbed by the Jewish community and similarly with the Jewish community and so on.

Geographically speaking, we can see that the lines on the map which separate territories are as clear as ever (Ohmae, 1989). However, when it comes to interaction and intercommunication, both from an economic and socio-educational point of view, these boundaries, in most instances, have all but disappeared and in many others they are weakening.

A contributing factor in the demise of (philosophically speaking) geographic boundaries has been the rapid development of technology and the instant availability of information. These developments, however, may not in themselves be the cause of the weakening of the boundaries. It may be simply the inability of governments and bureaucrats to harness and prevent the free flowing characteristic of this information from infiltrating their countries. There is no way to absolutely control this flow. The young person in a remote village in Africa, by the flip of a switch, can become aware of the lifestyle of the person in New York or Toronto. This information is available and packaged electronically and ready for consumption.

Globalization of information is limited only by our unwillingness to mobilise it. In our more nostalgic moments we can be somewhat tolerant of this felt need by governments to retreat and to retain their national identity amidst the pressure brought on by globalization. However, there are ways that nations can preserve their own identity while at the same time embracing the identities of other cultures. It is within the context of these national reactions to postmodern globalization, both by the corporate and schooling worlds, that I believe the crux of living productively or not within the reality of globalization lies. It is here that the process of education becomes, and continues to develop into, an all important force.

There are a number of implications for education within the context of postmodern globalization. The practice of teacher education must be addressed. We have to look at our teacher education institutions, and more specifically, the curriculum they offer. The question we must ask ourselves is, are we offering to potential teachers opportunities for awareness and reflection and personal theoretical development that will help them come to grips with their own cultural belief systems? It is only when we have a deep objective understanding and appreciation of our own culture that we can begin to accept and tolerate the culture of others. This implies a deep understanding of not only the good points in our particular culture but also the negative points as well. A shift away from giving teacher education students a curriculum which is insular, localised and nationalistic is required. A broader curriculum which will take into account more than their own cultural world is needed. Curriculum for teacher education programs in the pre-globalization era was built on the concept of the meta-narrative and positivistic philosophy. It was developed with a belief in scientific certitude and an

adherence to traditional based knowledge. Unquestioning belief in both these institutions has been eroded today.

Moral, religious and personal theories or belief systems are no longer accepted as absolute and constant truths. Today these values are seen as multifaceted, individualistic and flexible. Teacher education in the globalized context has to be based on inquiry and problem solving which is not confined to absolutes within their intra-cultural milieu but which also concerns itself with inter-cultural diversity and likenesses.

Another concern that must be addressed in order for education to become a useful tool in the globalized world is school based curriculum. Similar to the need for broadening the teacher education curriculum, the need also exists for a broader more comprehensive school based curriculum. Education in the globalized society is not only learning about math and science. It is not only learning about another language and culture. It is not only reading about cultural/ethnic differences.

Education in the postmodern globalized society is also about living with and experiencing other ethnic groups and cultures. It ought to challenge the ethnocentricity inherent in the modernist curriculum (Hargreaves, 1994). Like the globalized economy, education should flow freely across all boundaries. The curriculum should indeed retain and foster what is beneficial to its own culture but it also should open up and freely discuss, in an unbiased way, the values/beliefs/norms/rituals etc, which are part of other cultures. It is imperative that young people in the postmodern globalized world reflect on and cultivate their own specific cultures. However, this ought to be seen as only half the learning process. The other half has to do with understanding and actively involving oneself in the culture/customs and life style of other nations. This has to become the norm for preparing young people for life in the reality of postmodern globalization. To survive, that is, to become in Maslows' terms, self actualised, the student of today must be capable of living in a manner that is flexible and adaptive.

Globalization within the postmodern context has been the cause of instability and uncertainty in a world that up to the late 1980's was thought to be stable and certain. It is difficult to let go of old practices. In fact, what has happened in education in many countries is, instead of looking ahead to the challenges of the new globalized world, they have reverted to the old modernist world. This is an example of not being able to change lenses and see the world as it really is and not as we would like it to be. For example, the return to a fixed and certain scientific curriculum may be a safe move for bureaucrats but not necessarily the best move for the students who have to learn and cope with an unsure and uncertain scientific world. Students, like their teachers, need to be trained in the art of experimentation and inquiry. They have to be encouraged to search for new and different discoveries and not be saddled with a rehash of what the modernist discovered and what they (modernists) have deemed to be immutable and certain. To accommodate this sense of searching for knowledge the curriculum in the schools of today must also be based on creativity and inquiry. Students should be made aware that in the globalized world, geographic boundaries for the most part exist only on paper. Jobs in the future are not necessarily going to be available in the factory just down the road. Indeed, the work environment itself in the globalized world is not only different in location but is also different in substance (for example there are few jobs in the manufacturing industry today and in the future). Students must be taught to see the world through different lenses. The lenses of the past gave a picture of a world consisting of small nations operating pretty well independently of each other and whose populations were relatively uninformed and

uneducated. The lenses of today portray the opposite. Nations of today are interdependent and people are more informed and educated. Consequently, they have different expectations and make more demands on their society. The more informed students are about different nations, economies and cultures, the more adaptable they will become in living and working in these diverse and interdependent environments. Canada and Australia have made progress since the 1960s in preparing their youth for a global society through programs of multilingual and bilingual education. However, these programs have been constrained by such factors as the context of state (provincial) and federal involvement in these programs. There has been and is tension between multicultural education and the needs of the state in areas such as equality and economic efficiency and between the provinces in the relationship between bilingualism and national identity and resource allocation.

Students in today's world need to be made aware of the need to protect not only their own environmental space but also that of the total planet. They have to become aware that the protection of the rain forests in Brazil or Australia is as important to them as it is for the people of Australia or Brazil. It is criminal for bureaucrats to try to revert to the modernist world of education and try to hold on to their past while denying young people the opportunity to get to know, understand and experience the postmodern globalized world in which they will have to live and work.

The impact of globalization on curriculum also affects the role of the teacher in classrooms of today. Much time is spent in schools planning and developing specific subjects such as literature, language, mathematics, physics, etc. These are all useful and necessary ventures. However, in a technologically advanced world a lot of information about such topics is readily available through electronic methods.

Hence, we ought to be spending more time with students helping them to become aware of this information and learning how they can access it through the use of the world wide network of telecommunications. There ought to be more time permitted in our curricula for enhancing students' knowledge about the various cultures of the world. Knowledge today is only as limited as our willingness to share it. This is not to imply that technology can replace the teacher. The presence of a qualified teacher in classrooms today is more necessary that ever. However, the role has changed.

The teacher today, because of the proliferation of knowledge and of instant access to it, has to be a facilitator for accessing information and not necessarily be seen as the sole source and giver of knowledge. A narrow single minded source of knowledge aimed at giving all the knowledge that students need to know and protecting them from the so called 'contamination of foreign cultures' is not educationally sufficient in the globalized world. However, it continues to be tried.

Schools that promote this method of educating will only act as short time barriers to the inevitable effects of globalization. If schools fail to acknowledge the need for more open educational practices, then youth will be the victims and they may not turn out to be the positive contributors to society that we intended them to be.

A third element that must become part of our education system in this globalized society is the necessity to provide opportunities for educators from different cultures to meet, interact and exchange ideas. In the past, public servants, such as ministerial employees, have been the recipients of this kind of interaction. It is a known fact that very little of what these bureaucrats observe and learn actually reaches the real

world of learning. Hence their experiences are of little use to the practitioner in the field. It would be more educationally sound if this kind of exchange was more inclusive and more readily available to teachers who teach in schools and university professors who teach and do research at universities. This kind of exchange, although carried out at present, is done on a very limited scale. There is a danger in the present wave of rational economics to limit or indeed eliminate this very worthwhile and educationally needed practice. The rationale for continuing and indeed increasing this interactive process is obvious. As Dewey wrote in the mid thirties, experience is the best teacher. We can learn a great deal about others and their ideas from the modern print (email) and fax machines and from the audio/visual/print input of the television. We can extrapolate some notions of other cultures from these. However, being there and to actually become immersed in and experience the reality of the culture and its various nuances and sub texts, face to face, adds a dimension to our knowledge and understanding that is totally outside that which we get from the so called technical/print interaction. From a university point of view, I would suggest that a process be undertaken to establish on site extension campuses at various universities around the world. Memorial University of Newfoundland in Canada has such a campus. It is situated in the town of Harlow in Essex, England. This facility affords students and professors the opportunity to interact, in a very meaningful way, with professional educators and researchers from various professions within the European Community. We have only scratched the surface with this facility. It has the potential to become not only an international centre for learning but also has the potential to become and indeed, ought to become, multinational in its scope.

In conclusion, there is cause for optimism for the future in a globalized world. Never have we been so advanced, educationally, technologically and socially. However, despite these advances we have been hesitant to take on the challenge of change.

When faced with this challenge, some leaders, in such critical areas as politics, economics and education, have tended to recoil to the comfort of nationalism and traditional fundamentalism. However, therein lies the crux of the problem. They must reflect and analyse their particular contribution or lack of it to this challenge of change. Having done this they must inculcate in youth the common sense to take the winds of change and use them for further advancement and not as signals to retreat to the past. We cannot allow education to become a so called advancement into the past. We must take and reflectively analyse the past, let go what is no longer relevant, preserve and adopt what is relevant, mould and incorporate that into the present, and then advance into the future with revitalised zeal.

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WORLD ENGLISHES, CURRICULUM CHANGE
AND GLOBAL CAREER OPPORTUNITIES

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Introduction

This paper suggests a set of curriculum and pedagogical changes in light of the fact that the English language, in the age of globalization, internationalization and post-Fordism which has touched lives - economically, politically, socially and culturally - has been transformed into world Englishes. Hall (1991, pp. 57-58) describes some of the most salient characteristics of post-Fordism:

> Post-Fordism is a [broad] term, suggesting a whole new epoch distinct from the era of mass production... it covers at least some of the following characteristics: a shift to the new information "technology"; more flexible, decentralized forms of labor process and work organization; decline of the old manufacturing base and the growth of the "sunrise", computer-based industries; the living off or contracting out of functions and services; a great emphasis on choice and product differentiation, on marketing, packaging, and design, on the "targeting" of consumers by lifestyles, taste, and culture rather than by the categories of social class; a decline in the proportion of the skilled, male manual working class, the rise of the service and white-collar classes and the "feminization" of the work force; an economy dominated by the multinationals, with their new international division of labor and their greater autonomy from nation-state control; and the "globalization" of the new financial markets, linked by the communications revolution.

The culture of the market (Haskell and Teichgraber III, 1993) also has been instrumental in this shifting of English to world Englishes. In this context English has become the most dominant international language. We need to fully understand the scope of this shift for the educational change process. Before commenting on the scope of this shift, however, I make certain observations and suggestions pertaining to the educational changes taking place in this province and elsewhere.

First, the education of future teachers should be broadened so that those who aspire to be teachers are enabled to function as "cultural workers". In recent discourse on teacher education in this province too much emphasis has been given to the professional training of future teachers in a narrow sense. The moot question is: should we simply train future teachers or educate them? This question has not been adequately and publicly discussed in this province. It has not been a major issue in recent rethinking (Cherryholmes, 1988) regarding educational change in this province. Implicitly, the notion of professionalism has become central to the reorganization of the educational system, including teacher education. We have just begun to observe the restrictive impact of a professionalization model on the offering of curriculum and program designs in the area of teacher education. For example, one consequence of professionalization has been that courses offered to students have become too shallow and stream lined - devoid of any historical, political, cultural and social discussions. A

curriculum which is narrowly designed has a tendency to exclude material which has global significance. If the curriculum design follows a narrow professionalism frame (e.g., too much emphasis on science, computer and similar courses), it is more likely that a notion such as world Englishes would be excluded from it. Consequently, students would not have opportunity to function as educators by adopting the role of the cultural worker.

As cultural workers, educators are prepared not only to posses skills required to carry on their responsibilities as teachers in classrooms (e.g., skills involving lesson planning, effective communication, classroom management, evaluation and testing, use of time, and alike), but also to function in ways that would transform or reform their classrooms, schools and communities in the spirit of democracy and democratic living. This means making their classrooms, schools and communities at least more just, fair and open for all stakeholders regardless of their gender, race, class and life styles. Cultural workers are thus committed to expanding the public sphere through pedagogical practices. Fraser (1994, p. 75) states:

> The idea of `the public sphere' in Habermas' sense is a conceptual resource... It designates a theatre in modern societies in which political participation is enacted through the medium of talk. It is the space in which citizens deliberate about their common affairs, hence, an institutionalized arena of discursive interaction. This arena is conceptually distinct from the state; it is a site for the production and circulation of discourses that can in principle be critical of the state. The public sphere in Habermas' sense is also conceptually distinct from the official economy; it is not an arena of market relations but rather one of discursive relations, a theatre for debating and deliberating rather than for buying and selling. Thus, this concept of the public sphere permits us to keep in view the distinctions between the state apparatuses, economic markets, and democratic associations, distinctions that are essential to democratic theory.

Giroux in his writings asserts that critical and reflective educators should function as public intellectuals at sites which provide them openings and safe spaces for trying out new pedagogical practices. Educators like other cultural workers such as lawyers, social workers, architects, medical professionals, theologians, and writers, should rethink and discuss the purpose and meaning of education in the new world system. Traditionally, the artists, writers, and media producers have been seen as cultural workers. Giroux (1993) extends the concept and practice of cultural work by including educators and other professionals and by emphasizing the primacy of the political and the pedagogical. In his words,

> The pedagogical dimension of cultural work refers to the process of creating symbolic representations and the practices within which they are engaged. This includes a particular concern with the analysis of textual, aural, and visual representation and how such representations are organized and regulated within particular institutional arrangements. It also addresses how various people engage such representations in the practice of analysis and comprehension (p. 5).

Further, Giroux says:

The political dimension of cultural work informs this process through a project whose intent is to mobilize knowledge and desires that may lead to minimizing the degree of oppression in people's lives. What is at stake is a political imagery that extends the possibilities for creating new public spheres in which the principles of equality, liberty, and justice become the primary organizing principles for structuring relationships between self and others (p. 5).

To Giroux (1993, p. 4) pedagogy means rewriting the relationship between theory and practice as a form of cultural practices. Giroux explains:

Pedagogical theory is not a substitute for the particular practices taken up by historically specific subjects who work in concrete, social, political, and cultural contexts. On the contrary, it is a discursive practice, an unfinished language, replete with possibilities, that grows out of particular engagements and dialogues. It offers up new categories, examples, and insights for teachers and others to engage and rethink everything from the purpose and meaning of schooling to the role that educators might play as cultural workers.

The second suggestion follows the above discussion: that the curriculum should make students aware of the existence of the varieties of world Englishes. Kachru (1995, p. 4) suggests, further, that "qualified teachers familiar with other varieties be appointed to teach English."

As we will soon see, the scope of world Englishes is such that it provides a huge market in Asia, North America and other parts of the world. Any curriculum offered to students should not only open new opportunities for them to learn the subjects taught but also enable young people to pursue their career in the global market system effectively and as cultural workers. Therefore, world Englishes should become an integral part of their career development programs. World English can be seen as a site where educators can function as cultural workers (Singh, 1996). A site is a contested terrain where, according to Simon (1994, p. 128), "the past is traversed by completing and contradictory constructions." Further, be suggests that "cultural workers intending to initiate pedagogies of historical reformation need an understanding of topography on which these struggles are taking place." To struggle as a site means taking into account the specificity of the particular content in which one is located in relationship to others.

From English to World Englishes

Chicago Tribune (March 24, 1995: Section 1, p. 4) reports some concerns of Prince Charles, the heir to the British throne. Speaking at the reception organized by the British Council, an organization which takes pride in maintaining tradition and preserving the national heritage, the Prince attacked American English by saying it was "very corrupting", that "proper English" was the correct version and that it should be the world's preferred means of communication. He explained that overseas adopters of the language are bent to "invent all sorts of new nouns and verbs and make words that shouldn't be". The Prince said, "I think we have to be a bit careful... Otherwise, the whole thing gets rather a mess." He further contested that, "we must act now to ensure that English... and that, to my way of thinking, means English. English... maintains its position as the world language well into the next century."

The use of English in various international situations, such as in education, in business, in tourism, in personal interaction, and in literary creativity, has no doubt become an international custom. As the Prince pointed out, more than 700 million people worldwide use English as a first or second language. He also noted that four-fifths of electronic information is stored in English.

The globalization and internationalization of our life, and the expansion of the culture of the market, has created "the hegemony of English" in the minds of certain people. Accordingly, some people assert that the use of English has caused problems of linguistic discrimination, cultural imperialism and colonialization of consciousness (Tsuda, 1993, 1994, 1994a). On the other hand, in this broad historical context English itself has been transformed into "Englishes" or "world Englishes".

Kachru (1994, p. 2), one of the leading figures in the field of world Englishes, explains that the cross-cultural function of English has greatly expanded in many spheres of life and

> That has given English an unprecedented status as a global and cross-cultural code of communication... It is for this power that English is presented as an Aladdin's lamp for opening the doors to cultural and religious `enlightenment', as the `language for all seasons,' a `universal language,' a language with no national or regional frontiers and the language on which the sun never sets.

The evidence that English has acquired such a status in the world has been documented by Bailey and Görlach (1992); Kachru (1982) [1992], and 1986 [1990]; and McArthur (1992).

Kachru (1994, p. 3) says that the change from English to world Englishes has taken place both in form and function:

> Now, at least in some circles, the use of the term `English literature' is considered rather restricted and monocultural. Instead, the term `English literatures' is steadily gaining acceptance... and the term `Englishes' or `world Englishes' does not raise everybrows in every circle.

Kachru (1994, p. 1-2) further explains:

> The concept `world Englishes' demands that we begin with a distinction between English as a medium and English as a repertoire of cultural pluralism; one refers to the form of language, and the other to its function, its content. It is the medium that is designed and organized for multiple cultural - or cross-cultural conventions. It is in this sense that one understands the concepts `global', `pluralistic', and `multi-canons' with reference to the forms and functions of world Englishes. What we share as members of the international English-using speech community is the medium, that is, the vehicle for the transmission of the English language. The medium per se, however, has no constraints on what message - cultural or social - we transmit through it. And English is a paradigm example of medium in this sense.

> When we call English a global medium, it means that those who use English across cultures have a shared code of communication. And the result of this shared competence is that, in spite of various types of cultural differences, we believe that we communicate with each other - one user of English with another, a Nigerian with an Indian, a Japanese with a German, and a Singaporean with an American. It is in this broad sense of interlocutors that we have one language and many voices."

The Shift and Conflicts

This shift in terminology i.e., from English to Englishes or world Englishes - has been full of conflicts. In Kachru's (1994, p. 3) words, "this terminological feud is not innocent; it is loaded with ideologies, economic interests, and strategies for power."

Language has always been a fundamental site of struggle for social, cultural, political and economic control because all these processes begin in language. There are several discourses on this issue. I will touch only upon a few due to the limitation of space.

Let me start by referring to the English only movement in the United States. After the Quebec referendum, Morris wrote in The Evening Telegram that "a movement to make English the official language of the U.S. government is gaining momentum on Capital Hill, buoyed by lingering fears stirred by the Quebec referendum." (November 7, 1995, p. 7). "There are at least four bills pending in the U.S. Congress that aims to make English the official language," Morris reported (p. 7). He said that "other bills would go further, eliminating bilingual education and multilingual publications and making English the only language for citizenship ceremonies and election ballots." (p. 7). In an article in The Evening Telegram (November 2, 1995, p . 37) Morris reported that "opponents say the language bills are driven by racism and the urge to discourage immigration to the United States." He said, "supporters claim an English-first law would help unify the nation, making it clear to everyone that if they want to pursue the American dream, they must speak English." (p. 37). "Supporters also say they're driven by fear - fear of discord, internal isolation - and fear of the Canadian predicament," Morris reported (p. 37). Morris also noted that "there are 323 languages spoken in the United States." (The Evening Telegram, November 7, 1995, p. 37).

Secondly I will examine the idea of post-colonial discourse. Ashcroft, Griffiths and Tiffin (1995, p. 283) state

> Language is a fundamental site of struggle for post-colonial discourse because the colonial process itself begins in language. The control over language by the imperial centre - whether achieved by displacing native languages, by installing itself as a `standard' against other variants which are constituted as `impurities', or by planting the language of empire in a new place - remains the most potent instrument of cultural control. Language provides the term by which reality may be constituted; it provides the names by which the world may be `known'. Its system of values - its suppositions, its geography, its concepts of history, of difference, its myriad gradations of distinction - becomes the system upon which social, economic and political discourses are grounded."

Many writers in Asia, Africa and the Caribbeans use the English language for divergent reasons. These writers "have a common heritage of colonialism and post-colonialism, a common heritage of multilingualism and multiculturalism, a common heritage of displacement and migration." (Jussawalla and Wasenbrock, 1992, p. 14). Many of these writers have expressed their views involving English language use and these opinions have been documented by Jussawalla and Wasenbrock (1992). For example, many writers in Africa who use the English language show confidence that English can be instrumental in resisting the process of imperialism, and in India its use has provided a neutral vehicle for communication between rival language groups (Ashcroft, Griffiths & Tiffin, 1995, p. 284).

There are many other discourses on the language issue which make conflicting demands on educators as cultural workers. For example, Grossberg (1994, p. 10, in Giroux and McLaren, 1994) points out that education as a field in the United States and elsewhere has been caught in conflicting demands:

> Between the conflicting demands and critiques are two opposed discourses. On the one side, there is a discourse of multiculturalism and liberation which calls for a democratic culture based on an acceptance of social difference and which is usually predicated on a theory of identity and representation. On the other side, there is a discourse of conservatism based on canonical notions of general education and a desire to impose what it cannot justify - the existence of an illusory common culture.

Another related discourse is on the clash between the western and non-western civilizations (Huntington, 1993). Newt Gingrich, speaker of the U.S. House of Representatives had this to say:

> You watch the vote in Quebec and ask yourself, how far down that road do you want to go before it scares you enough? And you have to be one civilization or this country won't make it (Reported by Morris in The Evening Telegram, November 7, 1995, p. 7).

Yet there is another discourse which links the problems of a multicultural workforce and multicultural consumers with the interest of global/transnational/multinational corporations in global popular culture. Global corporations are interested in global programming to sell their products to multicultural consumers through advertising. A multicultural population is seen as presenting a dilemma for both the transnational corporations and the nationalists. The question is which culture should be reproduced - the global culture or the national culture? Here, there are many conflicting discourses. In the United States, Allan Bloom (1987) argues for maintaining western cultural tradition and Hirsch (1988) argues for cultural literacy based on western tradition to maintain national unity. In contrast, groups dominated by European-American white cultures argue for multiculturalism, multicultural education and Afrocentricity. For these discourses, see Giroux (1993), Giroux and McLaren (1994), Giroux (1991), Giroux (1994), and Spring (1994).

Kachru (1994) presents discourse surrounding English as a pluralistic language and discusses the three themes - cross-cultural communication, global interdependence and educational linguistics - the themes that are closely related to the world Englishes. In all these discourses, world Englishes play an important role directly and indirectly.

The Scope of World Englishes

It should be realized that there now exists a huge amount of professional and research material in this area (Smith & Nelson, 1985; Smith, 1981, 1987). The field has its own journal, World Englishes, and there are local, regional, national and international associations which deal with the phenomenon of world Englishes. These associations systematically organize seminars, meetings and conferences all over the world. The second International Conference of the International Association for World Englishes (IAWE) was held in Nagoya, Japan, in May 1995.

Kachru (1985, 1992) discusses in detail the three concentric circles of Englishes (see Figure 1).

Kachru (1995, p. 1) also provides a current profile of English in Asia and enumerates the following major points:

- That Asia comprises the largest English using population in three distinct contexts of use as a first language (e.g., in Australia, New Zealand), as an institutionalized additional language in multilingual context (e.g., in India, Malaysia, Singapore, the Philippines), and as a foreign language (e.g. in Tiwan, Korea);

- That in the Outer Circle India has over 40 million users of the language making it the third largest English using country after the USA and the United Kingdom;

- That in the Expanding Circle China has almost 200 million EFL users with varying competence in the language, approximating numerically the users of English in the US A;

THREE CONCENTRIC CIRCLES OF ENGLISHES

(Discussed in detail in Kachru 1985 and 1992, ed.)

The Expanding Circles e.g.,

China
Isreal
Saudi
Areabia
Taiwan

Caribean Countries
Japan
SouthAfrica
CIS

Egypt
Korea
South America
Zimbabwe

Indonesia
Nepal

The Outer Circle

Bangladesh Ghaha   India
Kenya   Malaysia Nigeria
Pakista   Philippines Singapore
Sri anka   Tanzania Zambia

The Inner Circle

USA   UK   Canada
Australia   New Zealand
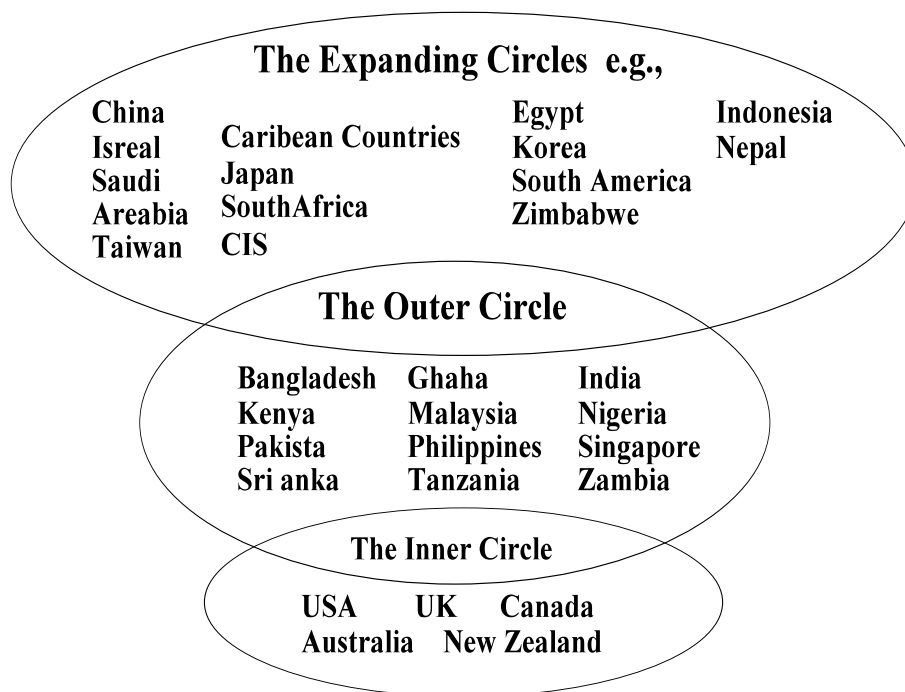
- That the initiative in planning, administration, and funding for the increasing bilingualism in English in Asia is essentially in the hands of the Asians;

- That there is extensive creativity in different literary genres with various types of experimentation and innovation in English as medium and in the messages that the language conveys; and

- That almost every major town in Asia has a newspaper in English and a local radio station transmitting news in English.

Let us not forget the importance of economic trade with Asian countries. Recently this fact was highlighted by Team Canada's visit to the Asian countries led by Prime Minister Chretien. Billions of dollars are involved.

Conclusion

The current profile of the English using population in Asia, Africa, North America, Europe and elsewhere generates a huge industry. As suggested in the beginning, the transformation of English language into world Englishes needs to be recognized for pragmatic reasons. Every effort should be made to equip people, especially the young people, with those abilities, skills, qualifications and attitudes which would enable them to participate successfully in this industry.

Obviously, this industry seems to provide ample opportunities for young people to make the transition from school to the world of work, locally and globally.

In the area of teaching, the demand for Englishes has never been greater in all parts of the world. East Asia alone constitutes the most dynamic economies in the world and teaching and non-teaching jobs are available in that part of the world (Wharton, 1992).

Kachru (1995, p. 4-5) suggests several strategies to readjust attitudes and approaches to world Englishes. These strategies should be used to redesign curriculum offered to students at various stages of their schooling. In this frame English should be seen in terms of

- One medium and pluralistic canons: Consider the medium as a repertoire of canons and develop a pluralistic vision for English - the vision of world Englishes;

- Repertoire of ESPs and genres: Reject the extreme version of English for special purposes (ESP), and provide exposure to regional ESPs and genres of English (See Kachru 1988);

- Acculturated communicative strategies: Expand the concept of cross-cultural discourse strategies and speech acts, not restricting these to the outer circle;

- Unidirectional culture induction: Use the medium to articulate local cultures, and do not restrict it as a resource for one-way cultural induction; and

- Multilingual's creativity: Teach English within the paradigms of multilinguals' creativity in order to make multilinguals' creativity meaningful at various levels, contextual, sociolinguistic, pragmatic and linguistic, within the theory and methodology of contact linguistic.

Kachru (1995, p. 4) suggest a number of ways to introduce "variety repertoire:"

- That the curriculum include courses to introduce selected varieties of English from the region;

- That text from such varieties be used to illustrate the distinctiveness in acculturation and nativization of a variety;

- That qualified teachers familiar with other varieties be appointed to teach English, for example, Filipinos in Japan, Sri Lankans in Malaysia, Malaysians in the Philippines, and so on, in order to provide `variety exposure' - that is,

of course, the real world of world Englishes. This, indeed, is a very effective strategy to create variety awareness and to develop `tolerance' toward other accents. In other words, one has to overcome the `native speaker' syndrome as it has been inculcated by the `English conversation' approach and such other approaches.

A great deal of work needs to be done in the field of education and in other fields such as tourism, industry, business, communications, advertising and alike, where varieties of English comprise a valuable medium. For example, in the area of education, teacher training/education programs have to be developed. Curriculum would have to be redesigned. Pedagogical resources (e.g., dictionaries/manuals) need to be produced. Textbooks have to be selected and produced. Finally, instruments of testing and evaluation need to be designed, produced and circulated.

All the above areas have potential for providing career opportunities for those whose interest lie in world Englishes and who wish to make the transition from schools to the world of work, locally and globally, in the real world of world Englishes.

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**THE STATE AND EDUCATION IN NEWFOUNDLAND
IN THE AGE OF MARKET GLOBALIZATION**

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Concerns about the Non-Denominational Future

When I returned to St. John's from a sabbatical leave, I was somewhat surprised to see the resurgence of the debate on denominational education. It was the second time in two years that the government had called referendum on the same issue. This time, the question for the purpose of public consultation was bravely set as whether the government should seek the revision of Term 17, the constitutional document governing Newfoundland's schools, to omit clauses protective of denominational rights and privileges in education. The proposed Term 17 read: "The [provincial] Legislature shall have exclusive authority to make laws in relation to education, but shall provide for courses in religion that are not specific to a religious denomination," and allow religious observances "in a school where requested by parents." As in the previous referendum, the people of Newfoundland accorded their government a consent clearly and neatly, if not overwhelmingly. They thus endorsed the policy of education reform which had led their government to call the referendum.

Some of the denominations concerned--the Roman Catholic and Pentecostal churches in particular--express a fear that the referendum result will eventually secularize schools. This fear does not seem to be unfounded. Although I am not sure whether the government intends to make schools godless, one point that is obvious to me is that the proposed Term 17 will place the denominations in an unaccustomed difficult situation in maintaining schools. For the denominations which believe only they are truly godly, this may well be seen as a move to the secularization of schools. But secularization in itself, even if the government pursues it, is not a problem at all educationally speaking. So long as the schools concerned are public schools, the problem rests, rather, with their denominational affiliation, especially the arrangement in which religious denominations operate "public schools" although they are private organizations serving private interests. The government's policy to reform the denominational system of schools is commendable, for it promises to modernize the province's public education.

Saying so, however, does not mean the referendum result guarantees a bright future for Newfoundland's public education. Actually, I have some concerns which are, in my view, far more serious.

Term 17: The Original and the Revised

One of my concerns is related to the fact that education reform is pursued on the basis of a generally taken for granted interpretation of the provisions in the original Term 17. It was the interpretation which has complicated the school system in Newfoundland as well as the strategy for its reform. The two referenda, as well, were called on the basis of the same interpretation. That interpretation is that the original Term 17 stipulates that Newfoundland's public schools are to remain denominational so long as the denominations concerned so wished, and that the provincial government's

education funds are to be dispensed only through the denominations. From this, people often jump to the conclusion that the denominational schools are public schools, that public schools in Newfoundland have to be denominational, and that the only way in which the province can have non-denominational or secular schools is the denominations' voluntary relinquishment of their constitutionally-guaranteed rights and privileges. The state--the provincial government which is by Term 17 the exclusive authority as to schools in the province--is in this interpretation deemed to be unable to do anything about schools unless the denominations consent.

Criticisms of this constitutional document arise mainly from the economic side rather than from the legal side. A familiar example of such criticisms is that the duplication of school facilities and services based on denominational division makes it unavoidable that the poorest province in the nation will waste valuable education dollars. As if to confirm this criticism, comparisons of students' academic performances demonstrate Newfoundland students' ranking well below the national average. It is thus argued that the integration of the denominational systems of schools into a single system will maximize the use values of the province's scarce education funds. Such an argument is too familiar for us to document. Suffice it to point to the Williams report of 1992, which compared the existing denominational system with three possible models of integration to conclude that a non-denominational system was the most cost-efficient.

Newfoundland students' poor academic performance--if that is the case--is clearly a problem. If the poorest province in Canada has to waste money due to the denominational system, that too is a problem. Such problems have got to be solved somehow. And the solution of these problems calls for the establishment of a province-wide system of non-denominational schools. But did it require the revision of the original Term 17?

My previous studies yielded a negative answer. All that the union paper provided for were that the denominations concerned would maintain their schools so long as they so desired, and that the provincial government should not discriminate against any of them in the allocation of its education funds. It did not stipulate that the provincial government shall not have its own schools, non-denominational or secular. Nor did it stipulate that all education funds available for schools shall be allocated to denominational schools only. Despite the protective provisions for the denominations, the provincial government still maintained rights to have its own schools--"public schools" in the proper sense. The available methods for this were two. One was the creation and maintenance of the government's own schools out of its education funds while continuing to offer grants to the denominations perhaps in amounts dramatically reduced but still non-discriminatory, say, from $6,000 to $6 per student. The other was to persuade the rightful and privileged denominations to voluntarily surrender their schools to the public authority.

In fact, Canada's parliamentary proceedings at the time of union reveal this was exactly the way the officials of the Canadian government understood the original Term 17. Answering questions posed by a CCF member of the House of Commons, for instance, Louis St. Laurent, the then Deputy Prime Minister, stated that the Term was not prescribing a denominational system of schools for the new province, nor did it freeze Newfoundland schools in the existing denominational line-up. In protecting certain denominations' rights and privileges in accordance with Newfoundland's request, his government--he made it clear--assumed that there should be in the future non-denominational public schools as "majority" schools. In his understanding, the provisions for protecting denominational rights and privileges and for a share in the

province's education funds had been prepared in the view that such denominations' schools would become "minority" schools similarly to the minority schools in s. 93 of the BNA Act. In his understanding, as well, the denominational schools in the new province would be publicly-funded schools but not necessarily "public schools." After all, Term 17 was not as guilty as many Newfoundlanders believed for the troublesome denominational system.

The origin of this system is not Term 17 per se but, rather, its false interpretation. And the origin of the false interpretation was Joey Smallwood himself, a key member of the Ottawa delegations and later the first premier of the province. Smallwood brought in this interpretation while entertaining questions before the National Convention. And in this interpretation, the two-decade leader of the province gave up the legitimate option of building a non-denominational system by creating "public" schools. Instead, he adhered to the tradition of giving all public education funds to the privileged denominations.   The reason for this was that the politician who had established a political career by confederation did not wish to jeopardize it by provoking his opponents, particularly the Roman Catholics in the St. John's region.

The 1995 referendum was conducted for the purpose of preparing a way to a single system of education by redesignating denominational schools to inter- or non-denominational schools. The subsequent revision of Term 17 in April 1997 declared that, with an exception, "schools established, maintained and operated with public funds shall be denominational schools." The exception was the schools to be created according to a newly added provision that "the Legislature may approve the establishment, maintenance and operation of a publicly funded school, whether denominational or non-denominational."   It is here apparent that the provincial government, in drafting the new Term 17, embraced a double tactic. On the one hand, it chose to allay the denominations' fear of their rights and privileges being affected by making it explicit that Newfoundland's publicly-funded schools were to be denominational as a principle. On the other hand, it sought to prepare within the denominational system a niche for schools with no denominational affiliation. This double tactic was bad not only because it froze publicly-funded schools to be denominational but also because it ended up exacerbating the denominations' fear by the contradictory move to prepare non-denominational schools within the denominational system. Unless the government had committed a large sum of money to setting up new schools, the exceptional clause for non-denominational schools would suggest to the denominations only that their own schools were at risk.

As a matter of fact, the government after the 1995 referendum pushed ahead with a policy to reduce the number of school boards and redesignate denominational schools as inter-denominational. This invited denominational resistance, of which the end result was Justice Leo Barry's July 1997 decision to grant Roman Catholic and Pentecostal churches the requested court injunction to stop the redesignation process. His point was exactly what I have pointed out above, that so long as the constitution guaranteed the denominations' rights and privileges, the government could only "improperly" attempt to take away denominational schools from their denominations. Education reform came to a halt consequently.

The Proposed Term 17 and a Possible Controversy

The government's choice at this time was to revise the Term 17 which had been revised only a few months ago. It thus called another referendum. And the second

referendum on 1 September 1997 was successful, as already pointed out. What implications, then, will the proposed Term 17 have for Newfoundland schools?

The proposed Term 17, as summarized at the outset, states that the provincial Legislature shall have exclusive authority to make laws in relation to education, but shall provide for non-denominational religious education and allow religious observances if parents request. According to local newspapers, both the proponents and the opponents of the denominational system seem to expect that this revision will bring an end to denominational education in the province. Since the provincial legislature has "exclusive authority" to make laws in relation to education--they seem to assume--it will be able to make any law to turn denominational schools to non-denominational schools. Furthermore, they seem to assume that the provisions for non-denominational religious education and religious observances upon parental request suggest the exclusion of denominations even from religious classrooms. The matter, however, is not that simple.

Precisely, the proposed Term 17 does not say anything specifically as to the future of denominational schools. It simply states that only the provincial Legislature shall make laws to govern education, and, it, unlike the previous versions, keeps silent on the denominations' rights and privileges in their schools. What is here to be noted is that the Legislature's "exclusive authority" to legislate in relation to education means merely that, in the province of Newfoundland, the House of Assembly in St. John's--not the House of Commons in Ottawa or the Legislature of any other province--shall be the exclusive authority to do so. And the proposed version's silence on denominational rights and privileges means merely that the constitution does not offer special protection as to such rights and privileges. This silence does not mean that such rights and privileges shall become null and void in case the Term 17 of 1997 is revised as proposed. Had the denominations rights and privileges regardless of constitutional protection, such rights and privileges should remain intact in spite of the anticipated re-revision of the constitutional document. (Furthermore, the obligation to provide non-denominational religious education does not require the change of denominational schools to non-denominational schools, for the Legislature can fulfil that obligation in the schools it newly sets up, not necessarily in the existing denominational schools. The same can said of the obligation to ensure religious observances upon parental request.)

Thus viewed, what is of interest is whether the denominations actually have rights and privileges regardless of constitutional protection. I think there are sufficient reasons for advancing an affirmative case. Although the denominational schools have been funded by the provincial government before and after the confederation, and although they were brought under a system of public administration in the early 1970s, the schools had been set up, maintained and developed by individual denominations. Although public funding has been so heavy that most of the spending by those schools was made out of public monies, these monies have been given as grants, that is, monies with no obligation to pay back. Traditionally, moreover, at least a fraction of the spending--up to 3% according to McCann's study of 19th-century documents--have been raised by the denominations in the forms of voluntary contributions and school fees. This tradition continued to prevail even after the introduction of public administration, in which the Department of Education exercised influence upon schools through denominational education councils (DECs). Throughout the post-confederation era--that is, throughout the reign of the original Term 17--the persisting stance of the provincial government as to denominational schools was what Smallwood established before the National Convention, that the denominations had rights and privileges not only to have their own schools but also to claim a share in public education funds. In this tradition, the denominations have been considered to own their schools.

Given this, the government may not be able to redesignate denominational schools as non-denominational schools without provoking controversy and resistance over the issue of the ownership of the schools. There are of course precedents of state take-over of private properties with or without due compensation. The normal modus operandi of a capitalist state, however, is to avoid that as far as possible. The reason is that the cost of take-over normally outweighs any resultant benefit.

Even though costly and time-consuming, the route of education reform might have been smoother if the government had pursued the reform within the framework of the original Term 17 by taking advantage of the available methods. The denominations which preferred keeping their schools should have been allowed to do so, and supported by public funding, outside the public system of schools. After all, they were private schools although they have been publicly funded. As I shall say shortly, moreover, their turning to private schools will be increasingly helpful to the financially-constrained government in the upcoming years.

Another Concern

Whether there will be controversy and resistance or not, it is all too clear that the provincial government will accelerate its rearranging of schools along non-denominational lines in the event Term 17 is revised as proposed. As I have stated already, such a prospect is a good one. Paradoxically, however, a concern arises out of this good prospect. In order to explain this, I wish to draw the reader's attention to a few facts about Newfoundland's schools.

The first fact is that Newfoundland has no tradition of what educators call "local control of education," that is, the practice of local residents' electing a school board as the primary authority for public schools. In the rest of Canada, the elected school board controls and operates public schools. It levies school taxes upon the residents, sets up schools, decides on the curriculum, hires teachers, and actually operates the schools. The provincial government, meanwhile, makes laws in relation to education, sets educational standards, examines the outcomes, supervises the operation of the school board, and offers financial assistance where necessary. Elsewhere in Canada, therefore, the provincial government as the "exclusive authority to make laws in relation to education" is the ultimate but indirect authority. Although the government's power has visibly grown over the years, the practice of local control has secured checks and balances between local and central interests. Recently, some local school boards managed to considerably cushion the impact of drastic governmental policy changes, such as budgetary cuts. Newfoundland, meanwhile, has a very different kind of school boards. Their role is limited to such things as keeping records of teachers and students, maintaining school buildings and facilities in order, ensuring that school operation is not disrupted, and reporting what occurs in the school to the superior office. They were the caretakers rather than the primary authorities of schools. Moreover, up until recently they were virtually appointed by DECs.

The absence of local control in Newfoundland is of course due to the denominational control of schools. Since denominations as religious organizations controlled schools, local residents as members of the denominations had little room for stepping in in matters related to their children's education. But this reason is superfluous. The real reason is that the numerous small communities in the province have--and have had--no solid local tax basis to raise funds for their children's education. Religious denominations intervened here. They set up and operated schools instead

of the residents of the communities. Unless the residents are able to raise some funds for their schools their control of local schools must be either impossible or severely limited. Looking ahead, as well, the bad economy of the province and the dwindling population in rural communities do not seem to promise improvement in this regard. Thus if local control of 778 schools is not likely to be in place in a near future, what is apparent is that the removal of denominations from schools will result in the concentration of power in the hands of the provincial government.

In defending denominational education before the National Convention, Smallwood at one point observed that this kind of situation is apt to lead to totalitarianism. I do not very much concur with him. The concentration of power in the hands of the government is not a problem on its own account as far as education is concerned. As long as efficiency is important in expending public funds for education, a strong state power is a necessary, albeit not exclusive, condition. My concern stems from a different angle, that it can be dangerous if and when the state's political power in the field of education is not appropriately matched by its financial capacity, if--to be straightforward--the state with excessive political power has little money to spend for the people. In such cases, the power concentrated in the hands of the government may do more harm than good.

What, then, is the financial outlook of the provincial government? The northern cod fisheries remaining closed and, with the province having no significant alternative industries, the sources of governmental revenues are not likely to improve. (The oil of Hibernia and the minerals of Voisey's Bay may not as yet allow a great deal of optimism in this regard.) As well, Ottawa, another major source of money for Newfoundlanders, keeps cutting on expenditures. It will do so even after its Finance Minister has declared freedom from budgetary deficits. Every year budgetary shortfalls are a familiar topic to Newfoundlanders in spite of the highest-in-the-nation tax rates they must accept. Can we, in spite of all this, dream of a near future in which the government's financial power will dramatically increase? If not, it is obvious that the financially constrained government may have to use the power concentrated in its hands to cut into education programmes and thus make educational services no better than before.

This pessimism of mine will sound more plausible if the reader reflects briefly on the reasons why the governments of industrialized nations now undergo financial troubles. The fundamental cause of the trouble is that the economy is now losing its national character. The market becomes increasingly globalized. Consequently, the fall of stock prices in Hong Kong instantaneously call for reaction throughout the world. The reason for the globalization of the market is the fact that capitalists now leave their country for a place where the chances for profit making are greater. Unlike the old capitalists who sought their state's imperialist protection in the foreign market, the new ones abandon their nationality, acquire a new one, then jettison the latter whenever the market dictates. And when they leave for a new place, they leave behind scarce jobs and dwindling state revenues although, as a result, the state's financial burden gets heavier due to the increasing number of unemployed and other welfare recipients. If market globalization goes on--and this world-historical phenomenon will certainly go on--the state's coffer will shrink on and on in industrialized nations.

The Importance of Private Schools

Spending the year of sabbatical leave in South Korea's major governmental think tank for economic policies, and visiting Japan where we hear money abounds, I

noted that the globalizing world market was already stamping its negative impact upon those countries. Capital was already pulling out of those countries. Like Canada, therefore, those countries too were cutting governmental budgets and seeking a restructured, "smaller government" by privatization and deregulation. Their education reforms were pursued in this light.

This is, I think, the context in which to consider education reform in Newfoundland. We are heading for a non-denominational, state education while the countries with a long history of such education are now restructuring their education system to a smaller and more affordable form. We are seeking a highly centralized system of public education in which the state will bear an absolute power with all financial responsibilities. We are doing this although our government's financial outlook is not quite good. This is a mistake.

Considered in light of the world historical trend, the principle of education reform has to be, as elsewhere, that the size of public education must be small and affordable not only in the number of offices, school buildings and facilities, but also in the numbers of students. This requires the channelling of as many students as possible from the public to the private sector. The denominational schools resisting incorporation into the public system should be allowed and encouraged to grow into self-sufficient private schools if they so desire. They should receive financial and other assistances in that direction. The major reason for this is that private schools will alleviate the financial burden of the provincial government.

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Ki Su Kim, "J.R. Smallwood and the Negotiation of a School System for Newfoundland, 1946-1948," Newfoundland Studies, 11:1 (1995), pp. 53-74.

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It was very different from, for instance, Alberta where denominations as a body of local residents belonging to a religious group controlled their schools.

GLOBALIZATION AND THE TEACHING PROFESSION

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It is commonly known that as many as a thousand Newfoundlanders are now teaching English or pursuing other occupations in South Korea. If there are that many Newfoundlanders in South Korea, the number of those in Japan and China may also be considerable. The representation of teachers from Newfoundland in East Asia is remarkable, given that the total employed in Newfoundland schools is just 6,700.

It is interesting to observe as well that many of these Newfoundlanders in East Asia are graduates of Memorial's Faculty of Education who were prepared essentially for teaching in Canada and who were trained to teach subjects other than English as a Second Language (ESL). The environment in which they find themselves, also, is in other ways very unlike that of the normal K-12 school; it is typically that of a small private school, on a busy street or in a residential area, teaching conversational English in return for fees. The terms and conditions of the teachers' employment also differ since the teachers are hired on the basis of annual contracts.

The increasing presence of Newfoundlanders in East Asia raises an important question: should this trend be regretted, or should it be encouraged and nurtured? Certainly, there are points to be made in favour of the trend. The Newfoundland graduates are able to find employment, which might be very difficult to do in the highly competitive Canadian setting. They are therefore able to support themselves and perhaps even save some money, since their salaries are not too bad. In addition, they obtain some teaching experience, which will no doubt be of benefit to them as they attempt to advance their careers.

One dimension of the Newfoundland teachers' experience in East Asia that worries me, however, is the requirement that they teach in an environment for which they are not prepared and deal with a people whose culture differs quite significantly from their own. While it is an advantage that they are native speakers of the language they teach, this condition alone may not guarantee them success in their work. They may need some knowledge about the people and their culture. They may also need knowledge about the country's school system and, especially, the way educational services are sold and purchased. On the basis of such knowledge, they may need to be able to form judgements regarding what to do and what not to do in order to be a successful teacher. Otherwise, cultural differences will lay before them insurmountable hurdles.

An incident in which I was once involved may well illustrate how formidable the obstacles can be. It was, I think, two years ago that a local reporter approached me requesting a comment on his niece's experience. His niece had applied for a teaching position in one of the privately-owned English schools to which most Newfoundland teachers have gone. Unfortunately, her application proved unsuccessful. That in itself did not occasion her any grief. What bothered her, as well as her uncle, was the reason the Korean school had supplied, which was that her photograph had not shown up impressively. Some readers may also find such a reason difficult to comprehend. What does the impression made by a photograph have to do with being a teacher?

760

Denying a job to a person on the basis of physical appearance seems totally undesirable. It would appear that the applicant in this case had a valid reason to be dismayed. From the point of view of the school concerned, however, the reason was perfectly valid. The school was a private business seeking profit by selling the service of teaching English in return for cash. The greater the profit, the better it is for the school. The school's hiring practice was governed by one single principle, namely, that any new teacher should contribute to attracting fee-paying clients. (If someone needed to be blamed at all it should be the South Korean clients, who apparently preferred nice-looking teachers.) The unsuccessful female applicant, regrettably, was judged not to meet the requirements imposed by this principle. The policy of the school is, in fact, not very different from that adopted by some business enterprises in Canada where certain restaurants, for example, might employ "attractive" waitresses as a means of drawing more customers. Cultural differences are critical and our indifference to them often leads us to chastising others for their not doing things in the way we do. For instance, we may criticize the Chinese for their not honouring human rights in the way we do, disregarding the fact that the concept of human rights is a modern one making more sense in one culture than in another. Respect for such cultural differences is important, however, because otherwise we will lose when we are to do business with those dissenting others.

In terms of cultural difference, there is a point to be emphasized here, which is that we are perhaps less familiar than East Asia with the notion of primary, elementary and secondary schools operating for the purpose of profit-making. Schools at such levels in Canada are mostly publicly funded. Where the public is concerned with what is good for society at large and with respect for the rights of disadvantaged minorities, publicly-funded schools cannot betray the public's concerns. Even private schools cannot be exceptional. Private schools in Canada are institutions for meeting educational demands from those individuals and groups who do not want public education. They are an alternative means for addressing public concerns. Although occasionally we hear of the legendary private schools which produce lawyers, MPs and ministers in return for incredibly high tuition fees, their school brochures actually do not provide any single hint at their seeking something outside our public concerns - profit in particular. Simply put, they are non-profit organizations. The profit-seeking South Korean ESL schools consequently do not conform to normal Canadian expectations. Even less so do some of the profit-seeking teachers in those schools who vigorously advertise themselves in mass media. Many of our graduates are going into the world of profit-oriented teaching with no idea about what that world can be like.

I think it is worthwhile here to reflect on the practice of profit-oriented teaching, which in fact has a much longer history than our non-profit-seeking teaching practice. I have two reasons for this. One is, as I have indicated above, that it is a good thing to see a large number of our graduates obtaining jobs in South Korea's field of profit-oriented teaching. The other is that the recent trends in the globalizing world suggest the possible emergence of profit-oriented teaching within Canada itself. Let me address these points in turn.

Some may disagree that the flow of teachers to other countries is a good thing. Is there not a brain drain here? Have we not invested in these graduates large sums of hard currency? I think that there is not much to worry about in this regard. The brain drain in this instance is a temporary phenomenon, for most of the Newfoundland teachers will come back sooner or later. And, importantly, when they come back their savings will accompany them. Their movement to South Korea is different from the migration of teachers to the United States or even to other provinces in Canada, which

usually ends in permanent settlement. The "brain drain" argument is not a strong one, at least not in the case of East Asia.

The phenomenon of globalization, however, is of much greater import. As the globalization of the world economy advances, indeed, the notion of "brain drain" seems to become increasingly obsolete. Globalization refers here to the phenomenon of capital abandoning its nationality and moving freely to any country in which bigger profits await. The new rules for business operation in the age of globalization are two: flexibility and mobility, which, to paraphrase, means contracting and expanding as quickly as necessary and packing and leaving as swiftly as demanded. Profitable businesses observe these rules thoroughly and methodically. As a result, they move out of their country, leaving behind unemployed workers, diminishing state revenues, and increasing state burdens for welfare and education. What, then, can labour do if capital operates in that way? The worst thing to do is sit and wait for manna from heaven. It is important, on the one hand, to improve the business environment so as to lure capital from outside, and, on the other, to make the workforce as flexible and mobile as possible, so that the workforce can quickly adjust to the changing work environment and, if necessary, swiftly move to where there is a job. Seen in this light, then, the brain drain is not necessarily an evil thing. Should the brain remain home unemployed, it would only aggravate the state's burden. Should it move, on the other hand, there would be the kind of benefit which the Newfoundland teachers in South Korea seem to gain. Unlike the times when capital stayed at home, singing patriotism and mobilising nation states and nationals to *international* competition, it is now desirable that brains flow freely across national borders just as capital does.

The above observation has a bearing on the teaching profession. Globalization will continue to wreak financial havoc upon the education system in which teachers work. It will do so because, while the current education system is heavily dependent on state funding, the free flow of transnational capital will continually destabilize state revenues. The recent trend of manufacturing capital's transformation to financial capital will make state revenues even more unstable. Unlike manufacturing capital, which require relatively prolonged operation in one place, financial capital requires swift and massive movement from one place to another, a requirement which now can be handily met through the Internet. The consequence is exemplified by the financial troubles of the Japanese state at a time when Japanese manufacturers continue to amass wealth from exporting Honda Civics and Sony Trinitrons. If this trend continues, and it will indeed do so, the ongoing educational system in most nations will have to undergo restructuring on an unprecedented scale. When state revenues continue to be unstable, policy makers cannot avoid the necessity of stabilizing school operation at a level of funding which the state can afford with its ever decreasing resources. Confronting this necessity means a lot more than simple budgetary cuts. It may mean privatization of public education (that is, putting public schools up for sale) and incorporation of market elements into the remaining public schools (such as fee charging, payment-by-result for teachers, and elimination of the tenure system). As well, such familiar neo-liberal policy measures as private school funding, charter schools and school choice in the public sector may emerge as more viable than ever. The public system of education may thus collapse. The current arrangement of the teaching profession, then, would no longer be viable.

What is wrong with the current arrangement of the teaching profession? Consider who the teachers are now. They are in law "certified teachers," where certification is made for teaching a particular subject in a particular range of grades, for instance, mathematics in junior high, music in elementary, and chemistry in senior high.

The certification paper also specifies the level of competence of the bearer, suggesting a suitable place in the more or less uniform remuneration system. Overall, teacher certification is a procedural device for sorting trained teachers into a national (a provincial, if in Canada) system of schools. It is undoubtedly a product of a time when the public system of education expanded incessantly thanks to the nation state's ambition to construct a large set of schools with which to beat rival nations - a time in which familiar buzzwords were amalgamation, consolidation, and efficiency in organization. As the education system got bigger and bigger, an individual, whether a student or a teacher, needed to be placed in such a way as to maximize the output of the system. Ironically, the procedural device of teacher certification created perpetual problems for the schools which could be neither amalgamated nor consolidated, let alone organized efficiently. Examples are the "small schools" in parsely-populated communities in Newfoundland and elsewhere, where a teacher certified for a subject had also to teach other subjects for which he/she was not certified.

Privatization of public schools and incorporation of market elements into the remaining public schools, however, will invalidate this procedural device, for both private schools and public schools with market elements in them will develop diverse forms of organization which will require different kinds of teachers. The fluctuation of supply and demand in the education market will require school organization to be flexible and mobile, that is to say, to expand when demand rises, contract when it sinks, and pack and leave when there is a better place to move to. When the schools - that is, the employers of teachers - operate in this way, a teacher cannot remain a mathematics teacher for junior high schools or a music teacher for elementary schools. His or her expertise will have to change flexibly to meet the demands arising from the market. He or she will have to be able to teach a broad range of subjects to a wide range of grade levels. As well, he or she will have to be able to operate successfully not only in the public setting entertaining public concerns, but also in a private setting entertaining private concerns, profit making in particular. Furthermore, he or she will have to be prepared for a wide range of places and sell himself or herself vigorously for a better deal and perhaps a bigger profit. Flexibility and mobility will thus become the governing rule of the teacher's operation.

Viewed from this perspective, then, the significance of the profit-seeking culture in teaching should be clear. That culture is one of the many possible ethical alternatives for the new teaching profession. And that culture suggests that teachers need to prepare themselves to be more marketable and to actually sell themselves globally. In this sense, we can say that those brave Newfoundland teachers in South Korea are the pioneers of our time.

To my pleasure, two of these teachers in South Korea visited me recently as if to verify the pioneering nature of their work. Both were doing very well although they had been in that country for only two years. One of them, a Corner Brook man, told me of his desire for marrying a Korean girl and settling there with a permanent job at a university. He showed me a notebook full of Korean words and asked whether there would be anyone with whom to practice Korean while at home. Another teacher, a St. John's man, came back for a teaching certificate in our Secondary Education program with which to seek a better job back in South Korea. This man missed Korean food so much that he asked me how I acquired in St. John's the characteristically hot and spicy foodstuff. No institution had prepared them for their adventure yet both teachers were adapting surprisingly well and with a great deal of confidence and hope.

Had we prepared them for teaching environments other than the public system of education in the province, however, would they not perform much better? Had we trained them in a broad range of subjects for a wider range of grade levels, would they not be more competent in teaching whatever they were asked to teach even in a foreign country? Had we taught them even such common courses in other Canadian Faculties of Education as International Education, Comparative Education, History of Education in Selected Nations, Education and Culture, and Education and Economy, would they not make better sense of what they confronted in that country? If prospective teachers continue to enter highly specialized teacher education programs that prepare them primarily for a North American work environment, there is a very real danger that in future they will be less than adequately equipped to deal with a market-place in which globalization is an inevitable feature.

NOTES ON OVERSEAS CONSULTING AND
PROJECT MANAGEMENT**

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This paper reports on the perceptions of consultants in consulting situations in less industrialized countries (LICs). Twenty-one consultants in the United States and ten consultants in Canada were interviewed in depth. They were asked to describe their experiences and give vignettes pertaining to periods of their consultations overseas and also to respond to a set of specific questions. Most of the Americans had worked in Southeast Asia in the area of public health and medicine, while the Canadians had experience working in Africa, Latin America and Europe in various areas. The responses of these consultants provide us with rich facts and insights into the process of consulting and knowledge of the variables in the consulting situation which may prove useful to project managers in both regions of the world.

Our concern with consulting and project management stems from our understanding of the development process in LICs and from our awareness of the fact that multinational teams engage in Research and Development projects. These teams investigate and resolve problems of local, regional and international concerns in growing numbers every year. We maintain that these two activities - investigating and attempting to find solutions to pressing problems - are facts in global life today. The movement of consultants, advisors, and experts across cultures and nations has increased in recent years and perhaps will continue to increase at a steady rate, although, perhaps, the economic downturn will likely be an adverse factor, at least for 1998-99.

Further we note that project managers do not operate in isolation; their interaction with others is embedded in the contexts of international R and D organizations whose activities, in turn, reflect the totality of international relations at a particular time. This is also the case with consultants and the consulting organizations. Factors such as who seeks consultation, from whom, when, under what conditions, and with what purposes, objectives and goals give specific character to a particular consulting situation. Thus both consultants and project managers interact with others in a specific social situation while performing their respective roles. It is clear to us that the definition of the social situation is often problematic, and that roles of consultants and project managers would be likewise problematic. Further we observe that consultants' interaction with others differs in many ways from the interaction which the project managers experience. One of the differences is that consultants are involved in performing narrower and specialized roles, whereas the project managers' responsibilities are much broader and comprehensive in scope. Therefore, it is our contention that insights and facts provided by consultants can be meaningfully utilized by project managers at various levels of their operations. One can fully appreciate the point being made here by familiarizing oneself with some of the basic ideas underlying symbolic interactionist approach to human behavior or conduct.

The Symbolic Interactionist Approach

Briefly, the symbolic interactionist approach emphasizes the fact that human conduct or behavior is a product of human interaction which always takes place in a social situation. Human beings, through their own acts and interactions with others, either maintain or change the structure of social situations in which they find themselves performing several tasks. Each individual self enters into social situations with certain forms of awareness or social consciousness. The others, too, enter in the situations with their own respective forms of social awareness or consciousness. This implies that human interaction is always purposeful and qualitatively different from interaction among animals. In human beings, social act or behavior is an outcome of complex processes of perceiving, thinking, articulating, interpreting, and forming lines of actions in mind. This means that before and while human beings act they take into account the actions of others in the social situations. Thus, human behavior is not merely a function of those individual psychological qualities which individuals bring into interaction, but function of the interaction itself. Blumer has rightly argued that many social scientists have failed to recognize the significance of interaction by treating it as "a mere forum through which sociological or psychological determinants" result in certain behavior. As opposed to this, he argues that interaction "forms human conduct, instead of being merely a means or a setting for the expression or release of human conduct." And human conduct cannot be comprehended apart from the actual contexts in which it occurs. What interests us here most is the fact that <u>what</u> individuals actually do (in this case the consultants and project managers) in social situations (e.g. consulting or project management situations) and <u>how</u> they do what they do are crucial factors in comprehending human behavior and its social consequence.

Several methods are suggested by scholars to study how people carry out their activities in various social situations. A method suggested by Lofland includes the following four steps:

1. Getting close-up to people actually acting some place in the real world and developing intimate familiarity (with them and their situation),

2. Focusing on and delineating the prime or basic situation the scrutinized people (i.e., those people who are actually acting) are dealing with or confronting,

3. Focusing on and delineating the interactional strategies, tactics, and so on, by means of which scrutinized people (in our case consultants and project managers) are dealing with the situation (e.g., consulting) confronted,

4. Assembling and analyzing an abundance of qualitative episodes into disciplined abstractions about the situation and strategies delineated.

If we decide to follow the above method we will have to be physically present with consultants in their consulting situations in order to comprehend how consultants in various cross-cultural and international situations interact with others, evolve new behaviors, and carry out their roles. Obviously, this style of participation-observation research is time consuming and expensive. Surely, this kind of qualitative research will enhance our understanding of consulting process. However, given the financial and time constraints all we could do is to try "getting close up to people..." who have actually acted somewhere in the course of their career. In our case these people are, as mentioned earlier, thirty-one consultants who were interviewed in depth in an informal setting.

Social and Democratic Background of the Consultants

The total number of consultants interviewed was thirty-one. Out of this twenty-one were based in an American University and ten were working in a Canadian University. There was only one female in the Canadian sample while there were four females in the American sample. All of them except three females in the American University have an M.D. or Ph.D. in their respective fields. The age range of these consultants was between thirty-nine and seventy years. Most of them were in their late forties. Either by birth or naturalization the nationality of twenty-one consultants in America was American. Similarly the nationality of consultants in the Canadian University was Canadian. The first language of all the consultants was English except for four. A number of them were bilingual or multi-lingual. Most of them were Christian. Only six were of Asian extraction; the rest were White. The consultants in the American sample had spent relatively more years overseas in a cross-cultural situation than the consultants in the Canadian sample. In the American case the range was three to fifteen years while in the Canadian situation the range was one to three years. Only two consultants in the Canadian case had more than fifteen years of experience working in a cross-cultural situation. All of the consultants had secured positions at their respective universities and had published number of articles and reports.

Interview Schedule

All thirty-one consultants were asked to describe their experiences and give vignettes pertaining to periods of their consultation overseas (i.e., what do you think about the consulting situation?). In addition, ten consultants in the Canadian university were asked fifteen more questions (see Appendix A).

The remainder of this paper is concerned with analyzing, classifying, describing the experiences of these consultants, and formulating "working hypotheses" or generalizations which we hope will help project managers (1) in identifying and contracting appropriate consultants, (2) in evaluating their roles in a given situation, (3) in designing needed educational and training programs for consultants, and finally (4) in making project management more effective.

Responses to the open-ended question (What do you think about the consulting situation or what is your perspective of the consulting situation? Please describe your experiences and give vignettes as consultant) are classified into two broad categories:

A. Conditions under which consulting services are requested.
B. Problems that are encountered in delivering consulting services.

A. *Conditions under Which Consulting Takes Place*

The analysis of the data informs us that consultations occur under three general conditions. The first condition is that of rapid socio-economic changes at the international level. Forces of change require fundamental restructuring of the existing social and cultural institutions of less industrialized countries (LICs). Put in another way, increasing global interdependency (social, economic, political, cultural and legal) creates a need for obtaining consulting services by the LICs from the ICs. The ICs in turn are interested in delivering these services for various social, political, cultural, and above all economic reasons of their own. Therefore, it is not very surprising to witness growth of huge consulting organizations in the ICs both in the private and the public sectors. These organizations are contracted for delivering varieties of services to LICs by various international agencies such as UNO, WHO, World Bank, to name a few. The consulting services are delivered on short or long term basis. The objective and subjective nature of dependency of LICs on ICs influence the exact mode in which consulting organizations deliver their services.

Secondly, the need for consulting services arises when there is a crises situation of personal and social nature; that is, when those in authority and power come to perceive that something is lacking (e.g., basic knowledge, technical know-how, material resources, legitimizing authority, professional and peer support, etc.) in their situation which is undermining their capacity to mobilize human and natural resources available to them in solving pressing problems that they are facing. These authorities feel this stress manifests a sense of urgency. Their resorting to requesting consulting services is a last minute rescue operation. The expectations of those who request consulting services are that outside consultants will somehow bail them out of a difficult but temporary situation. The consulting organizations and those agencies who contract them are well aware of this condition of their clients and in many cases do not hesitate in taking advantage of this situation for their own benefits. Thus in many cases consultants are hired on ad hoc basis without having any long-term perspectives on their role in a program or project. However, ad hoc recruiting of consultants serves other latent functions of these consulting and donor organizations.

Thirdly, consulting services are sought when there is a bond of "brotherhood" among consultants and consultees. That is, depending upon previous acquaintances and institutional linkages experts at national and international levels seek consultation from each other for professional support and for enhancing one's status, prestige and power in a stratified social order. The point is that there now exists a community of consultants at national and international levels with its own network, culture and sub-cultures, with an interest in creating conditions for growth and survival.

B. *Problems in the Consulting Situation*

Our analysis shows that consultants encounter many problems.
Some of the most important problems they identified are classified in these six categories: (1) problems related to purposes, goals, objectives and implications of consulting, (2) problems related to organizations of consulting agencies, (3) problems related to local social structures, (4) problems related to lack of supportive systems, (5) cultural misunderstandings as a problem, and (6) factors contributing to other problems in consulting situations.

1. Problems Related to Purposes, Goals, Objectives and Implications of Consulting

In their interviews all consultants indicated that one of the major problems in consulting situations is to clarify purposes, goals and objectives of consultations. Expectations surrounding consulting situations are often not clear to those involved in it. For example, contracting agencies (i.e., donor agencies like FAO, World Bank, etc.), consulting agencies, and the counterparts in the LICs (receiving or requesting party) usually tend to have unrealistic goals which cannot be operationalized under the existing national and international institutional arrangements. In many instances consultants do not understand the language (i.e., the format of proposals, documents, business letters, etc.) in which the counterparts request consulting services. On the other hand clients do not know what sorts of services they should precisely be requesting and therefore expect consultants to perform miracles.

The consultants interviewed pointed out that some provision for rational discourse on the contingent and ultimate ends of consulting is necessary in order to arrive at a common definition of goals, purposes and objectives for which consulting services are requested and offered. Contingent ends are those social goals which are characteristic of a particular historical period. Even when these goals are realized they do not provide the conditions for individual fulfilment. Ultimate ends point to those social conditions which both permit and encourage the fulfilment of individual life. Increase in GNP is a contingent end but the well-being of all human beings in an interdependent world is the ultimate end. Utility is contingent; loving is ultimate. In general, social relationships are contingent when human beings involved become things or objects in the eyes of another, and therefore are subject to exploitation. These relationships are also perceived by many in consulting situations as anti-human, abstract, and alienated. On the other hand ultimate ends are trans-historical, in the sense that they are grounded in attributes of the human species and not in a specific social or cultural forms. Ultimate ends strive to overcome the vast network of historical and socially conditioned conception of reality in order to create conditions in which it becomes possible to transcend alienated social relationships. In the absence of trans-historical ends, consulting services run into the risk of becoming mechanical, positivistic, and alienating because consultants, consultees and project managers are involved in interaction by necessity. That is, they are interacting in order to merely survive rather than to freely and consciously choose creative activities which extend, develop, and realize those social relationships which are non-exploitative and free of distortion. This does not mean that contingent and ultimate ends are mutually exclusive. Indeed, they are dialectically related. What should be then the basic motivation underlying consulting and project management? The answer may lie in the comment of one of the consultants who said that "ultimately we got to preserve humanity." By this she meant that it is the effort to create the conditions necessary to realize human ends that should be the basic motivation in consulting and project management.

Situations in which a shared definition of the contingent and ultimate goals is lacking (which are part of the total environment in which consulting services are provided) lead to several other problems related to consulting. Three problems can be isolated from the interview data: problems related to training of local participants; problems surrounding evaluation, effectiveness, credibility and accountability of consulting. Each of these problems is briefly discussed below.

First, problems related to training were discussed in relation to duration of the consulting assignment and the life of the project. Generally, it was mentioned that either a consulting assignment should be of short term (six weeks or less) or long term (at least two years). In certain cases repeated short term (two or three weeks) visits by consultants were considered beneficial in the sense that this pattern did not make

consultees dependent on outside consultants and thus avoided the dependency syndrome of the counterparts on the consulting services. Some consultants believed that ideas can be communicated in a short period of time, that a mere presence of a consultant beyond a certain time does not do any good, that minimum guidance is required after initial consulting had taken place, and that it is good to leave the local counterparts alone and let them take care of their own problems.

On the other hand, those consultants who visualized long term assignments as more beneficial pointed out that in short term, one-shot consultation, no provision is made to train the client in specific areas of competencies. Also, there is no provision for up-grading the skills of clients and for follow-up consultations to ensure that the client has attained the required or needed skills. Instead of reducing dependency, one-shot consulting situations tend to perpetuate it. The clients are usually overwhelmed by the mystique surrounding consultants (i.e., the feeling that consultants know the answers and will "fix" our problems). This encourages some consultants to feed on the situation. This is specially true in cases where the clients do not know how to use the consultants to their advantage because consultees lack competencies required to challenge and evaluate consultants' activities. Consequently, it is not uncommon to note that some consultants destroy local organizations and "kill" programs and projects without damaging the market for consulting services. There are many levels at which consultees can be trained. High levels of training programs should also be available to consultees so that they can learn those competencies and skills which will allow them to deal with high powered consultants confidently, who also play a decisive role in the setting up of evaluation criteria and the definition of effectiveness. Thus, the credibility and accountability of consultations tend to be located in the structure of sponsoring agencies and not in the client agencies. As a result of this, consulting often becomes a unclear and one-sided activity in which there is no room for learning and feedback. That is, generally there is no adequate built-in mechanism in a consulting situation whereby the client could set up meaningful procedures for evaluating the consultant's report. Further, sponsoring organizations tend to have built-in requirement for a certain amount of consultation.

Secondly, the question of who defines the needs for consulting services is an important one in the discussion of problems surrounding evaluation, credibility, and accountability of these services. Too often needs of clients are dictated by the sponsoring agencies which give their own employees some degree of role flexibility and mobility. On the other hand, consulting organizations too, once contracted, tend to create continuous need for their own kind of consulting services. Thus, marketing of consulting packages is often an integral part of the overall operations of consulting and contracting organizations.

A project manager needs information on a number of questions related to the organizational and task environments of both consulting and contracting organizations. Some of these questions are: What are the factors that make consulting and contracting organizations behave in the above ways? How do these organizations manage to penetrate the clients' situations and create needs for constant flow of consulting contracts? How are the institutional structures of these organizations linked with the overall global structures of interdependency? What role do consulting and contracting agencies play in global interdependency? Under what conditions does consulting become a two-way learning process? What are implications of two-way consulting situation for selection and training of consultants and evaluations of their activities? As far as we are aware little research exists which throws light on such questions.

2.   Problems Related to the Organizations of Consulting

In ICs consulting organizations exist in the public and private sectors of the economy. Within these organizations consulting services are packaged, presented, and delivered to the clients in different modes. The structure and functions of these organizations affect the delivery of consulting services - both in terms of quantity and quality - and each mode of delivering services has its own consequences for the client's situation.

Usually, consulting services are delivered to the client at three different levels: primary, secondary, and tertiary. At the primary level consultants are asked by the client to get involved in the planning process of a project from the very beginning. On the other hand, at the secondary level consultants are asked to focus their efforts on explaining to the client what had gone wrong with the planning process and to interpret the recommendations of the previous consultants. In other words, at the secondary level consultants are often asked to perform a "cleaning up" operation. At the tertiary level of involvement, consultants are requested to legitimize the planning process and give visibility, respect, and status to the project. Thus consultants' roles vary according to the level at which the consulting services are requested and delivered.

Another point which the consultants emphasized during their interviews is that consulting takes place at village, town, city, district, region, state, national, and international levels involving different degrees of technical and professional expertise. All these factors make consulting process a complex reality and have various implications for contracting consulting services by the client.

One of the problems in contracting consulting services is certain attitudes of consulting organizations. Usually each consulting organization had developed its own standardized system of delivering its services based upon certain beliefs and assumptions. One such assumption is that its own system of delivery, with minor changes, can be perfected to serve requirements of clients everywhere. By basically ignoring the complexity of a client's changing environment (social, political, cultural, economic and legal) this notion of packaging consulting services somehow perpetuate the secondary level of consulting at the expense of client's resources and ignorance.

3.   Problems Related to the Organization of the Local Institutions

Other problems of consulting are related to the organization of local institutions. Often there are internal rivalries and competition among local institutions which are reflected in the local politics. It is not uncommon to observe that long drawn-out local political issues tend to impede the capacities of local institutions to carry out certain tasks in the changing national and international environment. Besides, structures and functions of the local institutions are generally adopted from the colonial situation and need revamping in order for them to absorb new technologies and flow of resources from outside. Lacking adequate understanding of these two factors consultants, donor, and consulting agencies are inclined to have unrealistic expectations about the capacities of local institutions to achieve certain goals. Their unrealistic expectations may in fact conflict with the goals of the local institutions and the aspirations of person who work in them. For example, internal rivalries and competition often reflect genuine concern and fear about one's own job security, status, prestige, chances for future promotions, income and working conditions. Usually, any sort of linkage of a local institution with outside sponsoring and consulting organizations are seen by local persons as an opening of new opportunities and a chance to attain desired upward

mobility through establishing personal and professional contact with the outsiders. This insensitivity to local institutional structure and internal politics -- especially underestimation of the real or anticipated aspirations and expectations of people working in these institutions acts as a barrier to successful consulting.

It seems that project managers will be well advised to make sure, as much as possible, that an open ended opportunity structure remains a built-in criterion in designing, implementing, managing, and evaluating of his/her project. The fact is that people everywhere, at all levels of society, do worry about their job security, income, and working conditions. It is a basic question of survival.

4. Problems Related to Lack of Supportive Systems

The importance of supportive structures in LICs is stressed by most consultants. A successful consulting effort is contingent on the nature of these structures, and on the degree these are accessible to consultants and to their counterparts in order for them to carry out the assigned tasks. One of the problems in this situation is that supportive systems (e.g., bureaucracies, courts, communications technology, research and development centers, information systems, transportation system, centers for social and cultural activities, libraries, scientific and technical information clearing houses, etc.) are inadequate or often inaccessible both to the consultants and the local counterparts even when they are present in LICs. This is because cooperation and coordination among various local institutions are lacking due to political and other social factors. However, in certain situations supportive systems are available to consultants only and not to the counter parts. This creates difficulties in the professional and social relationship among them. The local experts interpret unequal accessibility to their own institutions and resources as unjust and perceive this situation as an example of the lingering legacy of colonial rule. A fuller understanding of the organization of supportive systems in LICs and of the dynamics of political processes which affect the functioning of these systems will enhance consulting efforts.

On the basis of the various observations made by the consultants who were interviewed it is suggested that project managers may like to develop a set of criterion by which they can interpret local political processes. An informed analysis in turn may serve as guide lines for their actions in managing their projects. For example one experienced local politician - cum-bureaucrat from a Southeast Asian country communicated to an audience that he and his colleagues have formulated their own tentative test for understanding the survival of various political regimes in the region. The test, he claims, helps him and others in understanding changing political realities in Southeast Asia. By using the test bureaucrats, politicians, and various experts can make informed judgments about the impact of social, cultural, political, economic and legal forces on the local infrastructures and supportive institutions.

The basic assumptions underlying the test are that in Southeast Asia people are basically concerned with providing their people with education, housing, food, clothing and other basic goods and services necessary for survival. Further they are interested in the questions of national unity; economic stability; development of institutions of R and D and supportive infrastructures; how to modernize without losing their cultural roots and touch with the rural-based population; self-sufficiency, self-reliance, self-respect, and freedom from domination of super powers. According to these local political analysts in Southeast Asia the question of survival in the LICs is defined quite differently than in ICs. One of the differences is that in ICs people are concerned with maintaining a high level of standard of living whereas people in LICs are

concerned with the availability of necessities of life. In this context the ongoing debate on the formation of a new economic world order is highly significant.

These political analysts suggest that by looking at some specific indicators one can infer the nature of local institutions in many countries in Southeast Asia. For example, instability of a particular political structure along with the weakening of local supportive institutions can be inferred if the leadership in a country (a) is investing its resources abroad, (b) is staying in power by polarizing different factions, (c) is regarding opposition as an enemy or adversary, (d) is using intelligence services for its own survival as opposed to the security of the country, and (e) is corrupt. Further, instability and lack of support systems can be inferred if (f) development is city-based rather than rural-based, (g) greater number(s) of talented people are employed in the private sector than in the public sector, (h) immigration is high, and (i) substance of political debate is trivial rather than based on serious policy issues.

5.   Cultural Misunderstanding as a Problem

All the consultants attached great importance to cultural variables in consulting and believed that such factors as values, ethics, perception, language, socialization, speech pattern, self-image, communication styles, and definition of a situation, to name a few, somehow contribute to cultural misunderstandings. Each of the consultants had his/her own anecdotes and stories to tell. These are so personal, elaborated, and diffused that it is impossible here to describe them in detail.

However, three perspectives on sources of cultural misunderstanding can be isolated from their comments. These are labelled as follows: faulty communication, unequal social structures, and negotiated social reconstruction.

Faulty communication perspective seems to emphasize the point that when a number of people from different social-cultural backgrounds work together there is bound to be vast cultural misunderstanding arising out of their social interaction. This is so because attitudes, values, intentions, and behavior of participants are usually guided by individuals' socio-economic backgrounds. In cross-cultural and international interaction situations they are more likely to be uncoordinated. This unfortunate misunderstanding can be improved if one can just improve the communication among the participants by making them realize that each of them is involved in complex, institutionalized social activities, that the purpose is to achieve certain agreed upon social goals, and that recognition of the purpose by all will benefit both the individuals and the particular organizations with which they are associated.

On the other hand, the unequal social structure perspective tends to emphasize the fact that sources of cultural misunderstanding lie in the unequal distribution of social power and other valued goods in society such as occupation, income, education, status, prestige, leisure time, and other alike things. Thus cultural misunderstandings can be reduced by reducing the gap among the powerful and the less powerful. Achieving this goal requires fundamental changes in social structure.

The negotiated social reconstruction perspective combines both the above-mentioned perspectives by emphasizing the point that changes both in faculty communication and in unequal social structure are necessary to reduce cultural misunderstandings. This can be achieved by encouraging dialogue among people around mutual problems. The ultimate goal of this perspective is to create a preferred world order which is conducive to human survival.

774

One can gather from the above discussion, as mentioned at the out set of this paper, that consultants enter into consulting situations with certain perspectives (forms of consciousness) and this will influence their style of consulting. This would also be the case with donor, consulting, and local organizations. A project manager may like to take these facts into account in his/her effort to manage the project in a cross-cultural situation and decide for him/her self how he/she should go about dealing with the issue of cultural misunderstandings.

6.   Factors Contributing to Other Problems in Consulting

The consultants pointed out that there are a host of other factors which contribute to numerous problems in consulting. For example, technical expertise is only one factor in the selection of consultants. In specific cases, age, sex, class, ethnicity and race of consultants play crucial role in establishing successful consulting and professional relationships with the local counterparts, and in the resolution of problems. An older professional woman of Southeast Asian extraction may be perceived more effective in her consulting task which requires establishment of child care facilities, recruiting and training of local female health workers in Southeast Asian countries than a white, young male doctor. Knowledge of the local language(s) and dialects facilitates consulting. Nationality of consultants seems to create initial difficulties in establishing a healthy relationship and communication among the consultants and the consultees. For example, when an American consultant in India states that "population growth is a problem because it affects national interest of the United States," nationality becomes a negative factor in consulting. Further, there are many theoretical and methodological issues. These relate to availability of quality data and information which can be used for analyses purposes. Usually, much of the initial effort of a new consultant is focused on establishing reliability and quality of information with which he/she has to work. Experienced consultants become well acquainted with these problems and have worked out effective channels of communications with their counterparts. In many cases they try to get involved in the primary stage of consulting and provide help to the counterparts from the very beginning in deciding the mode of data collection, analysis and the nature of information which is needed for attaining certain goals. There is a great need for developing data-based information systems in LICs.

Summary and Suggestions

In this section we summarize the perceptions of the thirty-one consultants about consulting in less industrialized countries and suggestions made by them to improve the consulting process.

Firstly, consulting should be approached from a larger socio-cultural and historical perspective. Local and international societal conflicts should be well understood by consultants. The way global interdependency is interpreted by a particular developing country is one of the crucial factors in professional and personal relationships among consultants, their counterparts in LICs, and contracting agencies.

Secondly, consulting should not be a one-shot activity. Implications of long/short term consulting should be well thought out before hand by considering it a well planned social activity. A sense of realism should be maintained as it related to the expectations, goals, and objectives of consultation.

Thirdly, technical expertise of consultants alone is not adequate input in effective consultation. Consultants should be selected on the basis of their experience in living in the clients' culture/country and interacting with counterparts in their cultural and ecological settings. Cultural sensitivity on the part of consultants should be an important variable in selecting them. Personality and socio-cultural background of consultants should also be taken into account during the selection process.

Fourthly, upgrading of clients' skills and competencies should be built into the consulting contract. Most of the training should be done in client's country using local examples. A majority of the participants should be local people. In many cases consultants are needed to be present physically only for a short period of time to help their counterparts set up training programs at early stages. There after funds and other material resources should be supplied directly to the counterparts to run these programs. However, follow up procedures should be included in the consulting contract (e.g., a retainer system) to enable consultants to return and work with the client whenever the need arises. The need for consultation should be determined by the clients. Consulting organizations should invest in research and development activities that are directly related to training and up-grading of skills and competencies required by the client.

Fifthly, criterion for assessment of participants' (both consultants and clients) activities should be included in consulting proposals. Procedures should be worked out to evaluate consultants' reports and be included in the contract from the very beginning. A super-consulting structure may be devised to catalog specific activities and capabilities of various consulting institutions with the purpose of providing the client more adequate information about the quality of consultation available. The information may help the client in selecting consultants and in evaluating their work effectively.

Finally, the consultants emphasized the fact that although cultural sensitivity and professional knowledge in one's own field of specialty are important factors in delivering consulting services effectively, nevertheless consulting should be considered an art form.

APPENDIX A

In this appendix responses of the ten Canadian consultants to the following fifteen questions are presented in a tabular form:

• What sorts of things have the professors been asked to do?

• What sorts of things have professors actually done in their field-based activities?

• For whom were services provided?

• What discrepancies are found between particular requests and the actual consultant activities?

• What competencies are used in responding to particular requests.

• What competencies are identified as lacking in reference to particular consultant activities?

- What is the value of these field-based activities to the scholarly field and to the professional person?

- Of what consequences are particular services rendered?

- What are the current issues and questions perceived by you as consultant in your own field?

- What is the likely future of the concerns and emphasis in your discipline?

- What skills are likely to become more important in light of those anticipations?

- What are the consequences of particular kinds of experiences in terms of continued or expanded professional involvement?

- What is your model of man or human nature?

- What is your model of man and society or how do you conceptualize relationship between man and society?

- What is your model of modernization? Or what is your thinking on modernization?

TABLE 1

What Sorts of Things Have the Professors Been Asked To Do?

Responses of Consultants	Frequencies
Participation in ongoing programs in LICs	8
Supply of Technical and Professional Information	7
Research (Basic/applied)	6
Evaluation of Research Proposals	5
Up-Grading Skills of Professionals	5
Supervision and advising of Master and Ph.D. Theses	4
Teaching Undergraduate and Graduate Students	4
Setting up of new projects or programs in a university	3

TABLE 2

**What Sorts of Things Have Professors Actually Done
In Their Field-Based Activities**

Responses of Consultants	Frequencies
Same as expected	10
Same as expected but emphasis was changed	2
Same as expected but also got involved in routine work of the host institution	2

778

TABLE 3

For Whom Were Services Provided?

Responses of Consultants	Frequencies
International Agencies (e.g., Who, CIDA, etc.)	4
Professional Groups and Non-Governmental Professional Organizations	4
Students	4
Universities	4
Government	3
Professionals in Industries	2
British Medical Research	1
Businessmen	1
General Hospitals	1
National University Commission	1
Teachers' Education College	1
Village Workers	1

TABLE 4

**What Discrepancies Are Found Between Particular
Requests and The Actual Consultant Activity**

Responses of Consultants	Frequencies
People expect too much from consultants	6
Very often you end up educating people rather than delivering technical knowledge	4
None, but now people are more aware of the research process and ask questions about purpose of research and potential benefit to them	4
Things were not spelled out in detail before I went	3
More emphasis in a particular area than it was originally expected	2
Equipments were not there	1
Providing special program for government and mining companies was not expected	1
None	1

TABLE 5

**What Competencies Are Used in Responding
to Particular Requests?**

Responses of Consultants	Frequencies
Professional competencies in one's own discipline	10
Human orientation skills, i.e., skills required to become sensitive to other people's situations	8
Competencies required for negotiating programs of mutual interests	4

TABLE 6

**What Competencies Are Identified As Lacking in Reference
To Particular Consultant Activities?**

Responses of Consultants	Frequencies
Human orientation competencies	8
Language competencies	7
Competencies needed to become culturally sensitive	7
Communication competencies	6
Competencies used in other fields related to one's own	4
Competencies required to deal with bureaucracy and civil servants	3
Administrative skills	2
Analytical skills	2
Applied scientific techniques (i.e., skills required to carry out scientific work in the field)	2

TABLE 7

**What Is The Value Of These Field-Based Activities To The
Scholarly Field And To The Professional Person?**

Responses of Consultants	Frequencies
Increased knowledge about real world and appreciation of it	9
Professional exposure to wider range of doing things	9
Possibility of becoming an understanding, a better person through gaining enriching experience	8
Identification of future research projects	7
Two-ways kind of doing things, i.e., learning mutuality	5
Career advancement and other fringe benefits	4

TABLE 8

Of What Consequences Are Particular Services Rendered?

Responses of Consultants	Frequencies
Extended network	6
Mutual learning of common problems	6
Improvement in health	5
Establishment of new facilities	4
Joint research program	4
Delegation of responsibilities to local experts. We filled in the gap	3
Introduction of new programs. Long-term benefit to be expected	3
Increase in the number of local organizations for community actions and political leadership in rural areas	1

TABLE 9

**What Are the Current Issues and Questions Perceived
By You As A Consultant In Your Own Field?**

Responses of Consultants	Frequencies
Control at the grassroot level is the issue (i.e., who controls the resources and funds)	5
Exposure of professional from LICs to professionals in ICs and vice-a-versa	5
Transfer of advance technical and scientific knowledge to LICs	5
Establishing linkages between work and schooling	4
Restructuring of giving and receiving of aid	3
Revamping of educational system in LICs to meet their own needs	3
Training of technicians and para professionals	3
Rural orientation in development as opposed to characterization of the world as urban	2
Biological control of insects for disease control	1
Development of criteria for land use because it affects ecological balance	1

TABLE 10

**What is The Likely Future Of The Concerns
and Emphasis In Your Discipline?**

Responses of Consultants	Frequencies
More research on mutual problems	1
Universal primary education	1
Interpretation of scientific work so that it can be used by other countries	1
Sophisticated research in pharmacology	1
Increased focused on rural world view and development of rural institutions for political actions	1
Increase effort to reduce dependency of LICs on LIs	1
Formulation of long-term development policies	1
Tropical disease control	1
Increased focus on cooperative educational programs	1

784

TABLE 11

**What Skills Are Likely To Become More Important
In Light Of Those Anticipations?**

Responses of Consultants	Frequencies
Communication skills (i.e., How to transmit information to people in a meaningful way and how to receive information from them)	5
Skills required for transfer of appropriate technology to LICs	5
Skills required for long-term planning	4
Skills required for field-based consultants who can provide services to local personnel in their ecological systems	4
Skills required to interpret basic research data	4
Skills required for coordinating programs	3
Skills related to motivating people to undertake certain tasks	3
Skills required for writing research proposals by using the current political jargon	3
Skills required to train first rate biologically oriented bio-chemistry	2

TABLE 12

**What Are The Consequences Of Particular Kinds of Experiences
In Terms of Continued or Expanded Professional Involvement?**

Responses of Consultants	Frequencies
Continued personal and professional involvement in cooperative research	5
It has impact on the kind of research I do	5
Teaching and research become down to earth	5
Realizing that there should be better exchange of experience among people in the world	4
Realizing that collaboration requires major effort	4
Increased desire to do something useful for humanity	3
Realizing that informal working relations overseas are better than bureaucratically arranged relationships	3

TABLE 13

What Is Your Model Of Man Or Human Nature?

Responses of Consultants	Frequencies
Man is curious being. Aesthetic values are important	2
Man is spiritual being	2
Man functions in a mechanical mode	1
As a man one works in present and future to alleviate human sufferings	1
Man functions within the framework of reciprocity. That is what I get from others and what they get from me is important	1
Ultimately we are what God has made us	1
Man can be cooperative and violent depending upon which situation he is in	1
Man is satisfying animal, likes to change things	1
Man is many sided animal, a complex being	1
Man is an intelligent being and is evolving into higher level of complexity	1

TABLE 14

**What Is Your Model Of Man and Society? How Do You
Conceptualize Relationships Between Man and Society?**

Responses of Consultants	Frequencies
Rich and poor. Too much disparities	4
Opening of social structure in order to give people real choices to live. This is what I mean by justice	3
I believe in equal opportunity and not in equal distribution	2
Poverty is relative	2
Equalization policies have its genesis in guilt. Each of us in our own ways are struggling with illusive things and are enjoying them in our ways	2
Honest communication among human being is the key to human survival	1
I believe in Plato's Republic. I am opposed to much emphasis on `rights' without responsibilities	1
I believe in Western Humanist model of man and society	1
Society is accumulated influence of man	1
Consciousness of inequalities has to come from within a country	1

TABLE 15

What Is Your Thinking On Modernization?

Responses of Consultants	Frequencies
Change is inevitable but high consumption pattern is not possible	5
Western type technological development is not possible at global level. This type of development has to be stopped first in the West	4
More homogenous distribution of knowledge for industrialization in LICs is needed	3
The will to change one's institutions has to be created	3
Got to preserve humanity, i.e., survival of human beings is most important	3
LICs cannot and should not follow the footsteps of ICs. But conditions in LICs must be changed. I don't know what model is better	2
Professional ethic is crucial	1
Monitoring of econological shifts is crucial in modernization	1
Only way to go is upward and forward	1
You cannot stop progress but don't hurry to destroy the old order until you can but new things in its place	1

TABLE 16

Disciplinary Background Of American and Canadian*
Consultants Interviewed

Academic Disciplines	Numbers
International health	4
Public Health	3
Tropical Medicine, Medical Microbiology and Public Health	3
International Health and Community Health	2
Avian Biology*	1
Behavioral Science and Population and Family Planning Studies	1
Biological Rhythms*	1
Community Development and Extension*	1
Comprehensive Health Planning and Geography	1
Development Economist*	1
Earth Science*	1
Engineering*	1
Environmental Health and Sanitary Engineering	1
Epidemiology	1
Geology*	1
Gerontology Education and Human Development	1
Health Services and Administration	1
Management and Quantitative Research*	1
Maternal and Child Health and Pediatrics	1
Math Education*	1
Medical Entomology*	1
Population and Family Planning Studies	1
Public Health Education and Population and Family Planning	1
TOTAL	31

ENDNOTES

** Dr. George Hickman, Memorial University, read this and an earlier related article "Cross-National Consultation in International Collaboration," The Morning Watch, Vol. 21, Nos. 3-4, Fall 1994, pp. 33-42, written by this author. The author thanks Dr. Hickman for reading these articles and providing valuable comments. Dr. Hickman has extensive experience in international, national and local consultation processes. Needless to say, the author bears sole responsibility for ideas expressed in these articles.

• See Lauer, R.H. and W.H. Handel (1997). Social psychology: Theory and application of symbolic interactionism. Boston: Houghton Mifflin, p. 44.

• Lofland, J. (1976). Doing social life: The qualitative study of human interaction in natural setting. Toronto: A Wiley Interscience Publication, p. 3.

SCIENCE EDUCATION

EDITORIAL

Alan K. Griffiths
Winter 1992

Exactly ten years ago a complete issue of **The Morning Watch** was devoted to matters relating to science education. A ten year span has a nice ring to it. Hence the thought to devote an issue again to science education. Much has happened in the intervening years, both in science education in general and in Newfoundland education in particular.

In this issue Bob Crocker writes about the participation/performance dilemma in science and mathematics education. Drawing upon data from his report of the Task Force on Science and Mathematics Education, Bob raises the interesting suggestion that one of the most vital determinants of academic achievement may be the effort expended by the student.

Glenn Clark's paper is also concerned with achievement, but in this case as it relates to gender. Science and mathematics educators worldwide have expressed and continue to express concern about the low participation of females in science. Glenn's analysis suggests that the participation of girls in science in Newfoundland schools is acceptable, but he presents a different picture of the situation at Memorial.

Harry Elliott and Frank Shapleigh return to a theme developed by Colin Davies in the science education issue ten years ago, namely the use of computers in science education. The routine use of interactive interfacing to augment and replace conventional laboratory activities, which is the focus of the paper by Harry and Frank, was hardly even speculation ten years ago. Today it is already central to the high school physics curriculum, with anticipated expansion into other areas soon.

Ten years ago I wrote about science, society and the Newfoundland curriculum. The topic of science, technology and society (STS) is still of vital interest to me, and indeed I presented an institute on this topic to Australian teachers a year ago. It is a topic which has captured the attention of science educators and teachers worldwide. However, I decided to write about an even longer-term interest, one which has also captured the attention of most science educators in recent years, namely the techniques and results of an in-depth look at students' misconceptions of science concepts, an area which has great untapped potential in relation to concept development in other curriculum areas as well.

In the last paper, Susan Ahearn draws attention to matters which transcend most writings about environmental education as she elevates the discussion to a planetary scale. Susan concludes by addressing the vital question of what teachers may do to develop a more appropriate concern for the ecology of which we are all a part.

Finally, it seems appropriate in this issue to refer to the retirement of our colleague Dr. Ruby Gough. Ruby joined us eight years ago following retirement from the Gander Integrated School Board, where she was Science Co-ordinator for many years. In her time with us Ruby took almost complete control of primary and elementary methods courses. She brought an enthusiasm and ability which is difficult to match, but

of course that is no surprise to generations of teachers of science at all levels throughout Newfoundland and Labrador.

**THE PARTICIPATION/PERFORMANCE DILEMMA
IN SCIENCE AND MATHEMATICS EDUCATION**

Robert K. Crocker
Faculty of Education
Winter 1992

Background

The past decade has seen fundamental transformations in society which have profound implications for science and technology education. One needs only to cite the revolution in information processing technology and the pervasive presence of the microcomputer in all aspects of society to illustrate this point. A major national study (Science Council of Canada, 1984) has called for increased emphasis on science at all levels of schooling, increased emphasis on the science/technology/society linkage, improved opportunities for women in science, and a number of other major changes. Since education in Canada is a matter of provincial rather than national responsibility, it has been left to the provinces to conduct more specific studies, or to implement whatever reforms they see fit, based on the national study.

This paper draws on a recent comprehensive policy study, the Mathematics/Science Task Force Study (1989), conducted in this province, to examine a fundamental dilemma raised by these societal changes and by the concurrent changes which have occurred in science education in the province during the 1980's. This dilemma has to do with whether the well-intentioned attempts to increase participation in science programs at the high school level actually have had the effect of depressing achievement just at a time whenever higher levels of achievement are being demanded by societal changes. More broadly, the question is one of whether there is an inevitable trade-off between high participation and high achievement levels or whether it is possible to meet societal demands for both higher participation and greater achievement.

While the Newfoundland study had much in common with the Science Council of Canada Study, the immediate impetus for the provincial study was low success rates in mathematics and science programs at the first year post-secondary level. Such results naturally become matters of substantial public concern because the effects of low achievement at this level become highly visible, in the form of students who are forced to abandon plans for higher education or to change from science-based programs to others which are seen as less demanding. Available international and interprovincial comparisons gave reason to believe that the problem of achievement was real, and that it was linked to some aspect of provincial educational structure or policy.

Recent international comparisons (IEA/SISS, 1988) have shown that achievement levels of Canadian students are high at the elementary and intermediate levels, but very low at the senior secondary level, relative to achievement in other countries. Within Canada itself, there are substantial differences between provinces in levels of achievement (Crocker, 1990). In general, these comparisons show that students in Newfoundland do more poorly than those elsewhere in Canada. Such comparisons raise questions about characteristics of the educational systems in various jurisdictions, and especially about the effects of particular structural features or policy decisions on levels of achievement and participation.

As the Newfoundland study progressed, it became evident that one of the most consistent aspects of educational policy in the province in recent years has been the attempt to increase the proportion of students continuing in school to the end of secondary education. By Canadian standards, the participation rate in secondary education in Newfoundland has traditionally been low. This problem had been a major source of public and professional concern for many years. In the early 1980's a revised high school program was implemented, which was intended to broaden the range of courses available, and to appeal to a broader spectrum of high school students. This program was controversial from the beginning, largely because of the decision to emphasize breadth rather then depth. Although the program required an additional year to complete (making grade 12 rather then grade 11 the final year of secondary education), core academic courses such as science and mathematics were treated in no greater depth in the new program than in the previous program. In fact, most of the broadening of the curriculum occurred in areas other than science.

All of this led to the hypothesis that there may be some connection between achievement and participation rates. A number of submissions to the study group, in fact, argued that the decrease in success rates in postsecondary courses was a consequence of liberal admission policies, and that achievement could be improved simply by imposing greater restrictions on access to post-secondary education or to specific high school science courses. Looking again at the international comparisons, some tentative support for this hypothesis appeared to exist. Although the number of countries having results at the senior secondary level was too small to make an overall correlation meaningful, it was clear that the highest achievement occurred in countries following the British model of selectivity and specialization at the senior secondary level, while the lowest levels of achievement occurred in countries such as Canada and the United States which are relatively unselective at this level. Despite this pattern, it was also evident that some nations, notably Japan and the Scandinavian countries, have been able to attain both high participation and high achievement.

If this hypothesis is correct, this presents a serious policy dilemma. Is there a fundamental trade-off between participation and achievement? Can higher levels of participation be attained only at the expense of lower levels of achievement? How selective should schools be at the secondary and post-secondary levels? These questions should be addressed if we are to avoid unintended consequences of well-intentioned policy decisions. The provincial study allowed this issue to be pursued in greater depth than was possible in large scale survey studies.

Basic Data

In carrying out the local study, the investigators had access to a more comprehensive data base of enrolments and test results than is generally available in large scale surveys such as the international science study. In particular, since a system of provincial public examinations is in place for awarding high school graduation certificates, a substantial bank of longitudinal data on student performance was available. Detailed summaries and analyses of these data are given in background reports to the study (Crocker, 1989; Banfield; 1989). The following are some of the highlights:

1. Overall secondary school enrolments in the province have increased steadily in recent years, despite a declining population base. The proportion of students

completing secondary education has increased by nearly 20 percent over the past decade.

2.   Increases of a similar magnitude have occurred in university admissions, but not in admissions to other post-secondary institutions.

3.   Enrolments in specific high school science courses have increased at an even faster pace than overall enrolments. For example, chemistry enrolment has more then doubled, to about 30 percent of high school students, while physics has increased from under 20 percent to more than 30 percent of all students.

4.   On the other hand, enrolments in university science courses have decreased slightly, despite the increase in overall enrolments.

5.   Average scores in the provincial school leaving examinations have remained stable or have increased slightly over the past decade.

6.   Scores in first year university mathematics courses have declined dramatically since the early 1980's, to the point where fewer than half of those enroling in the main first semester course are successful in passing the course on the first try.

7.   The above trend is unique to mathematics. Other science courses, as well as courses in non-science areas, have shown relatively stable scores over the same period.

On the surface, the public examinations data seem to refute the hypothesis that increased participation occurs at the expense of achievement. The stability of high school grades in the face of large increases in participation rates, seems to present strong evidence against the hypothesis. Nevertheless, it was possible to establish that public examination results have been implicitly and explicitly scaled in such a way as to ensure stability over time, thus rendering longitudinal comparisons useless. On the other hand, the decline in university mathematics grades could not be traced to grade scaling or other changes, suggesting that average performance has declined as participation has increased.

Because the problem with mathematics was so pervasive, and because the consequences of failure in mathematics are of such serious consequence for other areas of science, a more detailed analysis of the situation in mathematics had to be carried out. This analysis indicated that participation/performance issue may be much more subtle than the basic data would suggest. In particular, a more detailed look at those taking the various mathematics courses suggested that the problem is more closely related to expectations than to the conventional view that higher participation rates result in more lower ability students being admitted to a program which, in turn, yields lower average achievement. Before pursuing this point more fully it is useful to present a slightly more detailed picture of the situation in secondary school mathematics.

Advanced and Academic Mathematics: The Effects of Expectations

Although, in the local education system, streaming or homogeneous grouping is not used as a general approach to organizing students for instruction, a variation on streaming does persist in mathematics and science. In most science areas, this

streaming is implicit, in that particular courses are seen as appropriate for higher or lower ability students. In mathematics the streaming is more explicit. Specifically, three mathematics program streams exist at the senior secondary level. The first, termed **advanced mathematics,** is intended for the top 15 - 20 percent of the ability range. Students below this level who intend to pursue post-secondary studies take a less rigorous program, referred to as **academic mathematics,** which covers somewhat the same content as the advanced course, but in less depth. In practice, about 70 percent of students take this program. Finally, a program sequence which includes courses in **consumer, business, and vocational mathematics** is designed for the lowest ability students. Only the distinction between advanced and academic mathematics will concern us here.

The first indication that expectations may play a part in both participation and performance came from teacher interviews. Teachers were strongly of the view that advanced mathematics is a high risk program in which only the highest ability students could be expected to succeed. In fact, however, actual achievement levels in advanced mathematics were among the highest of any of the public examinations courses, and were substantially higher than would be expected for an advanced course, even if taken mainly by high ability students. At the same time, preliminary evidence suggested that the proportion of students actually taking the course varied widely from school to school, and that student decisions to take the course were based on a variety of considerations other than underlying ability or aptitude for mathematics.

All of this suggested that advanced mathematics was substantially under subscribed, and in fact was not necessarily being taken only by the most able students. This seems to be a fairly minor point until we recognize that this is but one manifestation of a much broader problem of expectations, and the influence of expectations on participation and performance. A detailed analysis of final examination marks for academic and advanced mathematics relative to overall student performance, as measured by high school average, revealed the following:

1. Despite the perception that advanced mathematics is a high risk course, mean scores were 10 to 15 percent higher and pass rates 15 to 20 percent higher in advanced than in academic mathematics. The failure rate in advanced mathematics averaged less than 5 percent, while that in academic mathematics averaged about 20 percent.

2. Scores in both mathematics courses were highly correlated with overall high school average.

3. Contrary to the perception that advanced mathematics is designed only for the most able students, the distributions of high school averages for advanced and academic mathematics students showed almost complete overlap.

4. A prediction analysis indicated that the proportion of students taking advanced mathematics could be increased from about 15 percent to more than 50 percent without depressing the success rate to a level below what has been experienced in academic mathematics.

Overall, these results indicate that high success rates in advanced mathematics are not a function of high selectivity. It is clear that once students select this program they perform in accordance with the expectations of the program. Selection decisions are made on the basis of post-secondary aspirations, parental

advice, program availability, school policies, and many other considerations other than mathematical ability or aptitude. In fact, it might be argued from this that mathematical ability is an elastic concept, which is linked to a variety of circumstances of ambition, expectation, or pressure to achieve.

The important point for the main purpose of this study is that once students enter the post-secondary system, those who have taken the advanced mathematics route substantially outperform their counterparts from academic mathematics. Whether this is a function of specific exposure to subject matter or of an extension of the idea of performance in accordance with high expectations is not clear. What is clear is that it is not mainly a function of underlying ability.

Research Implications

The problem at hand is closely linked to the broad and controversial area of research on expectation effects and self-fulfilling prophesies. Normally, such research is conducted at the teacher level, and involves either naturally occurring or induced expectations on the part of teachers, and the effects of these on teacher treatment of students and on the ultimate performance of students. The immediate research suggests that the expectation phenomenon may be equally applicable at a system level. Further research is required to examine this effect more closely. One possible line of investigation would involve further cross-national studies, involving systems with different levels of selectivity. In addition to looking at quantitative data, it would be particularly important to examine different fundamental assumptions about access to higher levels of education, and differences in attributions of educational success or failure. A second area of investigation would be a simple extension of studies in student program selection and performance.

A broader implication concerns the fundamental conceptions of the nature of ability and its relationship to achievement. Retention of streaming in mathematics and science is based on a pervasive concept in Western societies that achievement is related to ability, and that ability itself is an innate trait. This conception is in sharp contrast to a conception which seems prevalent in Asian societies, where achievement in viewed much more as a function of effort. In fact, there is evidence that in Japan, for example, the concept of ability itself is viewed in terms of effort rather than of innate characteristics (Holloway, 1988). If the latter conception is correct, the participation/ performance dichotomy can be viewed as a false one. High levels of achievement can be expected of those who exert the appropriate levels of effort. The implications of this are profound. What is required is research directed more explicitly at the function of effort in performance.

Implications for Policy and Practice

The broad issue at stake here is the effects on educational achievement of policies designed to increase participation rates at the higher levels of education. This issue is of substantial importance in many countries, particularly those which are striving to increase levels of participation in secondary education. The most typical way in which this has been accomplished has been to devise programs designed to suit a broader spectrum of student abilities. Some jurisdictions which have carried out this policy to the extent of having extremely broad program options are now beginning to reconsider

the wisdom of such a policy, as more and more students appear to graduate from high school without having attained even basic levels of literacy.

The study at hand was set in a context in which the policy of broadened secondary programs had come under considerable criticism. In particular, the tendency for students to opt for a middle-level mathematics course was seen as the source of many problems of performance at the post-secondary level. The study suggests that the effect of program broadening has been to reduce performance expectations to an unnecessarily low level, and that students of the same general ability will achieve at quite different levels, depending on the particular program selected. If subsequent studies can further substantiate this hypothesis, educational jurisdictions will have reason to increase achievement expectations without undue risk that large numbers of students will fail to complete secondary education.

This issue is particularly important in science education because all societies are being transformed in a manner which will increase the relevance and importance of mathematics and science in the school curriculum. Both high participation and high achievement levels are required for ever larger numbers of students. Educational jurisdictions which are attempting to increase participation rate need to design their programs so as to ensure that this will not occur at the expense of performance.

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EQUALITY AND INEQUALITY

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Equality is a value strongly held in most democratic societies. As it has long been realized that many inequalities exist based on accidents of birth, and that these inequalities cannot in fact be remedied within the structure of our society, equality has been replaced with fairness as a pragmatic social goal.

This paper will examine one ideal of fairness, gender equity, and its relation to the learning and teaching of science. My main aim will be to deal specifically with gender equity in science learning in Newfoundland. This will be related to larger issues of equity and to developments in science education elsewhere.

Equity can be looked at in two basic ways. One view consists of an argument that people and groups are basically different in many ways. These differences are manifested in schools, and in society generally, by differing levels of achievement. A basic equity model (Jacobs, 1989) here includes putting equal resources into different groups, but no expectation of equal outcomes.

A second, and very different view of equity, is an equal outcomes model (Turner and Bower, 1990). In this model it is recognized that individuals are much different from each other, but group differences are assumed to arise from differences in treatment. Equity in this model means that we should spend unequal amounts on different groups in order to bring about equal group outcomes. Measured differences between groups are assumed to be evidence of differing treatments, either by the school or society.

When these two models are applied to real situations, very different interpretations result. For example, in Newfoundland girls score significantly higher on most sections of the Canadian Test of Basic Skills (CTBS) at grade eight level (Jacobs, 1989). Taking model 1 we assume that, since there are no apparent differences in resource expenditures favoring girls in the Newfoundland system, boys are inherently weaker on the variables measured by this test. Using model 2, however, we assume that these differences have arisen from differences in treatment. Following this line of reasoning biases in the system, while they may not be apparent, exist, and are the causes of these measured differences in outcomes.

During most of this century, in North America females have participated at a much lower rate in the physical sciences than have males. For example, in the United States in the 30 year period from 1956 to 1986, women graduates with a first university degree in physical sciences have never exceeded 25% of the total number of physical science graduates in any year (Turner and Bower, 1990). The number of women obtaining doctorates in physical sciences has never surpassed 17% of the total during this time (National Science Foundation, 1987). Using our two models above we can begin to look for explanations for these disparities. Model 1 will predict that underlying differences in talent between men and women exist. These differences are then translated into differences in achievement which eventually will bring about differences in participation rates.

Much research has been done following this line of reasoning. Basic differences have been found in the abilities of men and women. However, these differences, though well established, seem to be both too small to account for differences in participation rates (Science Council of Canada, 1981) or difficult to relate causally to science outcomes (Linn, 1986). Also, while there is a large drop in the participation rate of women as they go progressively from high school to university to graduate school, there is little or no difference in achievement by individuals within levels. For example, if the argument above was true, we should find that the smaller than equitable percentage of females doing high school physics and chemistry should score lower than males on measures of achievement in their courses. This is not the case. In fact, the mean scores of males and females are nearly always very close to one another (George, 1989; Science Council of Canada, 1981).

If difference in ability was the basic cause of difference in participation rates at the high school level, this cannot be true for declines at later levels. That is, the pool of women with appropriate training, and equal talent, available to pursue university physical science shows a much higher rate of attrition from high school to university than does that for men.

These and other lines of reasoning lead to the conclusion that differences in basic abilities should not be pursued as causes of differences in participation rate (Linn, 1989).

Strong support for this idea comes from data on changes in enrolments in various majors in the United States. In that country the numbers of men and women majoring in various areas have converged strongly in recent years (Turner and Bower, 1990). In the United States, the gap in participation rates outside of physics and engineering has closed almost completely. Even in physics and engineering the number of women has increased, but still remains relatively small. From 1950 to 1985, for example, the percentage of women in engineering went from .2% to 16%, while the percentage in physics went from 5% to 15%.

These changes would be very unlikely to have occurred if the main causal factors were real differences between gender based on endogenous factors. Changes of this magnitude are likely to have been brought about by other changes in society.

In the next section of this paper I will discuss potential societal causes of different participation rates, suggested remedies, and evidence supporting or weakening these as potential remedies. Before I do that, however, a caveat is in order. Although the argument so far has been that endogenous differences between males and females are not large enough to account for observed differences in participation rates, this does not mean that such differences do not exist. Neither does it mean that they may not have significant effects on schooling at other points. I will return to this later.

A wide range of studies has shown that prior achievement, prior course selection, expectations of parents and teachers, academically oriented peers, interest in science and math, perceived future relevance of these subjects for career and life goals, and confidence in ability are related to achievement and participation for all groups of students (Oakes, 1990, p. 203). That is, improvement in these variables normally results in increased participation and achievement for both males and females.

Courses already taken and prior achievement are somewhat different than other variables on this list. Success in previous courses in science is nearly always

necessary for enrollment in later courses. Unlike other areas of study, almost no one transfers into science or mathematics as they go up the pipeline from junior high to high school to university. Prior course success will have a direct effect on later participation by clearly barring those who have not succeeded at earlier levels. The means by which the other variables affect participation and achievement has not been clearly explicated by research. They must, however, affect outcomes in an indirect way by acting through other variables.

Research shows these effects to be more complicated than one might think. For example, students who are more interested in courses they are taking do not necessarily perform better in those courses than students who are less interested. They do, however, participate in later courses at a higher rate and thereby show an overall increase in achievement (Oakes, 1990, pp. 178-179).

Participation in Newfoundland

In this section of the paper, participation rates for males and females in science in Newfoundland will be discussed. I will begin with an analysis of high school data and move to information on participation at Memorial University. An argument will be made that virtual gender equity exists at the high school level, but that severe problems occur at the university level.

While there has been some suggestion that gender differences in achievement and participation rates have their roots in elementary and middle school (Linn, 1989), this is clearly not the case in Newfoundland. In nearly all Newfoundland data, participation and achievement are essentially equal for males and females at the high school level (Task Force on Science and Mathematics Education, 1989; Department of Education, 1991). There are two major exceptions to this; physics and biology. In the past, many more males have taken physics, while more girls participate in biology. In 1990, 1618 males (36%) and 1315 females (27%) took level three physics. In biology the numbers were 2276 males (52%) and 3175 females (58%). Of the total enrolment in level 3 physics in 1990, 45% were females, while in biology 58% were females.

The report of the Task Force on mathematics and science education states, while discussing the enrolment of females in mathematics and science courses in 1987, that "patterns for other years are about the same", (1 989, p. 1 00). This is only true if one takes a very short term perspective. For longer periods of time this statement is false and misleading. Persistent small changes, all the same direction, have brought about major changes in participation rates. For example, in 1979, 627 males and 480 females, representing 17% and 12.3% of the population respectively, were enrolled in the senior course in high school chemistry. By 1986, 858 males and 926 females enrolled in this course. In 1990, 1267 males (29%) and 1467 females (30%) participated in the equivalent course. The result here has been a move toward both gender equity and a general increase in participation in chemistry.

Changes in physics have been of an even larger magnitude and in the same direction. In 1979, 915 males (24.8%) and 336 females (8.6%) took the senior course in physics by 1990, 1618 males (36%) and 1315 females (27%) participated in this course. Looked at in another way, the percent of the total enrolment in high school physics that was female went from 25% in 1979 to 45% in 1990. Since the total numbers of people participating in physics rose dramatically during this period, almost four times as many females were enroled in high school physics in 1990 as in 1979.

No significant and persistent differences in high school science and mathematics achievement of males and females, respectively, are evident in any of the Newfoundland public examination data. Only in the case of physics are there persistent public exam scores favouring one sex. These typically favour boys by two percent. This difference is probably too small to be meaningful, as the standard deviation in these exam scores is about 18. A difference of one tenth of a standard deviation is unlikely to have much explanatory power.

In mathematics, girls participate at the same rate as boys in all areas: business math, academic math, and advanced math. They also receive equal scores on provincial examinations. However, Newfoundland girls consistently score much lower on the mathematics section of the Canadian Test of Basic Skills (CTBS) (Jacobs, 1990; Fagan, 1985). In the most recent data available, 1990, these differences persisted at about 10 percentile points as males scored 50 and females scored 39 compared to a national norm of 50.

It is very difficult to interpret this data reasonably. Two possible explanations, however, come immediately to mind. First, the differences shown in the CTBS data may be real. Females may be considerably less talented in mathematics, but perform well by hard work. This would be consistent with a persistent finding from United States data that females rate mathematics as more difficult than do men. Alternatively, the CTBS instruments may somehow be biased to favour boys. In other data where anomalous scores of this type occur, such as USA SAT-M scores, analysis of processes required to solve some items show that males are favoured (Linn, 1989). Normally, achievement and aptitude are highly correlated. It is likely that there are biases in the CTBS mathematics section, but without further analysis nothing here can be said for certain.

Summary Comment, Participation and Achievement

From the data and information above it is clear that both males and females are participating at a high rate in all areas of mathematics and science at the high school level. Near equity of participation has been reached even in the traditional male domain of physics. In most other areas females now out participate men.

The situation at Memorial University is, however, much different than this. The increasing numbers of people with appropriate training for entry into University science programs has not led to any increase in numbers of science majors. For the University as a whole this is consistent with trends in North America (Turner and Bower, 1990). However, neither the proportion nor the numbers of females majoring in sciences has changed much at MUN in ten years. In fact the number of women majoring in science (421) was exactly the same in 1990 as it was in 1980. This is considerably different than North American trends, where the proportions of science majors who are females has risen.

Within the physical sciences at MUN this stability has been a negative factor. In 1990, females (49) were 24% of the major in physics, chemistry and earth sciences, exactly the same as the 24% in 1985. By graduation time the percentage of females had declined even further. The total number of graduates in physical sciences at MUN in the years 1987, 1988 and 1989 was 117. Of these 16% (19) were women.

Different attrition rates for men and women also occur in the biology program at MUN. In only one year since 1985 were there more men (216) than women (206)

major in biology. In the three years from 1987 to 1989 there were 78 female (43%) and 101 male (57%) graduates in biology. During this time 51% of the majors in biology were females.

Equity of outcomes by gender is clearly not achieved by the physical science departments at MUN. Partly this is because few females enrol in these areas and partly because of higher attrition rates for females. The reasons for these differences are not clear, but are interesting to speculate about. Students who persist in studying science are more adept at developing support networks among other students to help them deal with academic problems (Science, 1991). Females who are in a minority already have fewer peers of the same sex to turn to for help. Also, Memorial's faculty members in the physical sciences are almost entirely male. It may be that women have a difficult time relating to these male role models.

These are speculations about causes. They may be totally irrelevant. The same speculations about cause occurred in "Who Turns the Wheel" (Science Council of Canada, 1981) published ten years ago. In the intervening years the gender participation problem that then existed at the high school level has largely disappeared. We know neither the reasons for the original gap nor the reasons for its disappearance. We do know, however, that some combination of work by individuals and groups to influence change plus larger societal movement has removed these disparities.

Now would seem to be an appropriate time for MUN to make special efforts to encourage women to enter physical science faculties and persist until graduation. Present unequal results demand some redress. This country has a projected need for graduates in these areas (Joint Ministers Meeting, **1991)** that can be filled. Women and the **physical** science community will both benefit.

810

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COMPUTER TECHNOLOGY TO ENHANCE THE TEACHING AND LEARNING OF SCIENCE

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Introduction

Our future depends largely on how wisely we use science and technology. That, in turn, depends on the nature of the education our citizens receive. Without a scientifically and technologically literate population, the prospects for a better province, country, or world are diminished. To ensure a scientifically literate society, our formal education system must be reformed to reflect the changes that have occurred and are still occurring in our society. Today's students, tomorrow's decision makers, must be provided with the knowledge and skills to understand and deal with the complex interrelationships among science, technology, and society.

The past decade has been a time of rapid change in our society. Science and technology have become increasingly prevalent in many aspects of our society, to the point where all citizens are exposed to science and technology every day of their lives - from the technology in the home and workplace, to the management of our natural resources locally; to global scientific issues such as the depletion of the ozone layer. It is critical, then, that our citizens be scientifically and technologically literate if they are to be informed, critical thinking decision makers. What is considered to be a basic education has been redefined by this proliferation of scientific knowledge and technological power.

In the Province of Newfoundland and Labrador, students must be prepared to participate in scientific and technological careers. The off-shore oil industry will require workers who have expertise in the areas of physics, chemistry, and computer technology. Students must be given the necessary background in senior high school to pursue careers in these areas.

A. Background

Over the past decade there has been a number of studies conducted related to our education system, particularly the science, mathematics, and technology components of our curricula. This examination has taken place at the local level as well as at the national and international levels. Much research has been conducted in an attempt to determine if our education system is responding adequately to a rapidly changing society, a society which is becoming increasingly scientific and technological in nature. **Towards An Achieving Society** (A Report of the Task Force on Mathematics and Science Education, 1989) examined the local situation. The Science Council of Canada produced Report 36 (1984), **Science For Every Student -** Educating Canadians **For Tomorrow's World,** which examined the national system. In the United States, the American Association for the Advancement of Science produced Project 2061, **Science For All Americans** (A Report on Literacy Goals in Science, Mathematics, and Technology, 1989).

Two reports of research on science education have made recommendations which have had a significant impact on curriculum development in Newfoundland and Labrador. Science For Every Student and Towards An Achieving Society have addressed the direction for science education for the 1990s and the 21st century. Both reports emphasize the need to revise our science curricula to ensure that our students are equipped with the knowledge, skills, and attitudes to enable them to become informed, responsible decision makers. This is reflected in all science curriculum development that has taken place over the past few years and will be reflected in future developments.

In **Science For Every Student,** the Science Council of Canada proposes eight initiatives which might result in a renewal of science education in the desired direction. These initiatives are as follows:

- guaranteeing science education in every elementary school
- increasing the participation of young women in science education
- challenging high achievers and science enthusiasts
- presenting a more authentic view of science
- emphasizing the science-technology-society connection
- setting science education in a Canadian context
- ensuring quality in science education

In, the Task Force on Mathematics and Science Education proposed some 97 recommendations related to mathematics and science education. Some of the specific recommendations regarding science education include the following:

Recommendation 9.4

That a major curriculum development program be initiated in science and mathematics. The goals would be to update all existing programs, make these programs consistent with broad objectives, articulate programs across grade levels, produce more usable curriculum guides, prepare specifications for published materials, and develop implementation plans. The aim should be to complete this task within three years.

Recommendation 9.7

That the goals of literacy, citizenship, further education, work, and critical thinking/problem solving be adopted explicitly for use throughout the science and mathematics curriculum in the Province, at all levels.

Recommendation 9.9

That science curriculum be developed around the themes of understanding the natural world, the world of technology, and the relationship between science and society.

Recommendation 9.12

That a course based on the science-technology-society theme be developed, and that this course be required of all students in their first year of senior high school.

In response to recommendations in both of the above reports, the Division of Program Development of the Department of Education has undertaken the development of new programs in science curriculum. The renewed curriculum will be current and relevant, will use local and Canadian content, and will emphasize the science-technology-society theme and the development of critical thinking, problem solving, and decision making skills. Programs currently undergoing changes or development are intermediate science, biology, physics, general science, environmental science, and science-technology-society. In the near future, primary, elementary, and earth science/geology will be revised.

B. The Development of a New Physics Program

A new physics program is being implemented during the 1991-92 and 1992-93 school year. However, the process of revising the physics program for students in this Province began in 1986. At that time the Physics Committee of the Science Council of the Newfoundland Teachers' Association conducted a survey of physics teachers. The survey was designed to assess weaknesses of the present programs and also to seek recommendations related to a revised program. The survey results were presented at the Science Council's Annual General Meeting in October 1986.

Shortly thereafter, the Science Council requested that the Department of Education appoint a working group to commence development of a new physics program. The Department responded and a Physics Working Group began the revision during the 1987-88 school year. The Physics Working Group sought input from the high school community, post-secondary institutions, and the Science Council of Canada. The Physics Working Group specified content for Physics 2204 and 3204. Instructional objectives were written for both courses during the summer of 1988 and refined in 1989 and 1990.

Physics 2204 is designed for the full range of potential physics students. The topics of particle energy, wave energy, and light involve relatively simple scalar concepts, but yet address the complete list of general program objectives for high school physics. For the most part, the only mathematics required consists of the tools of computation, algebra, and plane geometry, and these should have been covered in intermediate school or met (perhaps concurrently with physics) in the first year of senior high school.

Physics 3204 with its development of the vector concepts of velocity, acceleration, force, momentum, gravitational field, and electromagnetic field, along with greater emphasis on mathematical modelling and problem solving, is more likely to appeal to students with special interests in science, engineering, and technology. In fact, both courses should be strongly recommended to students with future study and career plans in these areas.

Although the traditional objectives and topics remain an important part of the courses for the 1990s, the courses do emphasize to a greater extent the problem solving process, the relationship of physics and technology and their impact on society, the nature of science, and the role of experimentation in learning physics.

The Division of Program Development forwarded copies of the descriptions of each course to major publishing companies and requested materials which correlated with the proposed contents and reflected the overall objectives of the physics program.

After screening the resource materials received, three textbooks were selected for piloting purposes.

The pilot process, which occurred over a three-year period, involved twelve schools, fourteen teachers, and approximately nine hundred students. The pilot was monitored closely and modifications were made to the program as a result. Based on the results of the pilot, a decision was made to list two textbooks as the major resources for the program.

Inservice involving the science program coordinator and two physics teachers from each school district was conducted by the Department of Education during May and June of 1991. Regional inservice was followed by inservice in each of the school districts. A comprehensive curriculum guide served as the focus of these inservice sessions. Implementation commenced in September 1991.

C. Physics Teacher's Profile

Physics is taught in approximately 70% of the schools at present with an approximate enrolment of 4000 students. With the introduction of the new physics program and efforts being made to offer the program via distance education, the enrolment is expected to increase significantly.

As with all science courses being taught at the senior high school level, the degree of expertise of the teachers involved varies considerably. In a survey conducted in January 1991, responses were received from approximately 85% of current high school physics teachers. Less than 30% of these teachers have formal study beyond the bachelor's level. Eighty percent of these teachers have less than 10 with a mean of 6.5 semester courses in physics. Approximately 40% have been teaching physics for less than five years. The physics teaching community is thus one of considerable experience generally, but with little experience teaching physics. Formal study in the subject is quite limited and overall formal qualifications might be termed mediocre.

The survey also attempted to ascertain the need for a summer institute in physics. The responses to this inquiry were quite encouraging. One question in the survey instrument asked teachers to list in order of preference the topics which should be addressed if an institute were to take place. Traditional topics such as light, sound, laser physics, nuclear physics, and current electricity were listed. Pedagogical and assessment techniques were also listed. However, the majority of the teachers who responded listed the use of computer technology to enhance the teaching and learning of physics as high in priority.

D. Computer Interface Technology in the Curriculum

The Department of Education has been attempting to introduce the use of computer technology during the piloting of the physics program. Twelve schools used a computer interface technology called SuperChamp in their physics program. An additional six schools were provided software for utilization in their high school physics courses.

A computer interfacing system consists of three basic elements: probeware (sensors), hardware (interface box), and software.

The sensor monitors phenomena in the real world (e.g., temperature, pH, oxygen, sound) and sends an analog voltage signal to the interface box.

The interface box collects the data from the sensors, translates it into a series of digital values which can be understood by the computer and sends those values to the computer. This information is often sent via the computer's serial port. The interface box can collect data at rates ranging from 1/hr to 100,000/s.

The software has two functions. First, it controls how the data is collected (how fast, how long, etc.) and translates the data from the raw digital values sent by the interface box to meaningful values. One way it does this is by using a calibration routine. For example, a temperature probe immersed in ice water may cause the interface to send a digital value of 2,157 to the computer. The software, must then interpret that as a specific temperature in celsius degrees. The second function of the software is to allow users to analyze, save, export, graph, and print the data once it has been collected.

During the month of August 1991 two one-week institutes were conducted for approximately fifty high school physics teachers. One of the objectives of these institutes was to prepare these teachers to use computer interface technology as a tool in the instruction of physics. Funds for these institutes were granted from a Public Awareness Campaign sponsored by Industry, Science and Technology Canada. The Newfoundland Teachers' Association administered the funds for these institutes.

The agenda for the institutes included:

- a brief introduction to the microcomputer, the DOS operating system, spreadsheets, graphics applications, and the word processor.

- a demonstration session on the theory and use of interface devices in laboratory activities and student investigations.

- a session where the participants constructed sensor devices to use with the analog to digital converter.

- laboratory sessions where the computer was used for timing and sensing. Participants used the computer spreadsheet to analyze data, a drawing package to produce diagrams, a graphics application to produce charts and the word processor to produce lab reports. The graphics plotter and laser printer were used as output devices.

During the course of the institutes participants studied such phenomena as:

- the motion of a dynamics cart rolling on a level surface.
- the speed of sound in air.
- the relationship between the frequency of a pendulum and its amplitude, mass and length.
- the frequency at which a fluorescent light blinks on and off.
- the relationship between force and mass on the surface of the earth.

Although the SuperChamp system had been available to physics teachers during the pilot, other systems were obtained and used during the institutes as well. The

Champ 11 available from Merlin Scientific and the Multipurpose Lab Interface System available from Vernier Software met
the requirements.

Feedback received from participants at the institutes indicated that they had been given the skills necessary to commence the use of this technology in their classrooms. Information received since the institutes indicate that purchases of systems are being made and used in physics instruction. Further institutes are being planned during January and February of 1992 for Western Newfoundland and Labrador.

The discussion thus far has evolved around the use of this technology for the learning of physics. However, computer interface systems have applications to other areas of the science curriculum. For example, in the area of biology, investigations can be carried out to determine:

- the relationships between dissolved oxygen and temperature.
- the oxygen consumption through human respiration.
- the rate of photosynthesis.
- which sugar source provides the most readily available source of energy.

Computer interface technology can be used in chemistry to investigate:

- the effect of adding salt to the boiling point of water.
- the acid concentration of freshwater sources and soil types.
- the melting behaviour of pure and
- the behaviour of buffers.
- the variation of hydrogen ion concentration as a base is added to an acid.

The impact of the use of computer technology on instruction has been the subject of many studies in the past. Conflicting results are often presented related to specific uses of the computer. Little research seems to have been carried out to examine the influence of computer interface technology on instruction in science. Although interface technology is in common use within industry, the school system is just commencing its use. Some concerns have been expressed by educators related to the use of this technology and the development of certain skills such as data analysis and graphing. In fact, some have suggested that this technology will remove many of the frustrations of scientific investigations, presenting an inaccurate view of the nature of science.

Preliminary reactions in this province indicate that interest in using computer interface technology to enhance learning in science is extremely high. Only through extensive exposure during teacher preservice and inservice will there be effective use of this technology. Research is necessary to determine its full impact on the instructional process.

MISCONCEPTIONS GALORE

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Like most teachers I am always interested in what students understand and in what ways their understandings differ from mine. Over a period of twenty years or so, I have been fortunate to work with colleagues and graduate students at Memorial and elsewhere who have collaborated with me as we have attempted to tease out the problems experienced by children and adolescents as they learn science. It may be instructive to describe the development of some of my own research interests, as they parallel some major developments in research in science education over the last two decades.

In the early 1970's my research centered on individual understanding and, concomitantly, on individualization of instruction. This research culminated in a study in which two groups of first year chemistry students at Memorial, one following an individualized approach and the other a whole class based approach to learning, were compared in terms of achievement and in terms of the relationships between selected personality characteristics and achievement (Griffiths and Crocker, 1976). Although this was not a major focus of that study, attention was paid to the learning difficulties students might encounter, especially those students following the individualized approach. With respect to the present paper, it is important to note that these difficulties were generally those anticipated by the researcher or were observed from students' written responses to pre-set questions.

In the late 1970's and the early 1980's my interests centered on the identification of learning hierarchies for selected concepts in biology, chemistry, earth science and physics. With the generous support of the Canada Council and the dedication of a relatively large team of graduate students and research assistants, a number of validated hierarchies were obtained. In each case an empirical comparison was made of the relative influence of learner developmental level in a Piagetian sense and availability of subordinate learning in a Gagnean sense, respectively, on the learning of progressively more complex content within the hierarchy.

Findings and methodological innovations were reported in Griffiths (1987) and a number of other sources. It is of interest that in all cases the influence of acquired subject-specific intellectual skills far outweighed the influence of generalized developmental level competencies. However, in terms of subsequent research activities, particularly those eventually described in this paper, the most important outcome of the research was the beginning of a developing awareness of the existence and nature of a wide range of common and persistent student misconceptions which impinged upon and hindered effective development of the concepts involved.

At that time, in the early to mid 1980's, it seemed plausible to combine knowledge of validated learning hierarchies and commonly found misconceptions to provide a framework for remediation of content which students had failed to learn. A further SSHRCC funded study investigated this. Multiple-choice questions were constructed in which each distractor reflected a particular identified misconception. Following normal instruction, students from a number of schools were administered diagnostic tests containing items constructed as above. Individual remediation was

provided through written booklets keyed to the hierarchies developed earlier, and to the specific misconceptions already identified in the earlier hierarchy studies. This remediation was keyed to the content represented by each selected distractor. Results were equivocal, perhaps because the misconception uncovered in each case was not the only misconception held by the individual for the small piece of content involved, or perhaps because the deterministic approach was inadequate to uncover and/or to remediate the student's underlying misconceptions (Griffiths, 1987; Griffiths, Thomey, Cook, and Normore, 1988.) Whatever the reason, importantly with respect to the present paper, we were left with the strong impression that our written instruments had achieved only limited success at uncovering the extent of our subjects' misconceptions.

My recent work has seen the use of a naturalistic approach, and has focused upon a much more in-depth attempt to uncover students' misconceptions. Three separate studies have resulted in the identification of a wide range of student misconceptions. Griffiths and Barry (in press) reported on students' understanding of the nature of science itself; Griffiths and Thompson (in press) reported on student's understanding of the meaning of a number of operational processes considered fundamental to the practice of science; and Griffiths and Preston (in press) reported on students' understanding of atoms and molecules. Each study involved individually interviewing 30 or more high school students. These studies may be of interest to researchers and teachers not only in science but in other subject areas as well, especially with respect to the methodology involved. First, a little background.

Conceptions, Misconceptions, and...

The science education literature of the eighties contains reports of many studies designed to identify divergences between students' understandings of scientific phenomena and current scientific understandings of the same phenomena. Different terms have been used to represent these divergent understandings. These include the terms naive conceptions, alternative conceptions, misconceptions, and several others. Naive conceptions refer to conceptions which are inconsistent with existing scientific conceptions and are held prior to formal instruction, but which may nevertheless be tenaciously adhered to even after instruction. Alternative conceptions are conceptions which are consistent with explanations of phenomena within a limited setting but are erroneously extrapolated beyond that setting. They too tend to be held tenaciously once formed. Misconceptions are considered to be conceptions which arise during or after instruction, and which are at variance with current understanding. In the present paper we are concerned generally with misconceptions, although it is impossible to be consistently certain of this. Whatever we may wish to call them, it is informative for teachers to know the nature and range of these divergent conceptions. It is also important for teachers to realize that, once held, these divergent conceptions are often difficult to change.

Methodology

Researchers have used a variety of techniques to uncover students' divergent conceptions. These include the use of traditional written tests, as well as both interviews and questionnaires with varying degrees of structure. Each technique has both advantages and disadvantages. Written tests and questionnaires are subject to the charge of immaculate perception, namely that researchers erroneously assume that subjects read exactly the same meaning into test items as do the developers of the test (Munby, 1982). Structured interviews may be no more than verbal questionnaires, although they tend to be more reliable than unstructured interviews. Unstructured interviews may encounter problems of reliability but offer the promise of a rich range of questions and responses. In each of the three studies referred to here, lightly structured interviews were used. Consistency of questions was ensured through the use of pre-established protocols, but in each case a great deal of flexibility was allowed. To enhance reliability, repeat questions were incorporated into the protocols and, in two of the studies, selected students were administered modified repeat interviews a month after initial interviews. Each interview was tape-recorded, transcribed, and converted to a set of propositional statements representing the individual student's conceptual inventory (Erickson, 1979). The validity of these inventories was supported through independent expert analysis. What did we find? The results of each study will be reported separately with subsequent general discussion. Before presenting the results a further brief comment is in order. The results represent a small selective segment of the information obtained in three larger studies. Science teachers and others who wish more detail may refer to Barry (1991) and Griffiths and Barry (in press) with respect to the nature of science study; to Thompson (1991) and Griffiths and Thompson (in press) with respect to the scientific processes study; and to Preston (1988) and Griffiths and Preston (in press) with respect to the study relating to students' understandings of atoms and molecules. On the other hand, non-scientists who may be less interested in the specific details presented may wish to proceed more quickly to the discussion section at the end of this paper. Hopefully, the detail presented in the results section is sufficiently interesting to capture the attention of each group.

Nature of Scientific Knowledge

An education in and about any academic discipline, even if it yields a rich array of knowledge and a substantial repertoire of skills, is deficient unless it is accompanied by an understanding of the nature of the discipline itself. In its landmark study of science education in Canada the Science Council of Canada (1984) found Canadian education to be very deficient in its treatment of the nature of scientific knowledge.

What do Newfoundland students believe about the nature of scientific facts, laws and theories and about how these change as science progresses? Thirty-two students from nine different schools were interviewed individually in an attempt to discern this. Sixty-three misconceptions were exhibited, 49 by at least ten percent of the sample. Here are a selected few of them:

- Science is an uncertain enterprise. Yet for these students the essence of factual knowledge appeared to be its certainty. The concept of proof frequently appeared when students were asked about the difference between factual knowledge and other forms of knowledge. A typical response was that "a fact is something that is scientifically proven and will always be true." However, appropriately, such certainty tended to break down upon further questioning. About half the sample expressed

some degree of tentativeness, usually attributed to changes in scientific methodology. Five students were less sure and considered only some facts to be open to question; five others believed that facts are open to question but that it is usually futile to question them. Finally, five students were quite certain that facts never change. The thought that factual knowledge is embedded within a complex theoretical structure never emerged.

- Theoretical knowledge, in contrast to factual knowledge, was seen as highly tentative, but the reason for this appeared to be lexical. Students' reasoning centered upon the use of the word 'theory' in everyday language to convey tentative ideas, rather than upon the nature of theories in science. Lack of proof was crucial. For over a third of the sample a theory, once proven, becomes a law, a finding which is consistent with Rubba, Horner and Smith (1981) who identified what they called the 'laws are nature theories' fable in a group of American students.

- With respect to laws, certainty was the key word. For example, "...A scientific law is something that is true, that is proven beyond a shadow of a doubt." In effect, laws were considered to be super facts, and other than as a matter of degree they were not distinguished from facts. They were seen to be quite different from theories in that laws represent certainty while theories, by definition, were considered to represent uncertainty. In a different vein, one quarter of the sample considered laws in terms of a legal metaphor, as mandated procedures.

- What can we learn about students' understanding of the nature of scientific knowledge itself? The correct use of terms such as fact, law and theory is of some importance, but much more important are students' understandings of the nature and limitations of scientific knowledge. To paraphrase Hanson (1959) 'observations are made through spectacles behind the eyes.' Yet only one-third of these students understood that scientists' observations are guided by their theoretical frameworks.

- Nadeau and Desautels (1984) describe five unacceptable views of science which appear to exist alike in the minds of teachers and students. Three of these, namely excessive rationalism, credulous experimentalism and naive realism were very prevalent in the present sample. Excessive rationalism is the belief that science marches steadily onward to ultimate truth. Seventeen students appeared to demonstrate this. Credulous experimentalism is the belief that experimentation makes possible the conclusive verification of hypotheses. Thirteen students showed evidence of this. Yet the history of science illustrates the fragility of such a belief. Thirteen students exhibited naive realism, a belief that science reflects the world as it is, correctly and faithfully describing reality.

In general, it appeared that the singular hypothesis approach of school science, which may be necessary for pedagogic reasons, may hide the existence of the complex set of auxiliary assumptions which underlies scientific knowledge. However, at the same time this may make R difficult for students to understand how theories which are acceptable at one point in time become unacceptable later.

Processes

The data just discussed relates to the process of science in a philosophical sense. In this section attention is turned to the results of a study focussing on processes involved at a practical level. Again 32 students were involved and again they were selected according to a procedure designed to provide a broadly ranging sample.

Students were drawn from eight schools. Six processes were considered, namely observing, inferring, interpreting data, predicting, hypothesizing and controlling variables. Sixty-three misconceptions were identified. A selection of these will be reported here.

- At all levels, students learning science, like researchers, make observations. But what does making observations entail? Half of the sample, through statements like "Observing is seeing and taking note of things" and "Observing is really seeing" and 'Only those things you can see can be observed", expressed an explicit belief that observing is seeing. Most of these subjects did not recognise the role of the other four senses in observing.

- Interpreting data in science generally involves extracting relationships from devices such as graphs, tables, drawings, and photographs. Only one-half of the sample were able to explain what they understood by the term. However, when provided with data to interpret most were successful. The same was true for predicting. Explanation of the terms interpreting data and predicting was inadequate, but application was satisfactory.

- The meaning of the term hypothesizing was not well understood, either. Almost half of the students considered it to be a guess, many considered it to be the same as a prediction, and there was confusion about whether a hypothesis was a statement of certainty or a statement of uncertainty. Unlike the situation for interpreting data and predicting, most students also had difficulty at the operational level. More than half the sample could not separate statements of hypotheses from statements which did not represent hypotheses.

- The most telling data related to controlling variables. Briefly, the results were as follows: Forty percent of the sample considered an independent variable to be separate from the rest of an experiment. Thirty percent considered it to be a variable that somehow regulates Itself 'because it is independent". Thirty-six percent of the sample considered an independent variable to be the same as a controlled variable because "both are controlled by the experimenter'. Twenty percent considered a dependent variable to be the same as a controlled variable because both are being controlled. Controlled variables were considered to be the same as those whose effects on an experiment are determined by the experimenter. Finally, independent variables were considered to be confounding influences to be avoided if possible. Of all the scientific processes, controlling variables is probably the most crucial to scientific investigation, and in many aspects of everyday life as well. Why are there such problems? Perhaps because in everyday life 'to control' often means 'to manipulate', whereas in the scientific context to control means to hold constant or to partial out. Whatever the reason, it is a problem.

Atoms and Molecules

The belief that all matter is made up of very small particles called atoms and molecules has been fundamental to scientific understanding since the latter half of the nineteenth century. Few people in the western world today would be unaware of this. Yet, what do today's high school students, tomorrow's citizens, understand about the nature of atoms and molecules? To find out, questions were asked which focussed upon the water molecule and its component atoms as specific examples.

- For many students atoms were considered to be solid spheres, and molecules were considered to be made up of combinations of two or more solid spheres. Why might they think this? Probably because in school models of atoms and molecules are often presented in terms of balls and sticks. This is a useful but dangerous analogy. Unfortunately, as often happens when we need to resort to analogies to explain that which is not directly observable, it is the analogy rather than the target idea which remains in the learner's mind. Presumably, such an outcome is not confined to instruction in science. It is also of interest that most of the students who held this misconception were among the academically more able. Perhaps a little knowledge really is a dangerous thing.

- With respect to the composition of molecules the academic students were better informed, but the other students exhibited a variety of misconceptions. Natural water, of course, contains many dissolved substances. Where are these impurities found? For many students, these impurities actually become part of the water molecules themselves, or at the very least stick to the outside of them! Perhaps this is why some students expressed belief such as "you would find millions of atoms in a molecule". Finally with respect to composition, a number of students believed that the number of atoms in a molecule is different depending on whether the substance is a solid, a liquid or a gas.

- Somewhat related to the above notion was the idea expressed by a number of students that the shape of a molecule also depends on whether a substance is a solid, a liquid or a gas. Further ideas relating to shape were that molecules take the shape of the container in which a substance is located, so that molecules would be cylindrical in a cylindrical container and square in a square one. In this vein, molecules of water in an ice cube were considered to be cube-shaped. Such ideas seem to represent a complete misunderstanding of molecular scale. Of interest to the historian of science is the knowledge that scientists in the not so distant past also held such beliefs. In understanding where children and adolescents are coming from today it may be worthwhile for teachers and textbook writers to consider what scholars believed in the past, and there is no reason to restrict this to science.

- For many of these students, whether a substance is a solid, liquid or gas also affects the weight of its molecules. Thus, molecules of water as steam were erroneously considered lighter than molecules of water as liquid, which were in turn considered lighter than molecules of water as ice.

- The influence of 'school science', indirectly referred to earlier, was also found when students were asked to describe what atoms would look like if we could see them. Typically, they were seen as solid spheres with little particles (electrons) moving around in set orbits inside. Again, this is a severe oversimplification which appears to result from educators attempts to present concrete models of abstract entities. Again it was interesting that the better students, who had presumably been more exposed to theoretical models, were the ones with most problems in this regard.

- Finally, more than half the students indicated a belief that atoms and molecules from living things are alive themselves. Again this is a link with the past, for in the early eighteenth century the german chemist Wohler proved, against much opposition, that chemicals are inanimate whether they are derived from living or non-living matter. In Wohler's time, this suggestion was met with incredulity

because it denied a prevailing I self-evident' truth. Once again, it is of interest that the erroneous ideas of today's students are often consistent with the ideas of great thinkers of yesteryear.

Discussion

There is much to be learned from studies such as those described in the present paper.

- Teachers at all levels have always been concerned about their students' learning difficulties. Yet, traditional evaluation techniques have failed to uncover more than a fraction of these difficulties. We might call this the iceberg model where only a small part of the whole is visible at surface level.

- In recent years, science education researchers have exposed an immense and frequently fascinating array of misconceptions, naive conceptions and alternative conceptions of scientific knowledge and practice. There is substantial evidence that collectively teachers represent a major source of these problems, and that teachers operating out of field are a particular problem in this regard.

- To an extent, dedicated teachers can obtain guidance from the research literature, especially from teacher oriented publications such as The Science Teacher and School Science and Mathematics. Yet, especially as the degree of specialism at which the teacher operates declines, it is often asking too much of teachers to expect them to keep up with such a large literature. An alternative is for teachers to pay more attention to what their students believe by asking them more directly. The results will be informative.

- Besides enabling teachers to operate from a more informed perspective themselves, detailed information of students' divergent conceptions allows teachers to set up confrontation between them. Novick and Nussbaum (1981) and others have described such a model, a model which is consistent with a constructivist approach to education. Constructivism itself is not only much in vogue in science education circles today, but is also consistent with a transactional approach to curriculum and instruction (Miller and Seller, 1985) which has received much attention in Newfoundland and other parts of Canada in recent years.

- Several times throughout this paper, reference has been made to generalization to other subject areas. Although science educators have been in the vanguard of the kind of research described, there is no reason to restrict application to science education. It seems likely that teachers in general will also benefit if they initiate an open dialogue with their students about those students' beliefs and understandings of a variety of events and situations as they arise in other subject areas. Science teachers, at least, have now been shown to be blissfully unaware of the hidden contents of their students' minds. Teachers in general need to realize the depth of information, partial information and misinformation which resides in the minds of their students and, frequently, themselves. They need to know how to capitalize upon this knowledge. Ignorance may be bliss, but it is not productive.

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**STUDENT WRITING IN SCIENCE: MOVING
TOWARD UNDERSTANDING**

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There is a growing sense of urgency among Canadians about the effect of science and technology on their lives. This urgency is rooted in the rapid pace at which new technologies arise and the concomitant decrease in the time available to adjust to each new change (Gaskell, 1982).

Almost on a daily basis the "average" Canadian must make decisions concerning science and technology. These decisions may involve the workplace (involving, for example, tools, equipment, or chemical products), the home (appliances, consumer products), or even the political arena (environmental concerns, policy statements). Some of these science/technology determinations will be quite complex, and vitally important. Who, for example, will not face making a judgment on some aspect of health care - either personally, or for a loved one?

Canadians recognize the need for scientific literacy, and expect their educational system to ensure that young people attain some measure of fluency in the sciences. In order to meet these expectations educators must instill in students an understanding of the basic concepts of science and help them learn, with science itself as a vehicle, the critical thinking skills and investigative techniques which will serve them well into the future (Hurd, 1984; Zacharias, 1980). This is not any easy task for, as both students and educators will acknowledge, science is not an easy subject to learn.

All people hold a personal construct theory of how the world works (Madigan, 1987), based on their life experiences and what is often called common sense. This personal perspective is the foundation for many of the decisions they make in their lives. Becoming scientifically literate requires a shift from the anecdotal perspective of how the world works to a perspective with a scientific core.

Students engaged in learning science usually attempt to understand the new experiences presented to them in terms of their old perspective. If these scientific explanations are at odds with their personal experiences, one of three things will occur. Students may reject the new world view offered by science and hold fast to their previous beliefs. Or they may modify their personal assumptions so that their way of thinking is in harmony with the scientific perspective (Thompson, 1989). The third alternative is one which confounds many an attempt to create a scientifically literate individual. That is, students may select **both** of the preceding options.

Students are quite capable of holding two conflicting beliefs - the one which agrees with their **old** personal perspective, and the one presented to them by science (Basili, 1989). Unfortunately, it is quite difficult for the science teacher to determine if this has occurred, for the scientific belief is likely to appear in the correct slot on the examination page while the old belief continues its service in everyday life.

Students' difficulties in accommodating scientific information are compounded by the fact that their everyday language often takes on completely new meaning when

used in the context of science. They may fail to adjust to new ideas because of difficulties inherent in dealing with the changes in definition.

> To illustrate, let us examine a thought problem from physics:
> At normal atmospheric pressure, water boils at 1 000 C. On the top of a mountain, where the atmospheric pressure is lower, water will boil at 800 C. A group of skiers at the top of a mountain tried to cook hard-boiled eggs for lunch, but even after boiling their eggs for half an hour they were still soft. Why?

People normally have great difficulty with this problem, and that difficulty arises from the definition of the term **boil.** In students' common sense perspective, **boil** means hot - hot enough to cook eggs. In physics, **boil** is described by two factors - temperature and pressure.

When the atmospheric pressure decreases (as on the top of a mountain), boiling occurs at a lower temperature. Indeed, if the pressure above it is reduced enough, water will boil at (or even well below) room temperature. Thus eggs will not cook on a mountaintop because the boiling water is just not hot enough!

Physics students who can easily solve numerical problems based on the pressure/temperature relationship often fail to solve the preceding thought problem. Although the concept may have been fully explained to them in science class, and although he students may feel certain they understand it, their comprehension is incomplete. By failing to recognize the change in definition of a commonly used term, and continuing to apply their previous knowledge definition to a novel situation, pupils demonstrate that they are still mentally separating their **personal knowledge** from **scientific** knowledge.

The preceding example illustrates the linguistic gulf which often stretches between science teacher and science student. All too often, teachers use the specialist language of their discipline without explanation, and without an awareness that the students do not understand it (Madigan, 1987).

Indeed, it is often not the scientific concepts which cause students the greatest difficulty, but the language of their presentation. Most of pupils' experiences in science are through language and the language of science is, to most, a new and largely foreign one.

Science teachers are fond of informing their students that they will encounter more new terms in biology (or chemistry or physics) than they will face in their first year studying a foreign language. But it is not enough to learn the terms. In order to be fluent in any language - to understand what is going on - the student must be able to think in it.

How, then, can secondary science teachers more effectively facilitate students' scientific literacy? The key may be in ensuring that students become articulate in the language of their discipline. As we shall see, the method teachers employ to increase students' science fluency will have cognitive benefits in other important areas of the discipline.

Aside from term or laboratory reports, writing has traditionally been disdained in science education. It is often mistakenly considered not to be essential to the field.

However, student writing is important to the understanding of science, for that writing is actually a visual manifestation of the verbal symbol system (i.e., language) in which scientists think and communicate (Strauss and Fulwiler, 1987).

Secondary science students are engaged in the process of learning a new language. Unfortunately, while they are inundated with the terms, vocabulary and concepts of science, students are given very little opportunity to verbally exercise its use. Fluency requires practice. Writing in, and about, science can provide students with the preparation they need to become proficient in the language of the discipline.

Writing-in-science is an uncomplicated educational tool. Instructors may simply request that students spend the last five minutes of each science class period either summarizing that day's lesson, or writing in a science journal. In both activities, students record scientific information and their personal reactions to it.

Summarizing and journal keeping, unlike passive listening and note-taking behaviours, actively engage students in the content of the course (Ambron, 1987). It is fairly easy for students to let their minds wander when they are supposed to be listening to the teacher. It is somewhat more difficult to do this when writing, if only because of the more elaborate mental/muscular connections involved (Madigan, 1987). The increased involvement with the subject, through writing, thus increases mastery of the subject (Trombulak and Sheldon, 1989; Madigan, 1987).

Even when students become proficient in the specialized vernacular of the discipline, they will find that much of science is expressed in languages (e.g., mathematical) or symbols (e.g., chemical) which are largely foreign to them. All too often, their method of dealing with these difficulties is rote memorization of the material required to pass the course; understanding of the concepts involved may, or may not, occur.

Unfortunately, rote memorization works for students in that it makes it entirely possible for them to produce correct solutions to scientific problems without really understanding much of the science involved (Lythcott, 1990). Teachers who make small changes in problems (to require some thinking rather than rote problem solving) soon discover that many competent students find themselves in difficulty. The same discovery can often be made merely by asking students **why** a physical or chemical reaction proceeded in the manner they describe. The reaction is frequently one of annoyance because, although the correct answer is given, the respondent may not understand the science behind it.

The exercise of writing about the problem-solving process, including the formulae and equations involved, enables students to make the transition from these symbolic languages to the language of words. In addition, expressing problems and their solutions in written form encourages greater depth of understanding than problem- or formula- solving methods through rote memory alone would allow (Narode, Heiman, Lochhead, and Slomianko, 1987).

Depth of understanding is an important product of student writing-in-science. Journal writing and content summaries are methods which require students to think about science concepts in ways they would not if they did not write (Madigan, 1987). It is, however, possible to use other writing activities to further increase student comprehension.

Pupils can be encouraged to put their difficulties and questions about science into written form, for anonymous submission to the science instructor (who then responds during class time). Like the journal and summary techniques, constructing a written question places students in the position of having to think about and analyze the information before them (Foos, 1987). In effect, these writing activities encourage the students to think critically about the scientific information.

In addition, when students begin to formulate queries they must come to terms with what they truly know about the subject and what they still need to know (Narode, Heiman, Lochhead and Slomianko, 1987; Strauss and Fulwiler, 1987). The very act of writing about their difficulties with scientific concepts requires students to slow down and properly sequence their thoughts. Indeed, the process of carefully expressing the nature of their problem can sometimes result in its clarification for the writer (Strauss and Fulwiler, 1987; Narode, Heiman, Lochhead and Slomianko, 1987).

Teachers who incorporate student writing into their science curriculum help students take personal ownership of the knowledge they encounter. Because of increased comprehension, scientific knowledge begins to have real meaning, rather than remaining something simply covered in class. However, teachers may be reluctant o add this activity to their course because of its perceived addition to an already heavy workload. The solution to this valid concern is for teachers to consider **responding** to student summaries, journals or questions, rather than grading them.

As learners begin to express science concepts and incorporate them into their personal world view, they may choose to articulate ideas in a manner which differs from that of their learning materials. Putting things in their **own** words may aid students in both understanding concepts and in taking ownership of them. Such students may feel they understand concepts, but need validation of their own perspective. Teachers who monitor students' writings can provide this validation, if it is warranted, and conceptual correction, if it is not.

Before any information can be properly used, it must be properly understood. Yet students are often reluctant or unable to express their confusion verbally to their teachers. The journals, summaries and questions they produce can thus provide teachers with essential feedback on their writers' thought processes. Through this medium instructors will be able to pinpoint difficulties, errors, misconceptions and questions, both on an individual and a group basis. They will then be able to respond appropriately and specifically to students' difficulties with science (Horton, Fronk and Walton, 1985). Teachers w ill no longer have to infer where students' comprehension troubles lie. Through their writings, students will tell them.

Thus, writing-in-science has much to offer both science students **and** their instructors. As a student activity, it will allow pupils opportunities to become proficient in the language of the discipline, deepen their comprehension of scientific concepts, question information which is not clear, and attain a personal understanding of science. Meaningful understanding, through which students might use their knowledge creatively and effectively, can therefore be achieved (Wellington, 1988).

Student writing-in-science gives instructors the opportunity to monitor their pupils' understanding of course content at an individual level. This information is vitally important, for it allows the science teacher to intercept specific misunderstandings and difficulties as they occur. Corrective action may then be designed for the individual (or group of individuals) who require it.

Many science teachers will be reluctant to incorporate an educational technique like writing-in-science into their curriculum. They may prefer to concentrate on "pure" science, in effect instructing their pupils as though all will continue to pursue careers in science, medicine, or related professions. Additionally, some science specialists may feel quite strongly that writing is something best left to educators who specialize in that field.

If we are to serve our students well, we must move beyond such arguments. Despite full classes at the secondary level, most students will **not** continue in science after they leave high school (Crocker, 1989). Science teachers, then, are not educating future scientists; they are educating future citizens.

Such an education is of little value to these citizens if it has been misunderstood, or stored and then forgotten. The aim of secondary school science teachers must be to ensure that **all** students leave their classes with the basic knowledge and skills necessary to evaluate the scientific and technological issues which are part of daily life. Writing-in-science is one tool instructors can employ to help achieve that aim.

834

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**TECHNOLOGY IN SCIENCE EDUCATION IN
CANADIAN ELEMENTARY SCHOOLS**

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Most industrialized countries, most notably Britain, where fully a quarter of the school curriculum is devoted to science and technology, appear to be well ahead of Canada in terms of their commitment to these vital areas of the curriculum. Where should Canada place its effort in this regard, at what level of schooling? This paper considers the case for technology education within science education and for the importance of establishing this by the end of elementary school, and it reports on the status of this link across Canada.

Two competing trends may be observed worldwide through the eighties and the nineties. In science education, the eighties saw the emergence of a strong focus on the linkage between science and technology within science education, through the rapid development of STS curricula. Since the late eighties there has also been a claim for a marked shift in emphasis within technology education, in part as a response to the information technology explosion in society and in part as a result of a shift of emphasis by technology educators from technology as craft to technology as design. Ironically, as science education has moved to a greater emphasis on technology, technology education has moved toward a demand not only for independence from science, but also for a central role in today's curriculum. Each side of this issue has prominent supporters.

The eminent American science educator Paul de Hart Hurd (1991) traces the fascinating story of the ebb and flow of concern for societal and technological issues in science education over a period of two hundred years, and suggests that it has rightfully ripened into a common discipline, the current STS movement. A contrary view is taken by Michael Scriven (1987), who argues that it is inappropriate to include education in technology within science education because inevitably, he says, technology will be treated inappropriately by science teachers.

Australian science educator Peter Fensham (1990) agrees with Scriven. Drawing on British educator David Layton (1987), Fensham notes five differences between scientists and technologists:

- scientists are interested in taking nature apart in order to explain it, while technologists are interested in putting nature together to make something novel,

- scientists are interested in natural phenomena while technologists are interested in artificial things,

- scientists are analytic while technologists are synthetic in their thinking,

- scientists are interested in generalized knowledge while technologists are interested in specifics,

- scientists are driven by knowledge for its own sake while technologists are driven to satisfy human need.

Fensham agrees with Scriven that, at least with respect to the development of technological capability, science courses are not appropriate vehicles for technological education. Like Scriven, Layton (1988) argues that the time has come to separate technology education from science education. Recognizing the role played by science education in raising consciousness of the importance of understanding technology in today's world, he cites examples of curriculum innovation from around the world, but notes that in most cases technology is presented in a subordinate image. He suggests that the relationship between the T and the S is shifting, with T moving to centre stage. In his words, "The cuckoo in the STS nest has become full grown."

A balanced view of the place of technology education vis-a-vis science education is presented by Lewis (1991) and Lewis and Gagel (1992). They suggest that it is doubtful whether science teachers, given the nature of their training, can move easily to the problem-solving mode of the technologist, and conclude that technology needs its own space in the curriculum and its own teachers schooled in its peculiar methodologies. However, Lewis also argues that the few attempts to introduce technology into the school curriculum have been unsuccessful, and suggests that this is so because as yet technology has no identifiable conceptual structure. Drawing from Skolimowski (1983, p. 49), Lewis and Gagel further suggest that mistaken ideas about the nature of technology reflect an outdated view of technology, a view that is supported by Benson (1992) who notes that many technological activities in today's curriculum still fall under the heading of craft rather than the more modern design focus.

Despite arguments such as those above, the need to include technology in the school curriculum is not in dispute. The question which follows, however, is at what level of schooling it should be introduced.

Nash, Allsopp and Woolnough (1984) suggest that experience of technology in the lower school provides a better basis for informed decision making by students. Dugger (1992) notes that in the United States educational reform reports have identified that developing a technologically literate population must begin in elementary school. Ratt (1992, p. 301) suggests that "recent attitude research shows that attitudes of students towards technology are formed at an early age and do not change very much past age 10-12," but notes that there is a problem: most primary and elementary teachers are female, and most of these are not oriented towards science and technology. Two questions arise: Can children in the primary and elementary grades, boys and girls, meaningfully understand and apply technology, and can female teachers assist them significantly in this? The answer to both questions appears to be a cautious yes. Brown (1989, 1990) found that in England boys and girls between five and eight years of age who were encouraged to make constructions with LEGO materials improved in their ability and interest to do so, although the boys were much superior to the girls. A study by Elke and Gardner (1991) conducted in an all-girls school in Australia is also instructive. The girls were in their fourth and fifth year of school. Again LEGO materials were used. Activities involved building structures; use of levers; sliding and rolling; gearing; pulleys and steering. The year five class was particularly successful. The girls enjoyed the activities and spent much time inventing their own machines, despite the fact that discussion with the girls revealed that initially they had felt a fear of machinery. These and other studies suggest that although there appear to be differences which follow from differential socialization of boys and girls, it seems that appropriate instructional intervention can lead to success, not only in the development of technological awareness but also technological capability, for girls as well as boys, and that this is enhanced when this intervention is begun in the early years of schooling. Does this happen in Canada, and if so, how? Is technology education a

838

focus in Canadian primary and elementary schools? If so, is it a separate focus, or is it treated in science or some other component of the curriculum?   The remainder of this paper addresses these questions.

Methodology

Canada's decentralized education system and the lack of a true national educational body makes it difficult to obtain systematic and comprehensive information about current developments in this country. In the present case information was sought from four different kinds of sources in each Canadian province and territory. Each provincial science curriculum consultant, Deans of Education and selected individuals in representative universities in each province, and all provincial teachers' organizations were faxed, and re-faxed where necessary. In addition a random sample of ten percent of school boards in each province, and a few additional ones in smaller provinces, were written. In all cases the same information was provided and the same questions were asked. The main thrust was provided by the question "Are you aware of any deliberate attempts to include considerations of technology:

(a)   within the elementary science curriculum of your province?
(b)   in a component of the curriculum other than elementary science?

In the case of some provinces considerable information was obtained and in others much less. Information from the former is presented individually while the latter is presented collectively, both in alphabetical order.

FINDINGS

Alberta

Responses were received from the provincial government, the one university contacted, and several school boards. In each case similar information was provided and it was possible to conclude that the primary and elementary science curriculum is very near substantial change, and further that technology will be a continuing focus of the science curriculum at all levels. As well as incorporation within each science unit, each grade level will contain a unit devoted to technology. From grade one to grade six the titles of these units are "Building things," "Building with a variety of materials," "Building devices and vehicles that move," "Structures," "Air and weather technology" and "Mechanisms using electricity." Collectively, these units are meant to develop understanding of the nature of technological knowledge; to develop technological problem-solving skills, including identifying the focus of a problem; to identify ways to plan an attack on the problem; carrying out and modifying the plan as necessary; evaluating the success of the plan and the procedures followed and if necessary changing them and, finally, developing appropriately reflective and critical attitudes towards technology, its approaches and products. In the curriculum guide each general expectation is connected to specific expectations of the learning that is intended to take place.

British Columbia

Replies were received from the Ministry of Education, the British Columbia Science Teachers' Association, from the University of British Columbia, and from one school board. It appears that there is a provincial focus on developing guidelines for science and technology from grades K to twelve, as well as some development by individual school districts, but that provincial guidelines are not yet finalized. The current science guidelines allow for selection from three alternative science programmes with commonly prescribed goals. The general guidelines for the K to twelve science curriculum indicate that "Science literacy is essential for coming to terms with the modern technological world, its complex social structures and the exigencies of everyday living" (p. 6). Despite this there is not a strong emphasis on technology in the primary and elementary grades. Other than a reference to "the application and limitations of science in the practical world" none of the goal statements appears to have the potential to bear on technology at all. Examination of the three alternative programmes shows the following intended outcomes:

- building various building-like structures and moving things (year one);
- making things move; environment (year two);
- designing, constructing and flying a variety of kites (year three);
- making mobiles (year four);
- building structures from a variety of materials demonstrating proper use of tools and equipment; and applying an understanding of student-created structures to real structures (year five);
- constructing and using apparatus to measure astronomical events (year six);
- technology: using science (year seven).

These topics offer good opportunities for links with technology, but at this time there does not appear to be a strong focus on technology in the British Columbia elementary science curriculum.

Ontario

Replies were received from all four groups surveyed. It is clear that as well as provincial initiatives, which are only very recently published, a number of school boards have seen fit to develop STS and technological initiatives of their own. At the provincial level, technology is incorporated specifically into the common curriculum for all students from kindergarten to graduation, both within science and other curriculum areas and also as a dedicated separate focus.

The provincial curriculum document 'Technological Education' emphasises that technology is more than the application of science, and the technology education program is considered as ". . . a continuous program from junior kindergarten to graduation, designed to ensure that all students in Ontario schools have opportunities to become technologically competent" (Ministry of Education and Training, 1994). The technology program contains three major areas: physical products, involving the designing and building of objects with the use of tools and equipment; human processes, including systems, techniques and planning for the development of specific skills, but also including consideration of the impact of technological products on society; and environmental systems. Although these three areas may seem quite general, the document then turns to ten technological concepts that are to be developed throughout the program. Briefly, these represent consideration of structures, materials, fabrication, mechanisms, power and energy, controls, systems, function, aesthetics and ergonomics. These appear to be very specific to a dedicated technology education

program. However, the technological education guide also emphasizes that "Technology is a natural catalyst for cross-curricular development at all grade levels" (p. 13), a view which is articulated well in a draft document The Common Curriculum (Ministry of Education and Training, 1993). The document indicates an intent that there should be four core program areas, namely language, the arts, self and society, and mathematics, science and technology, and identifies a range of outcomes that integrate technology with mathematics and science. The following are illustrative of some of the intended outcomes for grades K to three and grades four to six, respectively:

- know how to investigate, build, explain and evaluate models and theories representing the natural and human-made worlds. For example, compare, evaluate and discuss the design of personal and household items (e.g. types of shoes, coats, rugs and furniture (grades K to three);

- understand and appreciate the contributions of Canadians and others to mathematics, science and technology. For example, identify, compare, and discuss examples from a variety of cultures that demonstrate the contributions to mathematics, science and technology of people of both genders, and from a variety of racial/cultural backgrounds (grades K to six);

- know how to use safely a variety of technologies, materials and tools to conduct inquiries and to design, build and report on processes, systems and products. For example, with everyday materials, construct and use devices that show understanding of the relationships among controls, strengths, energy, force, distances, leverage, and mechanisms (e.g. construct simple toys, teeter-totters, cranes, levers, and pulleys from materials such as drinking straws, wool, fabrics, cardboard, batteries, bulbs, wire and foil (grades K to three);

- design and perform experiments in which particular physical properties of materials are analysed, measured and compared (e.g., the absorbing ability of various materials; the tensile strength of elastic bands; the colour, hardness, texture, or transparency of different materials . . . (grades four to six);

- create, analyse, and evaluate physical products, human technological processes, and environmental systems. For example, use a design process to create and build simple objects, models and systems that perform a specific task, in response to a given challenge or problem (e.g. bridging devices to span a distance; devices to lift objects) (grades four to six);

- understand the ways in which, mathematics, science, and technology are interconnected. For example, identify relationships among mathematics, science, and technology in order to conduct interdisciplinary inquiries at the home, school, and local community level (e.g. in a woodlot study, a schoolyard study, a study of the telephone, school bus, clothing or neighbourhood) (grades K to three);

- understand that mathematics, science and technology do not exist in isolation, but shape and are shaped by a variety of societies and cultures. For example, identify ways in which particular technologies change the immediate environment (e.g., thermostats, snow ploughs, building projects; old and new types of tools; kitchen utensils and appliances; transportation methods) (grades K to three);

- know how to explain and evaluate relationships between humans and the environment. For example, water purification systems; road and transportation

systems; food production, processing and preserving; sewer and storm drainage systems; housing projects. . . (grades four to six);

- know about and be able to use a variety of problem-solving strategies. For example, "demonstrate understanding of a basic design process by using words and drawings to describe the steps in a design project (e.g. describe the steps to be followed in a simple experiment involving a toy car or an inclined plane" (grades K to three).

As well as these new provincial guidelines it is evident that some school boards have already developed programmes which appear to have similar intentions.

Newfoundland and Labrador

In Newfoundland and Labrador plans are well advanced to replace the traditional secondary school industrial arts/vocational curriculum with a continuously developing broad-based technology education curriculum programme from kindergarten to grade twelve. Three aspects are suggested: technology, especially information based, as a basic enabling tool for all courses and student activities; a focus on technological problem-solving; and activities designed to enhance accomplishment of aims in other curriculum areas. A strong link with science education is envisaged through co-operation in STS courses at the high school level and STS components of science courses at all levels. The overall K to twelve curriculum encompasses four technology strands: design, information, communication, and integrated technologies, with the last-named intended as a strong link between information and physical technologies. At the primary and elementary levels the intention is to totally integrate technology into the overall curriculum through an activity-based thematic approach. There is a deliberate movement from awareness of technology by primary students to development of understanding of technology as a response to human needs by the end of grade six. Suggestions include, for example, the use of Legodacta systems, electricity sets and construction centres using precut wood and plastic, simple tools, etc. Specific suggestions include transportation and understanding the use of common household appliances such as stoves, hair dryers, etc. in the primary grades, and practical techniques for growing things, transportation, communication, etc. in the elementary grades. In the elementary grades it is intended that opportunities be provided for design and simple construction. Clearly, many of the suggestions for K to six are congruent with topics traditionally encountered in the science curriculum. In the Newfoundland setting where the text currently in use is Addison Wesley Science, there is a substantial overlap with the suggested science content. The main difference is in the greater proposed design and construction emphasis in the elementary grades. In a general educational sense, this appears to have the potential to enhance students' ability to understand and operate in the everyday world, and to provide a foundation for further development both in science and technology.

Saskatchewan

With respect to concern for the inclusion of technology in the curriculum in the setting of an STS focus, through the writings of Aikenhead, Fleming and Ryan of the University of Saskatchewan and Hart of the University of Regina, Saskatchewan is Canada's best known province both within Canada and world wide. Within the province of Saskatchewan itself educators prefer to extend the acronym STS to STSE, in order to emphasize environmental concerns as a part of STS literacy.

The Saskatchewan Department of Education, as part of its overall curriculum development and implementation effort, has proposed a number of **common essential learnings** which are considered to underpin and contribute to all aspects of the provincial curriculum. These are labelled communication, numeracy, critical and creative thinking, **technological literacy**, personal and social values and skills and independent learning. Thus, technological literacy, defined as ". . .the intellectual processes, abilities and dispositions needed for students to understand the link between technology, themselves and society in general" (Saskatchewan Education, 1988), is accorded a central role in Saskatchewan education.

At the level of the overall curriculum this translates to the following:

• understanding of science as a process of discovery and consensus-making;

• understanding of technology with its inherent risks and benefits;

• understanding of how technology shapes and is shaped by society;

• understanding of the relationship between technological decisions and human values;

• understanding of the roles and responsibilities in shaping public policy related to technological change.

Within the content of the K to twelve science curriculum, the following are some of the implications that emerge:

• science and technology are different;

• scientists and technologists are human;

• the impact of science and technology includes a trade-off in which gains are accompanied by losses;

• society has the ability and responsibility to educate and legislate environmental quality and the wise use of natural resources;

• constant effort is needed to reduce the considerable gap between science and technology and public understanding of it;

• science and technology require considerable resources in the form of talent, time and money;

• disagreement is normal between scientists and technologists;

• science and technology cannot guarantee a solution to any specific problem;

• societal priorities influence the selection of problems investigated by scientists and technologists.

Despite the emphasis placed upon technology and STSE, specific applications within the science curriculum are few. The curriculum guide for elementary science is a comprehensive document that indicates a wide range of activities and their anticipated

outcomes. Thus, the developers' interpretation of what students should gain from each activity is clearly articulated. Examination of the activities and their intended outcomes suggests that STSE is not very evident in the primary grades, and is a little more emphasized in the elementary grades. The STSE focus, however, is often relatively minor. Mainly, the focus is on awareness rather than capability, and the aim of most activities is to illustrate scientific concepts rather than to identify them by investigation of relevant problems. It is certainly possible that technological capability in terms of design and construction is developed elsewhere in the curriculum but it does not emerge as a focus within the science curriculum, even though some activities would lead naturally to this.

Manitoba, New Brunswick, Nova Scotia, Quebec

Little information was obtained from Manitoba, although it appears that STS and SDS (sustainable development strategy) materials are used throughout the K to eight science curriculum. It was suggested that some of these connections involved will reflect environmental and social issues, while others might highlight the use of technology in an ever-changing world.

In New Brunswick, although the middle school text 'Science Plus' was a joint venture of many individuals in the Maritime Provinces, and is used in New Brunswick and elsewhere, for the K to grade six level little information was available, even though responses were obtained from all four kinds of sources. It appears to be intended that science concepts should be placed in a meaningful context, and that in so doing the relationship to society is to be used where appropriate. No further details were available.

Replies were received from three of the four organizational levels contacted in Nova Scotia. The elementary science curriculum is being re-organized into five strands, namely physical science, life science, earth/space science, technology studies, and environmental studies. Technology studies includes the following:

- exploring technology;
- materials and patterns in building structures;
- construction design and organization;
- machines of science and technology;
- structural technology;
- designing and testing technology;
- flying technology.

A series of related explorations suggests that the approach contains a substantial element of design and construction. In addition to the technology strand, the environmental strand includes components which are typically considered to represent STS, for example "making decisions: society, technology and the environment."

The Quebec elementary science curriculum guide appears not to have undergone change since 1980. Its intent is worded very directly in terms of the environment. Thus, "Directly or indirectly, the focus of learning in all elementary school subjects is the environment. . .natural science is the study of the biological, physical and technological dimensions of the environment" (Gouvernement du Québec, 1980, p. 1). The environment, in turn, is divided into the natural environment and the man-made

environment, which interact constantly. The aim of the program is claimed to be to enable the pupil to:

- satisfy physical and psychological needs;

- come into contact with the environment;

- become aware of the elements of the natural environment;

- build and structure his (her) knowledge as he (she) becomes familiar with the experimental approach;

- develop a sense of responsibility towards environmental resources.

However, the ensuing objectives, which are spelled out in detail, suggest a content-oriented curriculum which makes little reference to environmental matters. Nor is technology mentioned to any substantial extent. of 224 objectives of the elementary science programme only 13 relate to environment and virtually none (six) relate to technology, these being located in a unit relating to "identifying and producing manufactured products formed from simple machines, and the identification of the components of these systems and how they interact." The environmental objectives were generally low level and concerned with environmental protection and awareness. More recently, a new general primary curriculum (Gouvernement du Québec, 1990) introduced suggestions relating to information technology and the use of simple machines. However, in general there is little direct reference to environmental or technological content.

DISCUSSION

Unlike most countries Canada has a fragmented, provincial system of education. It is not surprising, then, that the present status of both science and technological education varies across the country. The five provinces -- British Columbia, Saskatchewan, and especially Alberta, Ontario and Newfoundland have proposed and taken substantial steps to implement greater emphasis upon technology in their primary and elementary curriculum. The Maritime Provinces and Manitoba, although interested in this issue, appear not to have made strong movements towards greater incorporation of technology into their K to six science programme nor more generally at this level. Only in Alberta, Ontario and Newfoundland does technological capability appear to be an emerging trend, a situation which may be disturbing given trends elsewhere, such as in the United States and especially Britain where far greater attention is being paid to this aspect of education.

In the United States, arguments have been advanced for the development of design as a component of science-technological education (AAAS, 1993). For example, it is proposed that by the end of the fifth grade "Students should know that there is no perfect design. Designs that are best in one respect. . . may be inferior in other ways. Usually, some features must be sacrificed to get others." The approach, however, seems more conceptual than practical in orientation.

In Britain, practical capabilities are strongly emphasized. As part of the national reform of education known as the "National Curriculum", technology has been accorded a prominent place in the curriculum from the beginning to the end of school, as well as being incorporated into the science curriculum guidelines. As in each of the other core curriculum areas, a series of attainment targets and a detailed programme

of studies were published for teachers to follow. A focus on design is evident from the very early years of school, for example designing a scarecrow to scare away birds from crops and, about the end of elementary school, designing an automatic greenhouse watering system. However, such activities do not end with design. The making of simple artifacts leading to more complex constructions follows. The use of simple tools in the primary years is followed by construction activities with a variety of materials and more complex tools in the elementary years. It is too early to assess the results of such suggestions, although they seem consistent with the substantial emphasis on practical activity traditionally found in British schools at this level.

There has been a significant change of perception among technology educators about the nature of technological education worldwide. The shift from a craft production emphasis towards a design and construction emphasis, together with significant changes in educational technology and greater use of technological products in the lives of the general population, have all contributed to technology educators' claims that their subject should have a central role in education today. Nevertheless, some educators have expressed concerns that technology is not strong enough as a separate discipline to warrant a place of its own. As such, it may remain strongly allied to science courses, especially in considerations about its societal impact. Moreover, it seems unlikely that today's teaching force at the primary and elementary levels in Canada is well placed to capitalize on the inclusion of technology in the curriculum. If this is so, attention must be paid to the further education of teachers at this level so that they may not only relate technology and science in their teaching but also differentiate technology from science with the intention that students may be more adequately informed before they enter middle school. Failure to do this will result in continued lack of awareness, mitigating against effective choice of interests and career options. In the twenty-first century, Canada can ill afford the consequent loss not only of technologists but also of suitably informed and capable future citizens.

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CLASSROOM DISCIPLINE AND MANAGEMENT

DUE PROCESS IN SCHOOL DISCIPLINE: IMPLICATIONS
OF THE <u>CHARTER</u>

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Alice had never been in a court of justice before, but she had read about them in books, and she was quite pleased to find that she knew the name of nearly everything there. "That's the judge", she said to herself, "because of his grey wig".

Lewis Carroll's illustration, while fictional, is helpful in illustrating that many lay people, including teachers and school administrators, lack a knowledge of the justice system. This, unfortunately, remains the case despite a growing need for school officials, especially administrators, to be accurately informed about the legal aspects involved in the development, administration, and enforcement of school rules and regulations. Snelgrove and Warren (1989), from a study of educator's knowledge of legal rights in Newfoundland schools, conclude that "educators' knowledge of the law seems to be far short of that required to function effectively in the litigious society in which they practice today" (p. 81). The situation is further aggravated by an increasing problem of student discipline accompanied by perceived erosion of the school's authority and a growing tendency for students and parents to see their rights and freedoms protected, especially since the 1982 entrenchment of the <u>Charter of Rights and Freedoms</u> within the Canadian Constitution.

The purpose of this article is to heighten awareness of educators, especially school administrators, of the impact of the <u>Charter of Rights and Freedoms</u> on student discipline policy. While it is acknowledged that the <u>Charter</u> does indeed impact on the school's ability to discipline, it is maintained that educators must not abrogate their disciplinary tasks but rather modify them in order to be consistent with <u>Charter</u> considerations and with the notion of due process. Although very few <u>Charter</u> cases in education have come before our courts, it is argued that, as Mackay suggests, "school administrators should undertake a full review of their rules and throw out old, discriminatory regulations which could be challenged under the <u>Charter of Rights and Freedoms</u>" (Chronicle-Herald, Halifax, February, 1986). And, as school boards and school administrators are the most likely targets of <u>Charter</u> challenges, it is incumbent upon district administrative personnel and school principals to ensure that current policies, procedures and practices provide for due process. Violations may occur with respect to the content, administration and enforcement of school rules.

Content of Rules

In the United States, students were recognized as having full constitutional rights through the historic case of <u>Tinker v. Des Moines Independent Community District</u> (1969). <u>Tinker v. Des Moines</u> established that students are `persons' under the constitution and as such are possessed of fundamental rights which the state must respect. A subsequent case, <u>Goss vs Lopez</u> (1975), established the right of students to procedural due process in discipline cases involving suspension. Prior to 1982, however, American precedent had little impact in Canada as fundamental rights were not constitutionally guaranteed. Canadian school boards and schools had broad

discretionary powers to make and enforce rules as they saw appropriate. And, if required, the courts almost always supported school officials. In the Saskatchewan case of Ward v. Board of Blaine Lake School (1971), for example, the court held that the principal was engaged in administrative acts of the school when he expelled a student for breaching a school rule on length of hair. Because this was considered an administrative not a judicial act, the court ruled that no hearing was required.

Today, however, with the Charter firmly entrenched in our Constitution, the judiciary of Canada will have to decide if students will be given full constitutional rights as in the United States and, if so, how such rights will be balanced with the common law and statutory duties of educators to maintain standards of discipline. Two sections of the Charter prove worthy of attention: Section 2 states that everyone has a fundamental freedom of religion, thought, belief, expression, peaceful assembly and association; Section 15 (1) states:

> Every individual is equal before and under the law and has the right
> to the equal protection and equal benefit of the law without
> discrimination based on race, national or ethnic origin, colour,
> religion, sex, age or mental or physical disability.

It may be that the rights guaranteed under these Sections of the Charter may limit the scope of school rules, regulations and practices as they now stand in many Canadian schools. In the case of Zylberberg v. Sudbury Board of Education (1988), Section 2 (a) of the Charter, guaranteeing freedom of conscience and religion, was used to successfully challenge a rule requiring prayer in a public school.

And while freedom of expression in the school setting has yet to be tested in the courts, Section 2 brings into question the legitimacy of rules restricting certain styles or articles of clothing, banning certain slogans and buttons, and prohibiting certain publications or meetings in the school.

Likewise, discrimination in rules or regulations which restricts access to school programs or facilities based on age or sex may be challenged under Section 15. Restrictions prohibiting boys from the choice of taking Home Economics or which prevent girls from trying out for the school hockey team must be seriously reconsidered. While there has not been any cases in Canada dealing with discrimination in school sports based on sex, an out-of-school precedent appears worthy of examination. In the case of Blainey v. Ontario Hockey Association (1986), a twelve year old girl claimed that her rights were infringed when a provision in the Human Rights Code of Ontario denied participation in a sport based on sex. The Ontario Court of Appeal agreed that Section 15 had been violated, and held that the girl could indeed try out for the team. Again, in the case of contact sports, American precedents might prove useful. In the case of Yellow Springs Exempted School District Board of Education v. Ohio High School Athletic Association (1978), the court concluded that physically qualified girls cannot be denied the right to compete with boys in interscholastic contact sports.

In considering the legality of rules and regulations or in the defence against an alleged infringement under Sections 2 or 15, school administrators may be called to justify the rule under Section 1 of the Charter. Section 1 states:

> The Canadian Charter of Rights and Freedoms guarantees the rights
> and freedoms set out in it subject only to such reasonable limits

proscribed by law as can be demonstrateably justified in a free and democratic society.

Thus, school officials may have to "demonstrable justify" the rule as reasonable in "a free and democratic society" and show that the rule, while infringing upon the Charter, was necessary and legitimate given the objectives it sought. As Paul Ebbs, a Halifax lawyer, maintains:

> If a principal must justify a rule under Section 1 of the Charter, for the most part the courts will support the educator and the decisions or actions he or she has taken because the justice system realizes the educational process is essential to society and disrupting this is clearly wrong. I would be concerned, however, if the rule has been arbitrarily created with no educational or discipline basis.
>
> (Personal Communication, August, 1991)

Administration of Rules

Once the content of the student discipline policy is determined to be in accordance with the Charter of Rights and Freedoms, the next Charter consideration facing school officials is that of procedural due process. Section 7 of the Charter states:

> Everyone has the right to life, liberty and security of the person and the right not to be derived thereof in accordance with the principles of fundamental justice.

The concept of procedural due process would appear to be guaranteed by the phrase "the principles of fundamental justice".

The administration of school rules is usually based on regulations prescribed in a school discipline policy manual in accordance with district policy and provincial legislation. It is imperative that school rules are made known and available to students and parents, and that the language of school rules is clear and not open to charges of ambiguity and vagueness. MacKay and Sutherland (1987, p. 72) cite the Nova Scotia case of RE M.B. (1984) in which a teenage girl was placed in a private school after she was labelled unmanageable and removed from her high school:

> The court held that this placement violated Section 7 of the Charter because the girl was not provided with the dates, location and specific instances of her alleged "unmanageability" to allow for a proper defence. It is a common held principle of fundamental justice that accused persons have the right to know the case against them.

Most provinces in Canada have now legislated the procedures to be followed in dealing with suspending and expelling students and most allow students the opportunity to be heard. In Newfoundland, under the Schools Act, a principal has the authority to suspend students in accordance with the regulations or by-laws of his/her board. The Act does not guarantee the right of the student to be heard or to appeal. School boards, however, may set out regulations governing suspension, including the right of the student to appeal. Under a section entitled "Principles of Due Process - Suspensions (Revised 1990 03 06)", the Roman Catholic School Board for the Burin Peninsula, for example, provides for an appeal process for all suspensions.

854

While the Newfoundland Schools Act does not mandate an appeal process for suspension, it does require principals to give a student and his/her parents prior warning that his/her behaviour may result in expulsion. And, where expulsion does occur, the Minister shall, upon the request of the parent or guardian, appoint a review board to carry out an investigation into the circumstances of the expulsion and to make a binding recommendation either upholding or reversing the expulsion.

In all disciplinary matters brought to the attention of school administration, officials would be well advised to establish a disciplinary file on each student recording such information as the date and nature of the infraction, the names of teachers and other students involved, a brief description of the incident, and a record of disciplinary action taken. A record of notification of parents with a non-judgemental comment on their reaction might also be included.   In the event of further action, this might prove worthwhile. To ensure objectivity and fairness, as well as the perception of fair treatment, both students and teachers, depending on the seriousness of the infraction, should be required to provide a written account of the incident to be kept in the student's disciplinary file. Such a file, however, must be available to the student concerned and to his/her parents and/or their legal representatives.

Apart from the obvious benefits of due process and legal liability, the process of "having a disciplinary file" in itself becomes a psychological deterrent to misbehaviour. Of course, policy must ensure privacy of such files as well as a periodic "cleansing of the slate". It is important that students not be led to believe that every little incident will be held "in your file" for future use. On the contrary, efforts should be made to ensure that students and parents understand that such practice and procedures are for the protection of their right to due process and for the overall good of the school community.

While such a formal proceeding would appear to guarantee due process and would seem to be the normal procedure to be followed for serious offences, such an approach to general disciplinary matters may become burdensome and time-consuming on school officials. Consequently, in the case of misbehaviour of a minor nature with less severe punishment such as in-school suspensions or detention, a less formal opportunity for students to "air their side of the story" would seem sufficient to meet a due process requirement. Teachers should also be encouraged, however, to maintain brief factual notes on incidents particularly if repetitive and involving particularly troublesome students.   In the event that a matter is brought to the attention of administration for disciplinary action, an investigation should follow with the student given the opportunity to have "his/her side of the story" recorded. As one lawyer experienced in educational law, Michael J. Wood, notes:

> Just because the teacher or principal grants a student a moment to
> explain his or her version of the alleged misconduct, it does not have
> to dictate the decision the teacher or principal makes, but it does help
> to see that the rights of the student are maintained.
>
> (Personal communication, August, 1991)

Of course, in an instance where the continued presence of a student poses an immediate threat to others or where a student represents a serious disruption to order and learning, school officials would appear justified in removing the student without acknowledging a right to a hearing. As with many aspects of a school administrator's role, discretion and the wisdom of experience, should rule the day.

Enforcement of School Rules

When considering the proper protocol for enforcing school rules in light of the Charter of Rights and Freedoms, Section 12 must be considered. Section 12 states that "Everyone has the right not to be subjected to any cruel and unusual treatment or punishment" and resembles the cruel and unusual punishment prohibition in the Eight Amendment of the American Bill of Rights. While the U.S. Supreme Court held that the cruel and unusual prohibition did not apply to students and was limited to criminal matters, there is reason to believe that Section 12 of the Canadian Charter of Rights and Freedoms may apply to school students. The omission of any reference to "fines and bails" which apply to criminal cases and the use of the term "treatment" which lacks criminal connotation, would lead one to this conclusion. Such application would necessarily consider the relation between the effects of and reasons for the punishment. Consequently, it becomes imperative that the effects of the punishment are not disproportionate to the circumstances of the offence or purpose sought to be accomplished by the punishment. Again, as with the content of school rules, written policy guidelines provide one avenue for guarding against such accusations of unfair treatment.

It is not presumptuous then to assume that the Canadian courts may find that Section 12 of the Charter does prevent school officials from using cruel and unusual treatment or punishment. Consequently, while it may be reasonable to think that this would not apply to minor disciplinary procedures such as school detentions or reprimands, in the case of more serious punishments it is important for teachers and administrators to know the boundaries of applying discipline. One area of particular concern would be the use of corporal punishment.

At present, teachers are afforded some protection from criminal responsibility for administering corporal punishment. Hulbert and Hulbert (1990, p. 190) cite Blackstone's Commentaries on the law of England (1765):

> He (the parent) may also delegate part of his parental responsibility, during his life, to the tutor or school master of his child, who is then *in loco parentis*, and has such a portion of power committed to his charge, vis. that of restraint and correction, as may be necessary to answer the purpose for which he is employed.

Manley-Casmir and Sussel (1986, p. 195) cite Wilson's (1978) Canadian elaboration of the *in loco parentis* doctrine:

> The rights of the parent and the duties of the child are transferable to the role of the teacher and pupil, respectively. It is said that the parent, by sending his child to school, delegates his disciplinary rights to the teacher. Moreover, because the teacher's power is seen as necessary for maintaining order in the classroom, and not simply for meting out parental punishment, the teacher can exercise the necessary discipline, even over the objections of the parent.

In addition to the authority delegated to teachers to maintain discipline through the doctrine of *in loco parentis*, school officials also owe a statutory duty to maintain discipline in the school system; a duty quite distinct from any parental delegation of authority. Also, Section 43 of the Criminal Code of Canada describes the extent to which correction of a child by force may be justified. Section 43 states:

> Every school teacher, parent, or person standing in the place of a parent is justified in using force by way of correction of pupil or child, as the case may be, who is under his care, if the force does not exceed what is reasonable under the circumstances.

It is important to understand that this does not condone the use of corporal punishment to discipline students but simply recognizes the fact that there is protection for the teacher in the event that criminal charges are laid. All educators should recognize this and be cognizant of provincial and school board regulations governing the use of corporal punishment. While the banning of corporal punishment at the provincial level as in British Columbia, or at the local level, as in the case of the Halifax School Board, does not affect a teacher's defence in a criminal case, its use may constitute a blatant breach of board policy for which the teacher or administrator could be reprimanded or even terminated.

Conclusion

In summary, educators today are faced with a serious challenge. Student discipline constitutes an increasingly serious problem for them at a time when there is perceived erosion of the authority of the school and an increasing tendency for students and their parents to see their rights and freedoms as protected in law.

In light of this challenge, the best approach for educators is preventive law. The development and implementation of a student discipline policy which, among other things, recognizes the student's right to due process, the dignity of the individual person, and the right of the teacher to teach will serve to better the interests of all concerned. Educators need not become quasi-trained lawyers, but they should, as professionals, be familiar with the Charter, the Young Offenders Act and the Criminal Code at federal level; the statutes and regulations governing education at the provincial level; and the policies of their own school district.

While it may not be possible at this time to fully anticipate the impact of the Charter of Rights and Freedoms on student discipline policies, educators should keep abreast of current and future challenges and decisions under the Charter. Rather than thinking of the Charter as inimical, educational leaders must view it as an opportunity to assess the validity and desirability of rules and as a means to improve the educational system for our children. Edward Broadbent, the former leader of the New Democratic Party of Canada summarized most succinctly the value of having a Charter of Rights and Freedoms in a school setting. In the 1981 House of Commons debate on the Charter, he argued,

> ... I would like this resolution, particularly the Charter of Rights and Freedoms, to hang on the wall of every classroom in every school in every region of Canada... because...constitutions are fundamentally about people and people from childhood on must be encouraged to acquire a deep understanding of their own liberties as well as an even deeper appreciation of the liberties of others.
>
> (Publications Canada, 1982)

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TOWARD A COMPREHENSIVE PRACTICAL GUIDE FOR
REFLECTIVE CLASSROOM MANAGEMENT

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General Introduction

In this general introduction, I plan to outline selected scholarly work which has been completed by many of my colleagues and others and which has direct and indirect bearing on issues surrounding classroom management and discipline. This should also serve as the introduction to two articles by Dr. King and one by Dr. Singh which appear in this issue and relate to the topic being considered herein.

Over the years, teachers, teacher interns, parents and the general public have desired to access knowledge on classroom management and discipline. We hope the material presented in this issue of the *Morning Watch* will meet their wishes in this area at least to some degree

A Reflective and Critical Focus in Teacher Education

For the last twenty years or so my colleagues in this Faculty have been researching and publishing in the area of teacher education. Recently, some of us have focused on the reflective and critical aspects of teacher education locally, especially in the area of the teacher internship. We have also extensively consulted with colleagues at the University of Hawai'i at Mnoa, and at some Australian universities, who are involved in reflective and critical teacher internship programs. Our intention has been to test results of our research, mostly produced in the form of "local knowledge" and "local theorizing", in comparative and international contexts. In order to do this, we have attended several conferences and presented papers based on our research. The response has been very positive, to say the least. We have been encouraged to continue our work and expand it in many other directions.

Drs. Wilf Martin, Ishmael Baksh, Clar Doyle, Bill Kennedy, Roy Kelleher, Alice Collins, Frank Cramm, Amarjit Singh and Len Williams have been researching and writing in the area of teacher internship and teacher education for several years. Lately, Drs. Barrie Barrell, Andrea Rose, Elisabeth Yeoman, and Dennis Mulcahy have been deeply involved in reflective and critical thinking in teacher education and internship. Professor Fred Hawksley carries out similar research in the area of drama education.

In our work with teacher interns we have discovered that the phobia of classrooms is rampant among teacher interns. Interns also struggle, individually and collectively, with dominant discourses in many other areas such as instruction, resources, the ability level of students, the purpose of internship programs, as well as the culture of school life. Teachers in general, cooperating teachers who work with the interns during the internship program, and university based professors/supervisors are no less concerned with the phenomenon of classroom management/discipline and with other areas in teacher education.

In recent research efforts involving the complex classroom situations that teaching interns encounter, we found that the interns themselves are often obsessed with the mastery of technical skills for instruction and classroom management (Singh, Doyle, Rose & Kennedy, 1997). However, without intending to underestimate their concern with the fear of classroom management, we pose in our other work some critical and reflective questions. These are: how can we, as teacher educators, wean interns away from a focus on technical skills toward a process where they can feel safe to try to put their own work into a wider social, cultural, and political context (Doyle, Kennedy, Ludlow, Rose & Kennedy, 1994; Kennedy, Doyle, Rose & Singh, 1993; Kennedy & Doyle, 1995; Singh, Doyle, Rose & Kennedy, 1996).

A few words on methodology may be in order. In all of our work on reflective and critical teacher internship and education, we have used the concepts of voice, local theories, cultural, capital, problematizing dominant discourses, sites, social interaction and reflection as pedagogical categories for the purpose of analysis. For the analysis purpose we have mostly used the framework of qualitative methodology in the sense that we support our claims by using a number of quotations from data collected during interviews and reflective sessions. Finally, in all our work, there is an attempt to enable the teacher interns, cooperating teachers, university professors/supervisors and students in the class to speak for themselves.

The Concept of Voice as a Pedagogical Category

This is not the place to discuss our theoretical and practical orientations in detail; these can be readily found in articles and documents which are referred to above. On the whole, however, it is clear that for the purpose of organizing material relevant to teacher education and internship, and material relevant to the specific topic of classroom management, discipline and school culture, all of us have predominantly relied on the voice as a pedagogical category. In our work we focus on the voices of students, the voices of teacher interns, the voices of cooperating teachers, the voices of university professors/supervisors, and the voices of teachers at large.

While a great deal has been written on voice as a pedagogical category, no attempt is made here to review the literature on this category. However, very briefly, it suffices to mention that the exercise of listening to the voices of teachers, teacher interns, students, cooperating teachers and supervisors in teacher education programs enables us to see what these occupational groups bring to the educational organizations functioning as complex systems. Their voices make us realize what forms of knowledge and culture these groups produce while interacting with one another. These groups then bring this shared knowledge to their classroom and other work settings, i.e., the schools and the university. In this situation, we believe the goal should be to make knowledge and production of knowledge less external and more germane to the world of each group of people, who must be able to express their understanding of the world. All parties involved in teacher education and internship programs must realize that they can collaborate with each other to transform aspects of their lived experiences, if necessary. But as our friend and colleague Clar Doyle (1993, p. 130) often reminds us, transformation works "in an analogous position to hegemony. Transformation, which should be allowed to seep through our institutions and relationships usually comes in small doses and usually happens over time. Transformation usually happens with gentle hands. Transformation usually happens through cultural production."

O'Neill (1976, p. 12) draws our attention to the function of the teacher when he states that "the function of the teacher is to challenge, arouse, interest, make anxious, give confidence, coordinate achievement, and encourage reflection." The notion of voice when used in this sense puts emphasis on building rather than enhancing, on producing rather than reproducing. We should also remind ourselves that in any educational setting all parties involved are simultaneously teachers and learners. We all, one way or the other, teach others and learn from others. Pedagogical intents are omnipresent in all sites or situations in many subtle ways.

Our orientation is that if teachers, especially the teacher interns, can produce "local knowledge" and "local theories" about classroom management in relationship to the larger debate in society about the so-called crisis in the classroom, they might be able to speak to their own classroom reality with more confidence. They could self-consciously reflect on their own construction of classroom reality and on their own transformation. This process in the end should lead to locally manufactured (produced) classroom practices, which promotes democracy and democratic living.

In the internship situation, it has been important for us that the supervisors and the interns reflect together and make the internship together. Therefore, in our work with the teacher interns, we have (Doyle, Kennedy, Rose & Singh) consciously resisted the idea of inviting "experts" on classroom management, control, discipline, professional lesson planners, who could tell the teacher interns how to go about managing classrooms. We have often sought a balance between students', teacher interns', voices and the voices of the "experts" who are readily willing to provide in-service training programs on classroom management organized by various professional agencies.

Local and Other Studies Using the Concept of Voice

After having said a few things on the notion of voice as a pedagogical category, I wish to draw the attention of readers of the *Morning Watch* to the work done by Martin, Baksh & Martin, Baksh & Singh, and Williams & Kelleher. All these authors have extensively used the notion of voice (students' perspectives) in their research. Many of their articles have been published in the *Morning Watch*.

My article in this issue entitled, "**Voice of Teacher Interns and the Fear of Classroom Management**" uses the concept of voice. The article in this issue by my colleague, Dr. Irvin King, who teaches in the College of Education, the University of Hawai'i at Mnoa, attests to the voice of an experienced teacher as it relates to the issue of discipline in the classroom.

In an attempt to balance subjective voices of teachers and teacher interns, Dr. King splits his article into two sections. In one section he voices his own experiences with classroom discipline and presents his personal perspective on it. In the second part of his paper, he presents an extensive review of research done by some of the well-known scholars in the area of classroom discipline and management.

The Morning Watch

Since 1972, members of this Faculty have published their work on various aspects of teacher education in the *Morning Watch* which is edited by Baksh and

Singh. The articles which appeared in this local journal have been compiled in five different volumes (Singh & Baksh, 1977; Singh & Baksh, 1982; Singh & Baksh, 1991) and are readily available to teachers and students in this province. Copies of *The Morning Watch* should also be available to the libraries of many Canadian Universities. The readers of *The Morning Watch* may like to know that it no longer appears as "hard copy"; it is now available as an electronic journal on the Faculty's home page. This is in line with the many changes organizations are making in order to adopt to the larger cultural change taking place due to many factors (e.g., globalization, downsizing, etc.).

Series of Monographs

In a series of monographs, published by the Publication Committee, Faculty of Education, Memorial University of Newfoundland, Wilf Martin has documented the voices of students from the classroom. He summarized the main aspects of this research methodology and the findings of his research in his book entitled **Voices From the Classroom** (see Martin, 1985). Everybody involved in teacher education, especially teacher interns, will find a wealth of material in his book and monographs which will enable them to be effective teachers in the classroom. As demonstrated by Martin's research classroom management and disciplinary problems cannot be completely separated from the process of effective teaching, which should take into account the voices of students and the classroom culture.

In the **Voices From the Classroom** and in his other monographs, Martin focuses on such issues as school rules, homework, teachers' pets and classroom victims, student embarrassment, helpful, understanding, and cooperating teachers. In each of these major areas, he finds that students have identified themes that reflect the school/classroom cultures. For example, many students voice their concerns about being embarrassed by teachers. Martin highlights the causes of student embarrassment as voiced by students. In other contexts, students think that there are teachers who show "understanding" and "patience" when dealing with them. Then there are teachers who are "caring" and "respect" students. On the other hand, some teachers are "rude" and "ignorant", while others hold "grudges" and bestow "favours" on some students.

These categories have special meaning for students which are quite different from the meaning attached to these categories by teachers. This dissonance or discrepancy between students' and teachers' meaning has significant implications for classroom discipline and management. It is quite clear that if teachers' actions and behaviors are embarrassing students, then they will resist, deviate and misbehave in the class just to challenge teachers' authority. Martin's studies show that the consequences of student embarrassment are that students develop dislikes for teachers, they are afraid of teachers' actions, and they develop negative self-concepts. All these factors most likely have potential to contribute toward classroom management and disciplinary problems.

In a similar manner, Martin highlights other categories and provides deep insight into the school and the classroom cultures. Some other categories he focuses on are: amount of homework, distribution of homework, problems of uneven distribution, time preferences for homework, school rules, schools with no written rules, meaning of rules, misbehaviors and punishment, making and implementing rules, teachers' pet and classroom victims, teachers' attitudes toward students, criteria for categorizing students' academic performance, student behavior, family background, geographical location,

gender, disliking students, nature of favours and mistreatments (expectations for student behavior, selection of students for activities, attention students receive, assessing students' performance), the consequences of class victims and others ("being left out", the marking process, discipline, disliking teachers, anticipating and empathy among students, disagreement with pets-victims phenomena), helpful, understanding and cooperative teachers, getting along with teachers, helpful teachers (the need for help, obstacles to helping, students blaming themselves), understanding and friendly teachers (understanding teachers, friendly teachers), help through encouragement and cooperation (nature of encouragement, reciprocal nature of encouragement), listening to students' point of view (the sensitivity of teachers, "teachers are never wrong", students need to be understood, the consequences of not being understood).

Baksh & Martin (1992), Martin and Baksh (1984) highlight many other aspects of the school and the classroom cultures. Their most recent book length monograph on school humour is full of insights which will enable teachers, teacher interns, and others to understand the complexities of everyday school life (Martin & Baksh, 1995). Two earlier monographs by Baksh and Singh (1979, 1980) document voices of teachers in small rural Newfoundland communities which provide useful insights for the teacher interns.

It is up to the teachers, supervisors, and other teacher interns to learn about these categories. Understanding the intricacies of the classroom and school cultures should enable all parties involved in educational process to modify their actions and behaviors toward students, which in turn should overcome some difficulties involved in classroom discipline and management.

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866

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VOICES OF TEACHER INTERNS AND THE FEAR
OF CLASSROOM MANAGEMENT AND DISCIPLINE

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Introduction

This paper is part of a larger study which focuses on reflective and critical aspects of teacher education and teacher internship programs (Doyle, Kennedy, Ludlow, Rose and Singh, 1994; Kennedy, Doyle, Rose and Singh, 1993; Singh, Doyle, Rose and Kennedy, 1997; Singh, Rose, Doyle and Kennedy, 1996).

In working with teacher interns during the internship semester, we found that some teacher interns were terribly concerned about the issues related to classroom discipline and management. They were spending a tremendous amount of energy and time worrying about these issues. This was stressful for some. Every day they seem to approach their classrooms preoccupied with a sense of fear which led them to believe that their students would do something uncontrollable. It seems that in some cases their fear bordered on phobia. We examined this phenomenon in a paper entitled, "Reflective Internship and the Phobia of Classroom Management" (Singh, Doyle, Rose and Kennedy, 1997). That paper describes the methodology, data collection procedures, concepts and theories we utilized in analyzing teacher interns' fear of classroom management and discipline.

There is no need to repeat the discussion of those items in this paper. Instead, this paper focuses on one need of the teacher interns which became clear while analyzing the "phobia" phenomenon. The fact was that the interns wanted to know "practical" things which would help them to manage classrooms. In a self-reflective manner they wanted to know what were the sources of their fear? What made them so fearful? What should they do to survive the Internship semester? What should not be done if teacher interns want to survive the Internship?

As internship supervisors, part of our effort was to bring the interns together for reflection. In the extended group reflective sessions (sometimes involving thirty interns and lasting for two full days), and in "mini" individual reflective sessions (involving one to two hours), we discovered another thing: in order to come to grips with their fear, some interns constantly criticized the theoretical nature of university courses and were critical of the university professors for not transmitting to them practical knowledge. This feeling, we realize, is often fostered by some cooperating teachers, as well as by many non-university individuals and some people within the university itself. When the interns were told that a good theory is more likely to be the best practical tool, they showed considerable doubt. Facing this, my colleagues and I were on many occasions tempted to subject them to a barrage of information on classroom management and discipline which has been readily available in professional journals and books, but we resisted that idea to some extent. It is not that we did not want them to know the professional literature available on this topic. In fact, on many occasions we referred them to the latest books and articles on the subject. When we did that, they often responded by saying that those things don't work anyway in real classroom situations. What is a real classroom situation, we asked? A real classroom situation is where some students or

a majority of students don't do what you expect them to do and you don't know how to make them do those things. This was generally their answer.

So, from our own theoretical perspective, and in this particular context, we decided to encourage the teacher interns to voice their own concerns about classroom management and disciplines in reflective sessions and let them struggle with their own voices, as well as with the voices of their peers. In fact, we learned that this is what they wanted to do. They wanted to hear their own voices and the voices of their peers. And they relished the whole process very much. They felt empowered in the sense that they found solutions to many problems by themselves.

The critical and reflective question we pose is how can we, as teacher educators, wean interns away from a preoccupation with technical skills toward a process where they can feel safe to try to put their own work into practice in a wider social, cultural, and political context? We encouraged them to focus on what they do and don't do in their classrooms in a larger context and asked them to identify them. In this paper, then, I report what the interns say about the sources of their fear about classroom management and discipline, and what their do's or don'ts are.

We find it very interesting to compare teacher interns' responses to issues related to classroom management and discipline with the results of studies done by the professional social and behavioral scientists and presented in the second part of Dr. King's paper in this issue of *The Morning Watch*. Our colleague, Dr. King, summarizes the results of many studies as well as various models of the classroom management and discipline. It is not that hard to note, in many cases, similarities and dissimilarities between the interns' answers and the suggestions offered to teachers by the professional researchers regarding "do's" and "don'ts". Similarly, there are many commonalities between the interns' answers and suggestions made in a recent document produced by the Department of Education outlining policies on discipline in schools (1996).

What does this mean? We concur with many others in believing that there are many ways of knowing and there is always a loose fit between different ways of knowing. Nobody knows everything. Our knowledge about and of social phenomena is always partial and limited. There are no fixed authorities in an absolute sense. The role of "expert knowledge" to come to grips with complex social issues is perhaps very modest.

Further attention should be drawn to three forms of knowledge: commonsense knowledge ("amateur" theory), professional knowledge (scientific theory) and official or state knowledge (ideology). In order to be able to make sense of complex social and educational issues, each form of knowledge should be treated, more or less, equally in any plan of action. This attitude or belief toward knowledge, however, does acknowledge the utility of one form of knowledge over the other in a particular situation. In this sense it does not ignore the hierarchical nature of knowledge in unequal (stratified) societies.

We raise one final question: how do interns, more or less, end up saying and doing the things suggested by professional researchers? Is it that the interns have read books and articles written by professionals on their own? We really don't think so. Is it the case that professional knowledge is often used as a basis for their socialization at homes, in schools, in the work place, in media and in society at large? Is the professional knowledge hegemonic or overwhelming in this sense?

The institutions of higher learning, like the university, are involved in professional socialization of the teacher interns. Whether they realize it or not, their commonsense knowledge do seem to correspond to the professional knowledge, at least to some degree. Does this mean that we at the university do not teach anything of a practical nature to teacher interns, as some of them claim? Or is it that what we do at the university and in the Faculty of Education gets readily absorbed as commonsense knowledge, which in turn surfaces as "hidden curriculum" in the classroom interaction among professors, teachers and students? Or is it the case that commonsense, professional and official forms of knowledge overlap when we come to act on complex social policy issues? We believe the latter is the case. And it should be that way (Singh, 1991). Believe it or not, so we at university do teach students something of practical nature - by default or by design!

Below we present responses (voices) of the interns to the sources of fear about classroom management and discipline in the form of several practical points which they themselves have identified.

More Than 50 Sources of Phobia/Nature of Phobia

1. Students who don't pay attention.

2. Not totally confident in my ability to keep things under control.

3. The most anxiety comes from discipline problems.

4. I am used to silent classroom.

5. I am used to school when the teacher talked, no one else talked.

6. The kids that want to learn will get the abuse (i.e., they should be able to learn).

7. Kids do manage to be disruptive (no matter what you do).

8. To maintain control is the hard part.

9. Whether you can tell Jimmy to shut up and keep everybody else in tune.

10. How to keep them cooled down and what to do if they're not cooled down.

11. Want to learn how to be effective as a teacher.

12. What to do when things are really getting out of hand.

13. There's a lot of feelings involved in a lot of things... I have gone from being happy to ready to tear all my hair out.

14. It is a lack of respect for the teacher.

15. How to quiet them down.

16. How to make them do their work.

17. Classroom management.

18. Getting up there and actually having them listen to me.

19. I'm weak in the area of disciplining a student.

20. Grade eight students are hard to handle.

21. My first fear was that I would be put in a junior high school.

22. Teaching a wide variety of subjects, many of which I have little idea about.

23. The expectations that are built into education to teach junior high are the worst.

24. Fear that I might get thrown into a situation right out of university and right into a situation where it was going to be the hardest.

25. Adolescents do not know how to behave, how to act.

26. Don't want to experience teaching in junior high when I want to teach high school.

27. University is more idealistic. I fear that it does not prepare one for the real world situation.

28. Fear of being put off track in the classroom.

29. Fear of being disruptive four of five times a period.

30. Fear of being able to get back and to get our thoughts back on the right track after you have been disrupted several times.

31. Fear concerning not being able to take care of practical matters.

32. Classes are so big and a lot of kids don't want to learn.

33. Fear of being inadequately trained to deal with disciplinary problems in the classroom.

34. Students wandering around in the classroom.

35. Fear of cooperating teacher sometimes coming down a bit too hard.

36. Worry about confrontational aspects of classroom management.

37. Fear that I wasn't doing something right.

38. Fear of getting things done in light of disruptive behavior.

39. Fear that students may not be working to your particular teaching strategy.

40. Worry about what to do if things are really getting out of hand in the classroom.

41. Concern with how to face different techniques of control in the teaching situation.

42. Fear of not being able to establish yourself as a teacher.

43. Fear of not being able to get used to good and bad days of behavior in the classroom.

44. Concern with situation, specific discipline problems.

45. Fear of taking things too personally.

46. Fear of not being able to control my anger or stop being angry.

47. Concern with how to learn to appear angry without being angry, to put that face on you.

48. Fear of being or getting overly frustrated.

49. Worry about finding an appropriate discipline method that's going to work.

50. Fear of not being able to see myself as a professional teacher.

51. Fear of going up in front of adolescents, fear of not having confidence to stand up in front of students.

52. Fear of not being able to earn respect of students.

53. Fear of dealing with today's young kids because they seem to be so different.

54. Was anxious because it was my first class.

55. I found it quite frustrating dealing with my cooperative teacher. I never knew what she wanted.

56. My only fear was not being prepared.

57. My fear was not being able to find any equipment (e.g., audiovisual material) in the school.

More Than 180 Things Teacher Interns <u>Should Do</u> to Survive the Internship

<u>Do's</u>

1. Build a rapport with students.

2. Establish yourself as a teacher.

3. Be fair.

4. Don't give tests with bonus questions on them.

5. Be enthused or pretend you are enthused.

6. Think about incentives.

7. Use different types of incentives.

8. Sometimes learn to turn a blind eye to a lot of things.

9. Save your breath for something serious.

10. Try and establish a positive relationship with students.

11. Be flexible.

12. Be confident even when you are not.

13. Maintain energy.

14. Leave your preconceived notions behind you.

15. See what you can see.

16. See what the school has to offer.

17. Be open-minded.

18. Try and get an early gauge about your students ability.

19. Do what you are told (by others in the school).

20. Mould yourself to the situation.

21. Get along.

22. Be considerate.

23. Don't fight.

24. Take care of yourself physically and emotionally.

25. Take time for yourself.

26. Cool off before you have to deal with a problem.

27. Have a sense of humour.

28. Be friendly.

29. Take it easy in the school where you are welcomed.

30. Remember you are not working in the school, you are an intern.

31. You are more or less a guest in the school.

32. Get to know the students.

33. Get to know the staff.

34. Get involved with the guidance counsellor.

35. Talk to the guidance counsellor about the things to look for in children who have been abused.

36. Do get to know the kids.

37. Do get to know your co-op teacher.

38. Do get to know your principal.

39. Take the kids aside if you want to discipline them.

40. Take the good things from school home with you and talk about them to everyone you meet.

41. Tell everyone that you are proud of your kids at school.

42. Tell the kids that you are proud of them.

43. Be as understanding as possible.

44. Do try and work with resource people in the community as well as with parents.

45. Provide the best education for the children.

46. Try to make your classes as much fun as possible.

47. Make your class have as much variety in it as possible.

48. I should always try to be fair.

49. Always be thinking about do's and don'ts all term.

50. Take it (bad things in classrooms) with a grain of salt and start off fresh on another day.

51. You should try to relate it (the textbook) to outside things or use other different resources.

52. Use other textbooks as supplements because there's interesting stuff in them.

53. Any way you can avoid becoming attached to students, avoid it.

54. Get to know the other interns for sure, because we are all in the same boat.

55. Talking to others helps relieve some of the pressure.

56. Get things out of yourself.

57. Get to know all the teachers other than your cooperative teacher -- as many teachers as you can.

58. Use other teachers as resource persons.

59. Try to get a variety of opinions in the school.

60. Try to become involved with them (students) outside of the classroom.

61. Try to get involved in extracurricular activities and stuff like that.

62. Treat everyone fairly, even boys and girls.

63. Be relaxed.

64. Be yourself in front of the classroom.

65. Be patient with them (students).

66. Be understanding.

67. Make an effort to be understanding.

68. You get as much out of it as you put into it.

69. You have to put a lot of effort into it.

70. You have to make that extra effort to know their (students) environment which is all new to you.

71. Extra effort to be nice to them, know your purpose and place in the school.

72. Make an effort.

73. Set up a plan to talk to your cooperative teacher once a week.

74. Prepare everything before hand.

75. Do suck up.

76. Do everything that is asked of you and do more.

77. Find out all the information that's available to you.

78. Find out exactly what courses you're required to teach.

79. Find out exactly what the book's going to be.

80. Find out exactly how your cooperative teacher teaches.

81. Find out how to duplicate your cooperative's teaching and add a few of your own ideas in there.

82. Stay around in school after 3:00 p.m. for 20 minutes.

83. Go to school early in the morning.

84. Make sure you're in class on time.

85. It is not good for you and it's not a good impression on the kids to be late.

86. Be responsible.

87. Do everything humanly possible to make yourself an effective teacher.

88. Make sure how the school works.

89. Make sure you know who's in the school, what their function is, what you need to do, what you need to know, how do you get around things, how do you get information, whom to contact, who the resource people are, where all the duplicating materials are, and what available resources are in the school itself.

90. Must consider yourself a teacher.

91. Take some of the responsibility in the classroom.

92. You got to be firm and friendly.

93. You got to get involved in order to be a part of the staff.

94. You got to go around.

95. Make yourself accessible to the staff and be friendly and say "Hi" to this person and "Hi" to that person.

96. Make yourself speak to the people.

97. Get involved, that's one big thing.

98. Get involved during lunch time, if not in extracurricular activities.

99. Eat your lunch in the staff room and then go out with the students.

100. Make sure everybody gets to know you.

101. Get on a one-to-one basis with people.

102. Remember you're in school to learn.

103. Go through the gradual process to learn about your classroom and the school.

104. Slowly increase your role in what you do.

105. Remember, students are going to watch what you are doing.

106. Yes, go there (in the classroom) with an open mind.

107. Take each day as a new experience.

108. Go home and chatter with your friends and laugh and joke about what happened in the school.

109. You have to be able to accept criticism.

110. Put up with a bit of chatter in your classroom.

111. Sometimes you have to yell and talk loud.

112. Got to raise your voice every so often.

113. Be louder than them (students).

114. Dealing with students one-on-one (style of keeping control) works.

115. Take their privileges away from them. It is quite effective, e.g., computer time, gym time, etc.).

116. Have a lot of energy.

117. Move around in the classroom.

118. Use proximity control, i.e., move near students.

119. Be assertive.

120. Make your presence known in the classroom.

121. Be confident of yourself.

122. Pure silence works.

123. Use verbal and non-verbal cues to gain control.

124. Learn to appear angry without being angry.

125. Be calm.

126. Have patience.

127. Learn to deal with your frustrations.

128. Experiment with different techniques to get your ideas across or in maintaining control.

129. Use detention not too frequently. It doesn't work.

130. Think of yourself as a professional teacher.

131. Learn from trial and error.

132. Talk to other teachers.

133. Just try to talk to the students.

134. Just try to understand the students.

135. Get to know why students do what they do.

136. Slow down and write neater on the board.

137. Try to interact more with the students.

138. Ask the students more questions.

139. Remember words that are simple to you may blow students away.

140. Lay down the rules.

141. Try to earn respect of students.

142. Remember, respect is earned.

143. Get used to the juggling act, to deal with disruptive kids and get through your lesson is a real juggling act.

144. Lesson management is necessary, it leads to classroom management.

145. Be prepared to be a counsellor at times.

146. Just stand there, and look at students and be quiet.

147. Pinpoint the student with whom you are having a problem.

148. Learn to deal with students one-on-one for keeping control.

149. Make the class think that everyone is responsible for each others actions.

150. Forcing students to leave the room sparingly (occasionally.)

151. Think twice before you ask a student to leave your class. Remember, there will be days you will have good control and days when control will be bad.

152. Remember you are new in the classroom and the students will try you out and how they can challenge your authority as a teacher.

153. Learn to deal with classroom problems on your own.

154. Follow the proper procedures.

155. Get along with or have no trouble with the principal, the staff, the parents and the students.

156. Do your own self judgement and evaluation as to the severity of discipline problems before getting help from higher authorities.

157. Get students to admit to you that they're wrong, get them to tell you what their punishment should be and get them to tell you what they deserve and then deal with it.

158. Prepare your lesson well, doubly well.

159. Make an extra effort to find the material and equipment you need for your classroom, i.e., do good planning. Everything is planning.

160. Remember that some days students are not in the learning mode and nothing will work to calm them down.

161. Remember there's got to be a way to quieten down a particular student.

162. Talk to other teachers about a particular student you have problems with, get to know his family background.

163. Remember, that in many cases, potential dropouts are your problem students.

164. Potential dropouts are very disruptive.

165. Let potential dropouts have their little chit chat sometimes and get it over with.

166. Be a little bit more lenient with the potential dropout students, a little bit more lenient.

167. Remember if you threaten your students (dropouts potentially), a wall goes up, and then it is a fight, then you got a fight on your hands.

168. Give students multiple choice questions if they have problems with writing and reading. Sometimes make them write a bit but never threaten them.

169. Get yourself organized enough to answer questions that might be posed to you in different situations and to face those kinds of challenges.

170. Always address individual needs of students.

171. Handle the class by relating to students on an individual basis -- giving as much of yourself as you think is necessary.

172. Feel positive in the way you relate to students, to the whole class.

173. Present yourself in terms of your humour, use humour to make students relax in your class.

174. Create a good learning environment, one that's not overly stressful and that's not full of emotional problems in any way.

175. Make an environment that makes people feel comfortable and in which students can work.

176. Make your class as a game, as a place to have fun. Remember, too much education is boring and that's why we get so many disciplinary problems.

177. Remember some students are bored in the classroom and they don't want to be in it.

178. Remember that discipline problems stem from poor teaching.

179. Try to get students to do things themselves for the sake of getting out of school.

180. Remember students can put you on the spot in front of others.

181. Observe your cooperating teacher and learn techniques of classroom control from them.

182. Ask your students to make important decisions.

183. Ask students questions.

184. Ask your students to provide reasons for their actions.

185. Ask your students for future plans.

186. Be more conciliatory and adopt a democratic approach to teaching, where students have to think through reasoning.

187. Ask your students "what is the problem" if she/he is giving you trouble.

188. Let students know where you are coming from.

189. You have to look for yourself.

About 70 Things Teachers Should <u>Not Do</u> to Survive the Internship

<u>Don'ts</u>

1. Don't give tests with bonus points on them.

2.   Don't be yourself right away, wait.

3.   Don't be fake.

4.   Don't freak out if somebody disobeyed or did something.

5.   Don't take things personally.

6.   Don't get frustrated easily.

7.   Don't expect to get everything right all the time.

8.   Don't waste your breath on everything.

9.   Don't speak to students everyday for some minor infractions.

10.   Don't be judgemental or don't be judgemental at all.

11.   Don't try to change the situation right away because you can't change it.

12.   Don't enter into one-to-one confrontations with students in a classroom environment.

13.   Don't open your mouth unless you know what you are saying.

14.   Don't speak before you act.

15.   Don't get too stressed.

16.   Don't push yourself beyond your own physical limits.

17.   Don't ignore your own needs.

18.   Don't question the principal.

19.   Don't' make the principal look bad in front of the staff.

20.   Don't reprimand or discipline kids in front of the whole class.

21.   Don't take your problems home with you.

22.   Don't put down other teachers or other students around the kids.

23.   Don't forget that you're supposed to be a role model.

24.   Don't forget that the kids are going through a lot more than just what you see everyday in school.

25.   Try not to show your anger because if you do the students just play on it.

26.   You don't want to try to be buddy buddy with the kids because they'll walk all over you.

27. You shouldn't get too upset if there's talking in your class because it is going to be there, so don't worry about it.

28. Don't expect a whole lot from kids at first until you get to realize their achievement.

29. Student interns shouldn't be too upset if they have a bad day because it's going to happen, probably more than once.

30. Try not to stick with the textbook a whole lot.

31. Don't become too attached to people and things in school. Don't become attached over everything.

32. Never yell.

33. Never embarrass a student.

34. Never take them out or draw attention to them.

35. Remember it is the cooperative teacher's class after all.

36. Don't try to take total control of it (classroom.)

37. Never override the cooperative teacher.

38. Don't argue with your cooperative teacher.

39. Don't run out of school at 3:00 p.m.

40. Don't be late in the class.

41. Don't depend on the cooperative teacher all the time.

42. Don't be shy even if you are shy.

43. Don't go into your classroom and rule with an iron fist as such!

44. Don't just sit down and be a passive observer.

45. Don't forget that students are going to look at you as a teacher.

46. Don't forget that you are going to be the role model for them (student).

47. Don't let things bother you.

48. Don't take today's things home, forget about it.

49. Don't keep bringing your day-to-day problems in with you and...

50. Don't take your problems home with you.

51. Don't be afraid to accept constructive criticism you know.

52. Don't be afraid to ask your cooperative teacher "is there anything I am doing wrong"?

53. Don't take students behavior personally.

54. Don't get angry.

55. Don't get overly frustrated if the class is not getting what you are saying.

56. Never assume that the students know everything.

57. Don't try to build Rome in one day. Remember it wasn't built in a day.

58. Make kids stay after the class today.

59. For something that happened on Friday or yesterday.

60. Even detention doesn't work.

61. Don't force students to leave the class excessively. It doesn't serve the purpose.

62. Don't be too lenient to students.

63. Don't be unprepared for your classroom.

64. Don't think you can handle the students everyday.

65. Don't single out one student in the class and never do that in front of his peers, i.e., scream at them.

66. Don't argue with the potential dropout students back and forth.

67. Don't threaten your students as a person, i.e., threaten their person.

68. Don't use games everyday.

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**ONE MAN'S PERSPECTIVE OF DISCIPLINE IN
THE SCHOOLS: PART I**

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Introduction

Teaching is one of the most important jobs in our society, yet teachers are often overworked, underpaid, and under appreciated. There is a common bond which unites all teachers, and this is the desire to help our students reach their maximum potentials as human beings. When we achieve this goal, when we see students grow as a result of our teaching, we know that all the training and hard work have been worth the effort. Unfortunately, the realization of this goal is sometimes thwarted by the attitudes and misbehavior of students.

The purpose of this paper is to provide a framework for analyzing and assessing the many facets of student misbehavior in the schools. It consists of two parts. Part I contains a chronological narrative describing the evolution of my thinking about discipline; I think it provides a realistic and sober assessment of discipline in the schools. Part II consists of a fairly comprehensive outline of those ideas which I think have made a significant or relevant contribution to the discussion about discipline in our schools. It provides some specific and practical suggestions for improving teaching effectiveness. Hopefully, the reader can use some of the ideas to reflect upon as potential strategies to improve teaching.

PART I: REFLECTIONS ON CLASSROOM DISCIPLINE

The Beginning

I began my teaching career in California in 1961 as a high school mathematics teacher. It was a great time to be a teacher for, although some students were not highly motivated to learn, there was still a general respect for most teachers. I would estimate that fewer than ten percent of all teachers had serious discipline problems in those days. I believe this was because teachers had real authority over what happened at school, and this authority translated into calm and orderly classrooms. To illustrate how this authority worked, let me describe an incident which occurred on the first day of school in 1963.

The bell rang, and Fred entered my room and sat in the last row of seats near the door. After taking roll, I started explaining my expectations for the class. "Big deal!" muttered Fred, just loud enough to be heard across the classroom. I looked in his direction, made firm eye contact with him, and warned the entire class that I would not tolerate any further disrespect. Minutes later, in response to one of my comments, Fred muttered "Jee-sus Kee-ryste!" I immediately stopped instruction, scribbled a note to the principal on a piece of paper, and instructed Fred to take the note to the office. Which he did. After school, I found a note from the principal in my mailbox. I met with the principal and he asked me to readmit Fred into my class. "If Fred gets away with this," I explained, "it will be open season on me for the rest of the year." The principal stood

behind me, and Fred was not readmitted to my class, and, as a result, I had a very good year with my students.

That's the way it was in the early 1960s; the teacher had authority, and because of this, there were few discipline problems. Today, many educators probably think that I was too harsh with Fred, that I should have given him another chance. I disagree.

In 1966 I left the classroom to attend graduate school. After three years of study, I received my doctorate degree and was hired by the College of Education at the University of Hawaii where I ran a number of research and curriculum projects. After sitting behind a desk for eleven years in that position, I decided to switch to the Division of Field Services where I served as a college coordinator supervising student teachers. Thus, when I entered my first classroom to observe a student teacher in 1980, it had been fourteen years since I had been in a regular public school classroom. And boy, was I in for a big surprise!

The Rude Awakening

I was assigned student teachers at almost every grade level from kindergarten through the twelfth grade in my first year of supervising student teachers, and in classroom after classroom I saw rude and disrespectful student behavior. In a third-grade classroom, children would not cooperate or obey the simplest of commands. The teacher had four time-out locations in the room where she sent disobedient children, but she needed many more. In an intermediate school Physical Education class, I witnessed students slap the student teacher on the back of the head at the beginning of each period. When I asked him why he permitted this, he pretended he was unaware of it. In a high school English class, a glassy-eyed boy, wreaking of alcohol, arrived ten minutes tardy. When the student teacher moved towards her desk to mark the attendance book, the boy kicked over a desk and shouted obscenities at her. And so it went.

To be sure, there were classrooms in which students were orderly and attentive. Even so, I would estimate that fewer than ten percent of the teachers were without discipline problems. Teachers had lost their authority, and teaching had become a very stressful occupation.

For a number of years I tried to find someone to blame for these conditions. At first I blamed teachers for not cracking down on students. Then I blamed principals for not backing teachers when they referred students to the office. Then I blamed the Board of Education and the State Legislature for enacting legislation and rules which granted rights to students which made it difficult to maintain order in the schools. Then parents for not raising their children properly. Then Education professors for ignoring the discipline problems in the schools. Finally, I realized it did little good to place blame: everyone, including myself, was to blame. The situation in the schools was very complicated. And so I decided to study the problem.

Looking for Solutions

The student teachers I supervised had been exposed to three approaches to discipline: **Discipline Without Tears** (Dreikurs and Cassel, 1972), **T.E.T.: Teacher**

Effectiveness Training (Gordon, 1974), and **Schools Without Failure** (Glasser, 1969). Each of these approaches might be described as student centered in that they are based on the belief that students will behave if they are treated humanely. However, I observed that students frequently (indeed, usually) took advantage of teachers who tried to be kind and democratic; it was usually the strict teachers who had control of their classes. Of course, I must admit that many teachers who tried to be strict were also suffering from serious student misbehavior.

In 1983 I had a stroke of good fortune. I supervised two student teachers in the same school, one in English and the other in Health and the same seventh grade students were in both classes. On my first visit to the school both classes were still in the hands of the regular classroom teacher. In the English class, the students were rowdy, used four-letter words, and generally sabotaged the efforts of the teacher. The following period I visited those same students in a Health class, and to my surprise, they were polite and respectful of the teacher. I asked the Health teacher for an explanation of his success with students. He had no secret system, he assured me, he was just being himself. He simply refused to let students misbehave because it was his job to teach them to be polite and considerate of other people, including the teacher. Although this did not provide me with a system which I could share with other teachers, it did show me that teachers can and do make a tremendous difference in how students behave. There was hope.

During my travels about the schools I had come across a small number of teachers who were consistently outstanding in developing polite and productive students. I decided to revisit these teachers in search of answers, and I videotaped each of them in the hopes of discovering their common techniques. At first glance, the outstanding teachers were different from one another: Some were loud and aggressive, others were quiet; some were large, others were small; some were friendly, some were cool and distant; some appeared democratic, others authoritarian; some were Caucasian, others were Oriental. Yet as different as they were, they all had very cooperative students. But why? I could see no common thread.

Gradually, the interplay of my classroom experiences and my reading began to reveal some common characteristics of these effective teachers. From the works of Canter and Canter (1976, 1989) I came to realize that effective teachers were assertive teachers who believed it was their job to teach values and who insisted upon polite behavior. From the works of Charles (1981) I learned that effective teachers prevented most problems through their planning and organization. From Jones (1987) I learned that effective teachers used body language, especially their facial expressions, to convey that they meant business when confronting student misconduct of any kind. From French and Raven (1960) I learned that teachers gain the cooperation of students through the exercise of five different forms of power. And from Harry and Rosemary Wong (1991) I realized that effective teachers set the proper tone in the first few minutes and days of the school year.

There was, after all, some common characteristics of effective teachers. In the remainder of this paper I shall share with you what I consider to be some of the more useful ideas I have discovered about discipline in the schools.

The Issue of Who is in Charge

Table 1 presents a continuum along which are placed some of the leading theorists on classroom discipline (adapted from Tauber, 1995). The descriptors at each end of the continuum are self-explanatory: To the right are theories which believe the teacher must exert control in the classroom, and to the left are theories which believe students can manage themselves if given the chance. Most teachers fall somewhere between the two extremes. However, I think it is a mistake for teachers to think of themselves as being in a fixed spot on the continuum. The most effective teachers I know adjust their management style to fit the situation. For example, a friend of mine,

Table 1

Continuum for Discipline Theories

Student Centered						Teacher Centered	
Noninterventionist						Interventionist	
Humanistic						Behavioristic	
Influence						Control	
Gordon	Glasser	Dreikurs	Kounin	Redl	Jones	Canter	Skinner

Alfred, has a group of Advanced Placement Calculus students with whom he is a very student centered teacher. They are bright and highly motivated, and Alfred gives them a great deal of freedom. He can afford to ignore an occasional transgression, and even smile at it, because he knows the students will get back on task. During another period, Alfred has a group of Pre-Algebra students with whom he is a highly teacher centered teacher. Experience has taught him that he must provide them with strict guidelines and constant surveillance. If he smiles at a minor transgression, students frequently perceive this as weakness or approval, and things worsen. Alfred does not prefer being strict, but he has found this is the most effective way to handle the group. Hence, a teacher's position on the continuum is not fixed and can vary depending on the maturity of the students. A teacher's position on the continuum can even change with the same group of students during the school year.

I believe a teacher should start the school year being highly teacher centered. As the year progresses, and as students demonstrate their maturity, the teacher can slowly relinquish more and more control to them. Perhaps you have heard the old saying "Don't smile until Thanksgiving." I do not personally follow this advice, for I smile and laugh throughout the year. There is, nonetheless, a bit of wisdom in the saying. It is based upon the knowledge that if you begin the year by being in tight control of the class, you can gradually relinquish control and establish a student centered classroom. However, if you begin the year by being permissive and letting students dictate the mood of the classroom, and if things get out of control, it is extremely difficult to regain control of the classroom. This means it is possible to go from the right to the left on the discipline continuum as the year progresses, but it is difficult to go from the left to right.

The authors with whom I agree the most, authors such as Jones, the Wongs, and the Canters, fall towards the teacher centered side of the continuum. These authors have their roots in the classroom and I find their ideas about teaching to be the most practical. Those authors who fall on the student centered end of the continuum,

men such as Glasser, Gordon, and Dreikurs, are psychologists or psychiatrists who have their roots in private practice dealing with individuals rather than large groups of children. For the most part, I find their ideas to be idealistic and less applicable to the real world of kids in classrooms. An example will illustrate the differences between the two positions.

Dreikurs and Cassel (1972) recommend that the teacher ignore a student who is misbehaving to get attention. They reason that by responding to the misbehavior, the teacher is unwittingly giving the student what he wants, attention, thus reinforcing the bad behavior and increasing the likelihood that the behavior will be repeated. Jones (1987) points out that this might work with a child at home, but it backfires on the teacher in the classroom with 25 other students. If a teacher ignores a student's blatant misbehavior, these students will get the idea that they can do the same thing. And so, instead of extinguishing the misbehavior of one student, by ignoring the infraction the teacher is reinforcing the notion, in the minds of 25 other students, that misbehavior will be tolerated by the teacher. And things will get worse. My experiences tell me that Jones is right.

The Three Faces of Discipline

Charles (1981; 1985) has defined three faces of classroom discipline which provide a useful framework for examining discipline. Preventive discipline are those things a teacher does to prevent student misconduct. Supportive discipline consists of the techniques the teacher uses to help students maintain self-control and to get back on track when they start to misbehave. Corrective discipline consists of the consequences or punishment a teacher administers following student misbehavior. In the following pages, I shall indicate how the leading theories of discipline fit into this framework.

As they read this, teachers might think about developing their own written discipline plan. Using the headings of preventive discipline, supportive discipline, and corrective discipline, they might select ideas for each category which are consistent with their personality and outlook on schooling, keeping in mind that there is no right or wrong approach to discipline. If something works for them, they should use it.

Preventive Discipline. *Preventive discipline* consists primarily of those things a teacher does before students enter the room. Jones (1987), Emmer and Everton (1984), and Sprick (1985) emphasize the importance of classroom structure, and this topic is a major component of preventive discipline. Structure refers to a broad range of topics from the arrangement of the furniture in the room on the one hand to how teachers plan and teach their classroom rules and procedures on the other. It includes room arrangement, walls and bulletin boards, storage space and supplies, teaching style, rules and procedures, the content of the curriculum, the teachers' uniqueness as a person, their skills in motivating student interest, lesson plans, and their own physical and mental preparation are all vitally important parts of their preparation for teaching. Structure provides a framework for everything that happens in the room. According to Jones, "Adequate structure is the cheapest form of behavioral management, since once you establish a routine you can produce needed cooperation and rule-following thereafter at relatively little effort." (1987, p. 41)

If students clearly understand the rules, routines, and standards for the class, student misconduct can be minimized. Jones (1987) believes classroom discipline

problems can almost always be traced, at least in part, to inadequate structure. Therefore, it is important that teachers plan a clearly defined classroom structure before the students arrive. Many authors, including Chernow and Chernow (1981), Emmer and Everton (1984), the Wongs (1991), and Sprick (1985) agree with Jones that classroom rules and procedures must be clearly taught on the first day of school and retaught throughout the school year.

The Wongs (1991) provide a wealth of suggestions for improving a teacher's preventive discipline arsenal. Their approach emphasizes the positive: having positive expectations, helping students experience success, inviting students to learn, dressing for success, and being mentally prepared for teaching. They also provide many practical suggestions, such as how to take roll, how to keep a grade book, and how to introduce oneself to the class.

There is more to preventive discipline than being organized and prepared. Jones (1987, p. 8) defines classroom discipline as "the business of enforcing classroom standards and building patterns of cooperation in order to maximize learning and minimize disruptions." Hence, discipline is a two-edged sword: on one edge is enforcing standards, on the other is gaining the cooperating of your students. Jones believes cooperation to be the more important of the two. But how do we get cooperation? How do we get students
to do what we want them to do?

An understanding of the difference between authority and power can be very useful in gaining student cooperation (Froyen, 1988). *Authority* is the right to decide what happens in the classroom. The teacher is granted that authority by the school board. *Power*, on the other hand, is teachers' ability to get students to do what they want them to do. While all teachers are vested with authority, not all teachers have power. There are five forms of power that can be used to get an individual to act in ways the teacher deems appropriate: legitimate power; coercive power; reward power; attractive power; and expert power (French & Raven, 1959; Froyen, 1988; Shrigley, 1986).

To some extent, teachers have always had *legitimate power*. This power emanates from the students' belief that the teacher has the right to determine what happens in the classroom. Students behave because they recognize and accept the right of the teacher to be in charge. To a large extent it was legitimate power which enabled me to remove Fred from my class in 1963. The students, as well as the administrators, acknowledged the legitimate power of the teacher. While teachers still have legitimate power, in recent years many forces are eroding this form of power.

In the past, teachers usually combined their legitimate power with *coercive power*, the threat and use of punishment to gain student cooperation. In today's schools, the continued use of coercive power, especially in the absence of other forms of power, alienates students and often has detrimental side effects. Nonetheless, coercive power has a legitimate role in the classroom, and when used in conjunction with other forms of power, can contribute to a productive classroom.

Teachers can also use *reward power*. In this case, students behave in anticipation of receiving some kind of reward from the teacher. The outline in Part II below lists many types of rewards, but recognition, praise, and appreciation are probably the most effective rewards a teacher can give, especially if the teacher is also using attractive power.

Attractive, or *referent power* is relationship power, the power teachers have because they are likable and know how to develop good relationships with students. Teachers who rely upon attractive power go out of their way to make students feel good about themselves, and they work hard at developing good relationships with all students. I know of teachers who proudly state that they do not care if their students like them so long as they respect them. To some extent this attitude is based upon the belief that popular teachers buy the good will of their students by being lenient with them. But this need not be the case. Many popular teachers are strict; yet, at the same time, they treat students in a friendly and respectful manner, they make their classes as interesting as possible, and they try to make every student feel a part of the class. Such teachers are both liked and respected, and they wield a great deal of power with students.

The final type of power identified by French and Raven (1960) is *expert power*, the power teachers have because they possess superior knowledge. Teachers who rely upon expert power take pride in their command of the subject matter, are enthusiastic about the subject, prepare interesting lessons, and derive great pleasure in transmitting this enthusiasm and knowledge to their students. When students respect the teacher for the knowledge she possesses, when they master significant knowledge and skills, and when they feel good about themselves because they are achieving, they are less likely to misbehave.

A generation ago, when I began my teaching career, a teacher could reply upon legitimate power, supported with coercive power, to maintain control in the classroom. This will not work in most classrooms today: many students do not automatically respect their teachers, and the arsenal of available punishments is so small and ineffectual that the most disruptive students are unafraid. Therefore, all teachers would be well-advised to develop other sources of power. By consciously developing and combining various forms of power, a teacher can geometrically increase his or her influence with students (Fairholm & Fairholm, 1984). If a teacher is liked by students (attractive power), is admired for his knowledge of the subject (expert power), and gives authentic praise to his students (reward power), then the teacher truly has power to influence learning in the classroom. The challenge to any teacher is to find that combination of power which is compatible with his or her basic beliefs, abilities, and personality.

Jones (1987) has also made a significant contribution to the discussion of power in the classroom. In a sense, his discussion of power is more relevant to teachers than are the other theories, for he deals with the most common of classroom experiences, confrontations between student and teacher. In such situations, the person who get his way wields the power. Many authors are uncomfortable discussing confrontation, and some recommend that teachers withdraw from power struggles (e.g., Dreikurs and Cassel, 1972). Jones does not. He suggests that the teacher use gentle yet firm techniques (which he refers to as "limit setting") which enables the teacher to prevail in interpersonal power struggles between student and teacher. I refer to this as *personal power*, and it will be discussed more fully in the next section of this paper.

No discussion of preventive discipline would be complete without discussing the importance on the first day of school. In the outline in Part II below, I have included the suggestions offered by the Wongs (1991) for getting off to a good start with students. The most important lesson plan of the year is the one teachers prepare for that first day of school. If they do it well, and they greatly increase their chances for a successful year.

Supportive Discipline. The outline of Part II of this paper describes the theories of eight approaches to discipline, including the works of the Canters, Dreikurs and Cassell, Glasser, Gordon, Jones, Kounin, Skinner, Redl and Wattenberg, and the Wongs. While there are good ideas in each of these approaches, I find the work of Jones (1987) to be the most relevant for teachers. Let me explain.

In my efforts to help student teachers with their discipline problems, I would listen to their situations, then suggest ways for remedying the problems. In some cases it worked, but in many cases it did not. After reading Jones, I have come to realize it is not what you do, but how you do it, that makes the difference. Unlike other writers, Jones (1987) tells us precisely how to deal with a student who is misbehaving, he tells us how to do it. He calls this process "limit setting" and I refer to this as exerting *personal power*.

When I first read Jones' description of limit setting, I realized that this was what the effective teachers I know actually do. I had known that a certain seriousness characterized their actions, but I had not translated that seriousness into more definable terms. Jones does. He calls it "body language."

The body language of teaching is different from the body language of discipline. When in a discipline mode, Jones recommends that you move very deliberately and more slowly than normal; keep a relaxed, non-smiling, non-angry face; look the student in the eyes; face your entire body towards the potentially disruptive student; have your arms at your side, in your pockets, or behind your back, and not on your hips or folded across your chests; avoid speaking unless absolutely necessary, and then in a unemotional, calm tone; and wait until the student complies. If the student refuses to comply, you must eventually apply a consequence. Since this is not natural for most persons, Jones has teachers practice these techniques until they look and feel natural performing them. For persons who can do it well, the calm, firm, and patient use of body language is a powerful yet caring way to get your way in the classroom. A more detailed account of limit setting is contained in outline in Part II of this paper.

I have found that some teachers are not comfortable in facing a student down with limit setting. Others are not very adept at establishing warm and friendly relationships with students. Still others dislike the use of coercive power. However, if one is to be a successful teacher, one must find a style of teaching with which one is comfortable and which gives the ability to get students to do what one wants them to do. An awareness of the forms of power can help the teacher to reach this goal.

Corrective Discipline. Corrective discipline refers to the actions a teacher takes when preventive and supportive discipline fail, when in spite of our best efforts, students continue to misbehave. Jones refers to this as the backup system. It is *coercive power*, the application of punishment. The most extreme form of punishment in schools is corporal punishment (such as spankings), and Dobson (1970; 1992) is one of the few authors who advocate it. While this is appealing to many teachers, corporal punishment is not allowed in most schools and is generally frowned upon as a measure to be applied in schools (Orenlicher, 1992; Kessler, 1985; Kohn, 1991; Tauber, 1990).

Since corporal punishment is not an option for most teachers, it is sometimes difficult to find a consequence which will deter misbehavior. When an effective deterrent is found, parents often object to it. For example, one high school initiated a lockout in which teachers locked their doors when the tardy bell rang. Security guards then corralled the tardy students and made them remove graffiti from walls and sidewalks

with scrub brushes. The policy was very effective, and tardiness was all but eliminated from the school. But when several parents complained about the policy, the scrubbing stopped, and tardiness became a serious problem once again. It is for such reasons that preventive and supportive discipline must be the main lines of defense for most teachers.

To help eliminate the adversarial relationship created by corrective discipline, Dreikurs and Grey (1968) suggest that teachers make a distinction between "punishment" and "consequences." Punishment is often viewed by students as being arbitrary and delivered by a vindictive teacher who wishes to inflict pain into a student's life. Consequences, on the other hand, follow logically from the behavior of the students. If students act in appropriate ways, there will be positive consequences; if students act in inappropriate ways, there will be negative consequences. By making students aware of both positive and negative consequences before misbehavior occurs, the teacher can avoid the perception of being vindictive. By misbehaving, a student chooses the consequence. A fuller description of consequences appear in Part II below.

School wide Discipline

There were two episodes in my professional experience which shocked my sensibilities and convinced me that it is not sufficient to deal with discipline solely at the classroom level, that discipline is in fact a school wide problem. The first episode involved a student teacher who was visibly pregnant. She taught in a high school, and during the lunch hour she and her cooperating teacher would allow students into the classroom to eat their lunches. One day a boy approached the pregnant student teacher and told her, in the crudest of street talk, that he would like to make love to her. She ran from the room to find her cooperating teacher. The teacher, in following the school's policy of trying to settle things at the classroom level before referring an offender to the office, talked to the boy. She then assured the pregnant teacher that it would not happen again. Several days later the boy returned to her classroom, grabbed her by the arms, and tried to pull her body into his, all the while muttering his passion for her (in words unsuitable for print). She ran in terror to the principal's office to report the incident. After school, the principal talked with the student teacher, stating "Don't worry. He'll never do that again. I told him if he ever touches you again, I'll kick him out of school." In both instances the student should have been referred to the police; for assault and sexual harassment in the first case, for battery in the second. Yet the school administrator chose to merely warn the boy. The message was clear: A student can sexually harass and assault a teacher without serious consequences.

The second episode affected me personally. During a seminar a student teacher came up to me to explain that her sixth-grade students were doing something awful, and since I was going to visit her the following day, she wanted me to know that the students did the same thing to their regular teacher. It seems that Robert, a difficult lad, would repeat everything she said. The entire class would then repeat it in unison. Sometimes, she said, this would continue all day long.

I reassured the student teacher that I understood, and the following day I arrived at the school during the lunch hour to find eight teams of students playing basketball on the outdoor court. The class that I was to visit was playing, and Robert and four of his friends were sitting in the shade of a building watching the game. I wandered over and watched the remainder of the game with them. When the game was over, the teams gave a cheer for one another.

"Two-four-six-eight, who do we appreciate? Mrs. Nakamura's team! Mrs. Nakamura's team! Mrs. Nakamura's team!" And so on.

Suddenly Robert and his four friends shouted, "Two-four-six-eight, who do we appreciate? Mr. Bald Head! Mr. Bald Head! Mr. Bald Head!"

Oh, did I forget to mention that I am bald headed? Well I am, and being the true professional that I am, I ignored their rudeness, smiled at them, and walked back towards the classroom.

"Two-four-six-eight, who do we appreciate? Mr. Bald Head! Mr. Bald Head! Mr. Bald Head!" they yelled at an even louder pitch.

This time I couldn't ignore it, and being the true professional that I am, I said, "Geez thanks boys, that's the first time I've ever received a cheer for being bald headed!"

And Robert said, "Geez thanks boys, that's the first time I've ever received a cheer for being bald headed!"

And his four friends shouted, "**Geez thanks boys, that's the first time I've ever received a cheer for being bald headed!**"

Now there were about a hundred kids and ten teachers walking nearby, watching the gathering storm. Being the true professional that I am, I said, "Come on, boys, that's not very nice!"

And Robert said, "Come on, boys, that's not very nice!"
And the four boys shouted, "**Come on, boys, that's not very nice!**"

And being the true professional that I am, I walked away quickly, ignoring the boys. Suddenly, one of the boys ran up and slapped me on the back of my bald head, very hard. Whap! And being the true professional that I am, I turned and shouted, "**You little b*st*rds!**"

And Robert gleefully shouted, "**You little b*st*rds!**"

And the four boys, juking theirs heads back and forth, arms extended, as if enticing me to chase them, laughingly shouted, "**You little b*st*rds!**" Things went downhill from there.

This episode was a turning point for me. For the first time, I understood at the emotional level what it was like to be teacher when students are being rude and disrespectful. I recalled the student teacher who had let his students slap him on the back of the head, and suddenly I was less critical of him. I was less critical, too, of other teachers who, from time to time, had performed an unprofessional act towards students. If I could lose my temper, then anyone could!

In retrospect, it is rather funny episode. But at the time, I was so humiliated by the incident that I did not mention it to anyone for more than a year. Then, one afternoon while addressing a group of teachers, I spoke of my experience with Robert and his friends, I spoke of my embarrassment and humiliation. After the meeting, several teachers waited around to speak to me in private. One by one they confessed

to me stories they had never shared with anyone else, stories, similar to mine, of their humiliation by students in classrooms, stories of reprisals by students, stories of years of silent suffering.

One teacher caught two boys smoking marijuana outside her classroom and turned them into the principal. The following day students started throwing rocks at her from behind bushes. When she reported this to the principal, she was told that it would be impossible to catch the kids since they hid behind bushes. Long after those students had graduated, other students still carried on the tradition of throwing rocks at her.

Another teacher's small children came home from school from time to time with gum in their hair, placed there by older students who told the children their mother was a witch. Since it occurred on the bus, the school administration could do nothing about it.

Yet another teacher was tormented by a group of sixth-grade boys who would get behind her and run their hands up her legs to her panties. She scolded the boys, but they continued to do it. Finally, she told her story to the principal. He reasoned that since she was an attractive young woman, and since she wore dresses and skirts, she was partly to blame for the problem. He advised her to wear jeans or slacks.

Over the past several years many other teachers have told me of the daily abuse they silently suffer at the hands of children. Gradually, piece by piece, a rather disturbing picture began to emerge. Rather than just a few isolated incidents, there appeared to be a general pattern of teacher suffering at the hands of children. But more disturbing was the fact that teachers suffered in silence, not knowing what to do about the humiliation they suffered each day. Just as many battered wives blames themselves for the abuse their husbands' unleash upon them, so, too, do many battered teachers blame themselves for the troubles they have in class. They are ashamed of their situation, and they suffer in silence. My message to such teachers is clear: I tell them they are not alone, that many other teachers suffer similar insult. I also tell them it is not their fault, that there is no excuse for rude and disrespectful behavior, regardless of the teacher's shortcomings.

Teachers need to support and help one another far more than is currently the case. I believe an assault on one teacher is an assault on all teachers. As a community of professional teachers, everyone needs to be more aware of the conditions in the schools and be willing to help each other in times of need. Strong teachers should not criticize teachers who are having discipline problems. Instead, they should be willing to help them. Teachers having problems with students should seek help. It might be embarrassing at first, but in the long run such individuals will become stronger teachers.

Many educators believe that teachers will not have serious discipline problems if they have good lesson plans, or are democratic teachers, or genuinely love their students, or whatever. The implication, though perhaps not intended, is that if students misbehave, it is the teacher's fault. I wish it were true that good teaching would end all discipline problems. But it won't. To be sure, the suggestions offered in this paper will help teachers become more effective, and teachers should continuously strive for improvement. But the problem of discipline in our schools today far transcend the individual teacher's ability to cope with them. Problems such as that encountered by the pregnant student teacher, as well as many of the other situations I have described in this paper, are caused by school policies which do not hold students accountable for

their actions. Until we do hold students strictly accountable, we will continue to have serious problems.

For this reason, I now believe it is absolutely essential for all schools to develop a school wide discipline plan which everyone will support and enforce. This is not as easy as it may sound, for it is often difficult to get an entire faculty to agree upon and enforce the rules and procedures in the school. Nonetheless, if we are to create schools which are places of respect and learning, we must make the effort. The last section of the outline in Part II of this paper contains some ideas on school wide discipline.

Concluding Remarks

I began this paper by stating that all teachers had the common goal of wanting to see their students learn and grow as a result of their teaching. Today, more than ever before, that goal includes the development of character as well as academic and cognitive skills. If our culture is to survive, we must first produce decent people. I hope I have not sounded pessimistic in my remarks, for I am optimistic about the future. This is a great time to be a teacher, for both the community and the teaching profession are beginning to acknowledge the seriousness of the problems which face our schools. I view these problems as opportunities, and opportunities abound.

Your Discipline Plan?

As the culminating assignment for the course I teach on classroom discipline, I require each student to develop a written discipline plan. The outline of discipline which follows in Part II presents many practical ideas for the classroom teacher. Readers might search for ideas which they think might be useful to them. If they do not have a written discipline plan, and if they need one, why not try to develop one? Using the categories of preventive, supportive, and corrective discipline, they might put down those things which they think might work for them. They might determine which kinds of power they can most reasonably develop, and list ideas which might enhance this power.

PART II: SOME IMPORTANT ASPECTS
OF CLASSROOM DISCIPLINE

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Definitions

I. *Classroom Discipline* is the business of enforcing classroom standards and building patterns of cooperation in order to minimize disruptions and maximize learning.

A. *Preventive Discipline* consists of those things a teacher can do to prevent discipline problems from occurring.

B. *Supportive Discipline* consists of those things a teacher can do while teaching to support the student's ability to behave appropriately.

C. *Corrective Discipline* consists of the consequences we apply for student misbehavior.

II. *Power* is the ability to get students to do what you want them to do.

A. *Attractive Power* is derived from the teacher's relationships with students. Students do what the teacher wants because they like the teacher.

B. *Expert Power* is derived from the teacher's superior knowledge. Students do what the teacher wants because of the teacher's enthusiasm for and knowledge of the subject.

C. *Reward Power* is derived from the teacher's ability to dispense rewards, especially approval and praise. Students do what the teacher wants because they want to receive a reward from the teacher.

D. *Coercive Power* is derived from the teacher's ability to punish. Students do what the teacher wants to avoid punishment.

E. *Legitimate Power* is derived from the students' belief that the teacher has the right to decide what to do in the classroom. Students do what the teacher wants because they think they should follow the directions of the teacher.

F. *Personal Power* is derived from the teacher's ability to use effective body language while setting limits. Students do what the teacher wants because they see the teacher as being personally powerful.

**PREVENTIVE DISCIPLINE: ORGANIZATION,
PREPARATION AND GETTING A GOOD START**

I.   Preparing and Organizing Your Classroom.

    A. Room Arrangement.

        1. Keep high traffic areas free of congestion.

        2. Be sure you can see all of the students.

        3. Keep frequently used supplies readily accessible.

        4. Be certain students can easily see instruction.

        5. Use seating arrangement to manage student behavior.

        6. Arrange furniture so that you can move easily about the room.

        7. Have a strategic location ready for disruptive students.

        8. Place your desk away from the door to deter would-be thieves.

    B. Walls and Bulletin Boards.

        1. Have a clock, calendar, and school schedule posted.

        2. Have a specific place for posting student assignments.

        3. Have space for decorative displays.

        4. Post classroom rules.

        5. Post a sample of the format for written work.

    C. Storage Space and Supplies.

        1. Have a system for handling all supplies and materials - books, materials, supplies, student belongings, etc.

        2. Teach and reteach the procedures for using these materials.

        3. Make sure you have enough textbooks and materials.

        4. Test all audiovisual material, etc., to make sure it works properly.

II.   Preparing and Organizing Your Instruction. (Expert Power)

    A. Work on Improving Your Teaching Style.

        1. Use the four elements of effective public speaking.

            a. Stand so that you are above the students.

        b.   Move about as you teach.
        c.   Make eye contact to include students in the lesson.
        d.   Vary the volume and intensity of your voice.

2.   Establish a defining (unique) characteristic for your teaching style.

        a.   Share your hobbies or interests with the students.
        b.   Use jokes, cartoons, newsletters, or humor in your teaching.
        c.   Play your favorite music during the last five minutes of class and between periods.
        d.   Have a saying of the day, or a problem of the week.
        e.   Challenge students to learn a variety of information - acronyms, names of athletic teams, the names of classical or popular music, famous paintings, etc.
        f.   Have a student challenge you in shooting free throws once a week.

3.   Establish structure in your classroom.

        a.   Students feel secure when the know what to expect from a teacher.
        b.   Make a list of all the procedures you use in your classroom.
        c.   Teach and reteach these procedures meticulously to the students.
        d.   If properly taught, the class can run by itself once routines are learned.

B. Making Your Curriculum Worthwhile and Meaningful.

1.   Plan your lessons carefully.

        a.   Plan your lessons around the maturity level of your students.
        b.   Have variety in each lesson. Make frequent changes in activities. No more than 20 minutes on any one activity for most students.
        c.   Break the instruction into small, easy-to-follow steps. Check often for understanding.

2.   Continually strive to motivate students.

        a.   Have motivational sayings posted on the wall.
        b.   Admit that learning is not always easy, but stress that the fun comes when a difficult skill or concept has been mastered. Challenge them to try harder.
        c.   Praise students when they do a good job.
        d.   Correct and return work as quickly as possible to provide feedback.
        e.   Keep current on what interests students - even Beavis and Butthead.
        f.   Keep students informed of their progress (and current standing).
        g.   Expect all students to succeed.

C. Components of an effective lesson.

    1. Lesson Design and Presentation.

        a. Lesson plans and Performance models.
        b. Trimodal teaching: Hear, See, Do.
        c. Cooperative Learning.
        d. Provide incentives for diligence and excellence.

    2. Avoid The Universal Helping Interaction.

        a. Spending too much time with one student.
        b. It creates patterns or helplessness, dependency, failure, and discipline problems.

    3. Corrective Feedback during guided practice.

        a. Spend less than a minute with a student needing help.
        b. Praise something he has done correctly, prompt him on the next step, and leave.

D. Prepare Yourself.

    1. Dress professionally.

    2. Maintain good hygiene (watch for body odor and bad breath).

    3. Pump yourself up. Come to school each day with a positive attitude.

    4. Accept the training of student character as an important part of your job.

III. The First Day of School (Wong, H., & Wong, R., 1991).

A. The Seven Things Students Want to Know the First Day of School.

    1. Am I in the right room?

    2. Where am I supposed to sit?

    3. What are the rules in this classroom?

    4. Who is the teacher as a person? [e.g., Is she nice? How tough is he?]

    5. What will I be doing this year?

    6. How will I be graded?

    7. Will the teacher treat me as a human being?

B. How to greet the students on the first day.

    1. Post your name, room number, section or period, grade level or subject, and an appropriate welcome next to the door.

    2. Stand at the door with a friendly demeanor.

    3. Tell them your name, room number, etc.

    4. Check to see that each student is in the right place. If not, help them.

    5. Tell them where to sit and to do the assignment at their desks.

    6. Have your name, room number, section or period, grade level or subject, and an appropriate welcome written on the board.

C. How students are to enter the room.

    1. Observe how each student enters the room.

    2. Ask any student who enters inappropriately to return to the door and enter appropriately. Do not have them go "out of the room," but merely to the door.

    3. Avoid sarcastic remarks.

    4. Calmly but firmly do the following:

        a. If a student enters inappropriately, ask the student to return to the door.
        b. Tell the student why.
        c. Give specific directions.
        d. Check for understanding and acknowledge it.

    5. Tell students where they are to sit.

        a. Have their names on cards on their desks (elementary school).
        b. If possible, have their names written on a seating chart transparency that is projected onto a screen (secondary level).

    6. The first assignment to do upon entering the room the first day.

        a. "When you find your seat, you will find an assignment at your desk. Please start to work on it right away."
        b. Have a short and easy assignment on each desk or on the board.
        c. It could be something fun like a puzzle.
        d. It could be an information form for your files.

D. How to introduce yourself to the class.

   1. Write your name on the board and pronounce it for them.

   2. Express optimism about having them as your students.

   3. Tell them a little about your expectations and your commitment to be a good teacher.

   4. Give a very brief overview of the year or course.

   5. If you wish, tell them a little about yourself.

E. Teach your discipline plan.

   1. Introduce the need for a discipline plan.

   2. Rules should be written and posted in the classroom.

   3. Students should have a copy in their notebook.

   4. Do not involve students in a lengthy formulation of rules. Instead, spend the time explaining why the rules are needed (to help us learn).

   5. Have specific consequences for both good and inappropriate behavior.

   6. Have both students and parents sign a copy of your discipline plan.

   7. Emphasize, model, and practice good manners, courtesy, and responsibility.

F. Teach your classroom procedures.

   1. Every time a teacher wants something done, there must be a procedure for it.

   2. Make a list of all the procedures you will have. Be thorough.

   3. Three steps to teaching procedures: Explain, Practice, Reinforce.

   4. Introduce the procedures as they are needed. Do not do all on the first day.

   5. Verbally remind students of the procedure each time it is to be used.

G. Be a teacher, be a leader, establish your authority the first day of school.

   1. BE PROACTIVE, not REACTIVE. Know what to do in any situation.

   2. Do not ignore minor violations of your rules.

   3. Correct misbehavior in a CALM but firm manner.

4. Assign students chores to do to keep the room clean and orderly.

IV. The First Weeks of School.

A. Continue to be calm, poised, and firm when dealing with off-task behavior.

B. Repeat your basic classroom rules every day for the first week.

C. Introduce classroom procedures as they are needed. For several weeks, repeat each procedure orally each time you need to do them. Take time to do it right.

D. Show an interest in your students. Laugh a little.

E. Show enthusiasm for the lessons. Be positive.

F. Set high expectations, praise them at the end of the day or period if they do a good job.

G. Hang in there.

V. Some Suggestions for Building Relationships with Students (Attractive Power).

A. Call each student by name each day. Learn names quickly.

B. Establish a relationship with the child's parents and family.

C. Take an interest in each child. Does he like football? Art?

D. Have something interesting or unusual about your class that students like.

E. Be fair. Apply consequences consistently.

F. Watch the bulletin for the names of students involved in activities. Mention their involvement. Let them know you care.

G. Use humor. Laugh at yourself. Students enjoy a good laugh. Put cartoon characters on worksheets and test papers.

H. Take photographs of each child. Use on bulletin boards.

I. Use the computer to make a class newsletter each month.

J. Try to make all students feel a part of the class.

K. Assign leadership roles. Rotate these among the students.

SUPPORTIVE DISCIPLINE: PART I
ENFORCING RULES THROUGH LIMITING
SETTING - PERSONAL POWER

(Jones, 1987)

I.   The Emotional and Psychological Aspects of Discipline.

    A. Typical disruptions - 80% is talking to neighbors and 15% is out of seat.

    B. Cost of disruption - Teacher stress and Time on Task.

    C. "Meaning Business". How to deliver an effective message on discipline.

        1.   You must believe that teaching students to be polite is YOUR JOB.

        2.   Effective teachers tell students when they are rude, disrespectful, or immature.

        3.   Effective teachers use body language - eyes, facial expression, arms, hands, etc.

    D. The "Fight-Flight" reflex.

        1.   Our natural reflex is to prepare for confrontation.

        2.   Neuromuscular (muscles tense) and Biochemical (adrenaline flows).

        3.   Under pressure, we shift naturally downward in the brain. In the jungle this was necessary for survival; in social settings this can be disastrous. Social situations are best managed by the cortex (gray matter), not the brain stem (Reptilian brain).

        4.   The "natural" responses in social settings are wrong. We need to learn to control ourselves and remain in the cortex, not the brain stem.

        5.   CALM IS STRENGTH and UPSET IS WEAKNESS.

        6.   In the classroom, when confronted with a serious discipline problem, the fight reflex tends to be VERBAL and the flight reflex tends to ignore it.

        7.   Relaxing helps control the Fight-Flight Reflex.

        8.   We must learn to do neither and stay calm.

II.   Relaxation and Body Language while in the Discipline Mode.

    A. Kids read your body language. Therefore, the discipline mode must be very different from your teaching mode.

    B. Breathe slowly and shallowly - about an 8 second cycle.

    C. The face should be relaxed, lips together, jaw not tensed.

    D. Move head and body very slowly (Go ahead, Make my day!).

    E. Relaxation is important in many human endeavors, from athletic competition to gun fighting.

III.   Limit Setting - Part I: The Look and Turn (Personal Power).

    A. Respond immediately but move very slowly.

        1.   You see the disruption.

        2.   Stop instruction.

        3.   Excuse yourself.

        4.   Stay down and breathe in gently.

    B. Turn slowly, look, relax and wait.

        1.   Turn in a regal fashion. Meaning business is always slow. Turn from head to shoulders to waist to feet.

        2.   Point your toes squarely in direction of the disrupter.

    C. Get a focal point. Do not shift eyes. You do not have to look them directly in the eyes.

    D. Hands down. Behind your back or in your pockets is okay. Do not fold them across chest or put them on your hips.

    E. Facial expression during discipline.

        1.   Facial expression indicates dominance or submission.

        2.   A set or tense jaw indicates fear or anger. A relaxed face indicates confidence and control.

        3.   A smile is part of the submission behavior of both monkeys and humans.

        4.   A smile indicates a desire to avoid conflict, a desire to be liked.

        5.   A student's smile is designed to make you smile. If you respond, your discipline will be shattered. Stay relaxed. You can smile later when things are going well.

IV. Limit Setting - Part II: Moving in on the Student (Personal Power).

   A. Walk slowly.

      1. Look beneath table to check feet and body positions. If their feet are still facing one another, they intend to keep fooling around.

      2. Walk slowly to desk of main disrupter, stand and wait. Take two relaxing breaths.

      3. Stand close to desk and wait. Take several relaxing breaths. They will usually comply to get rid of you.

      4. Don't force them, and don't talk immediately. Let them decide to comply.

   B. If this doesn't work, use the PROMPT.

      1. Beware of pseudo-compliance, of acting like they are back to work when they are not.

      2. Ease down on one palm and give prompt. Verbal, hand, and eye prompts.

      3. Do not touch the student.

      4. Wait. Take two more relaxing breaths.

   C. If this doesn't work, go to PALMS.

      1. Place both palms flat on the desk. Lock elbows. Take two relaxing breaths.

      2. Avoid weak gestures such as fingertips on the desk. This indicates you are eager to leave.

      3. Flat palms indicates you have the time to wait until you get exactly what you want - the student to return to work.

V. Limit Setting - Part III: Moving Out (Personal Power).

   A. When the student complies, wait several moments, relax.

   B. Thank the student quietly.

   C. Move to second student (if there is one) and repeat the process.

   D. When he complies, thank him and wait.

   E. Walk slowly back to your original position.

   F. Before resuming, turn fully around and look once more at the disruptive students.

   G. Resume teaching.

VI. Types of Back Talk.

    A. Helplessness - "I don't get this!" or "I'm so stupid!"

    B. Denial - "I didn't do anything. Why are you picking on me!"

    C. Blaming others - "John started it!" or "He asked me how to do it!"

    D. Blaming the teacher - "You went too fast!" or "You don't explain things."

    E. Excusing the teacher to leave - "OK, you can leave now!"

    F. Crying.

    G. Compliments - "Geez, that dress really is becoming on you, Miss Arakaki!"

    H. Change the subject - "When is our term paper due?"

    I. Pushing your hand or arm aside.

    J. Romantic comments or gestures - The student tells you he loves you.

VII. Nasty Back Talk.

    A. Insult.

        1. Dress. "Where'd you get that dress, the Salvation Army?"

        2. Grooming. "Geez, your hair really has gray roots."

        3. Hygiene. "Not so close. You have bad breath!"

        4. Physical characteristics. "Move back, the reflection off your bald head is blinding me!"

    B. Profanity.

        1. The small stuff: the H*LLS, SH*TS, and D*MNS.

        2. The big stuff: the F*CK YOUs, and so on.

    C. Sexual (occurs more often than most people think).

VIII. Putting Back Talk in Proper Perspective.

    A. The objective of back talk is to get the teacher off the track of discipline.

    B. Do not respond. Relax, keep quiet.

    C. Remember, in our species, TALK is a natural part of the fight-flight reflex.

    D. The short-term goal is to remain calm. The first five seconds are crucial.

    E. In the long-term, if this doesn't work, you can do anything you want. You have a backup system if you need it. So remain calm and wait as long as you can.

    F. If the back talk is truly outrageous or persists, use the backup system described below.

    G. If the student ends the disruptive behavior, continue the class.

    H. As the period ends, quietly ask the student to stay. "John, I'd like to see you for a minute after class." Be in a helping rather than a vindictive role.

    I. Reconciliation. "That wasn't like you today. Is there anything wrong? Is there any way I can help?" Let the student know you are BIG enough to take his insults yet strong enough to deal with them. You do both by remaining calm.

    J. If the student is still nasty, use the backup system. And follow school policies.

IX. Limit Setting on the Wing: What effective teachers actually do.

    A. Never go public (verbally) if you can help it.

    B. Move towards student unobtrusively (making eye contact).

    C. Break your train of thought to get attention (make eye contact). Be serious, stop talking.

    D. Physical prompt, a nonverbal signal to stop the behavior.

    E. Taking an object (with your hand cupped to receive the object). Do not grab the object.

    F. Calling the offending student's name. "John, what is the answer to question 6?"

    G. Calling the student's name with a mild desist. "John, no one should be talking during a test!"

    H. Reminding the student that he is not following a rule or procedure.

X.   When Limit Setting Might Fail.

    A. When the teacher is angry or upset.

    B. When the teacher goes too rapidly through the steps of Limit Setting.

    C. When the teacher does not move about the classroom.

    D. In open field situations.

    E. With repeat disruptions. Use it once, maybe twice. Then use the backup system.

    F. With an explosive or agitated student.

    G. When the teacher is afraid of the students.

    H. When the teacher does not have good body language.

SUPPORTIVE DISCIPLINE: PART II
OTHER THEORIES

I.   GROUP DYNAMICS (Redl & Wattenberg, 1951).

    A. People in groups behave differently than they do individually.

        1.   Group expectations influence individual behavior.

        2.   Individual behavior can influence the group.

    B. Teacher awareness of group dynamics is important to effective classroom control.

    C. Group behavior is influenced by how students perceive the teacher.

    D. Use diagnostic thinking to deal with classroom conflict.

        1.   Form a hunch.

        2.   Gather facts.

        3.   Apply hidden factors.

        4.   Take action.

        5.   Be flexible.

E. Use influence techniques to control group behavior.

1. Help students maintain self-control.

a. Eye contact.
b. Move closer to the student.
c. Give encouragement.
d. Use humor.
e. Ignore the behavior.

2. Provide situational assistance.

a. Help students over a hurdle when they get stuck.
b. Restructure the situation if it is too difficult.
c. Establish routines.
d. Remove a student from a situation if he cannot behave.
e. Remove seductive objects.
f. Use physical restraint if necessary.

3. Help students appraise reality - Tell it like it is.

a. Help them understand the reasons for their misbehavior.
b. Help them see the consequences of their actions.
c. Offer encouragement.
d. Set limits.

4. Apply Pleasure-Pain techniques of rewards and punishment.

II. USING EFFECTIVE INSTRUCTIONAL STRATEGIES (Kounin, 1970).

A. The teacher can minimize discipline problems with good instructional techniques.

B. The ripple effect.

1. When a teacher corrects one student, other students also behave.

2. When a teacher praises one student, other students are reminded of expectations.

C. Withitness, the ability to know what is going on in all parts of the room.

1. If a disturbance occurs, it is vitally important to catch the correct person.

2. When two or more persons are misbehaving, it is important to select the most serious.

D. Overlapping, the ability to attend to two things at one time.

1. Work with a reading group while monitoring the rest of the class.

2. If students know the teacher is aware of them, discipline problems diminish.

E. Movement management, the pacing, momentum, and transitions of the lesson.

   1. Kounin found this to be the most important of all management techniques.

   2. Jerkiness and slowdowns interrupt the smooth flow of the lesson.

F. Maintaining a group focus.

   1. Large group format is easier to control.

   2. Hold each student accountable for the content of the lesson.

   3. Seek ways to keep everyone's attention.

      a. "Let's see who can do this problem."
      b. Do not call on students in a predictable order.
      c. Vary unison responses with individual responses.
      d. Keep your focus moving about the room.

G. Avoid satiation (boredom)

   1. Provide students with a feeling of making progress.

   2. Issue challenges: "I don't know if anyone can get this one."

   3. Use variety. Change activities frequently. Make it interesting.

III. BEHAVIOR MODIFICATION (Adapted from B.F. Skinner, 1971, 1984).

A. Behavior is shaped by its consequences, by what happens immediately after the act.

B. Systematic use of reinforcement (reward) can shape a student's behavior in the desired direction.

   1. Positive reinforcement is giving the student a reward.

   2. Negative reinforcement is taking away something the student doesn't like.

C. Behavior becomes weaker if it is not followed by reinforcement.

   1. Ignore the behavior.

   2. Punish the behavior.

D. Types of reinforcers:

1. Social reinforcers such as verbal comments, facial expressions, and gestures.
2. Graphic reinforcers such as marks or stars or happy faces.

3. Activity reinforcers such as free time or collaborating with a friend.

4. Tangible reinforcers such as prizes or printed awards.

E. Reinforcement schedules.

1. In the early stages of learning, constant reinforcement produces the best results.

2. Intermittent reinforcement can be used once a behavior is learned.

F. Systems of Behavior Modification.

1. Cath 'em being good.

2. Rules - Ignore - Praise.

    a. Teach the rules.
    b. Ignore those who do not follow rules.
    c. Praise those who follow rules.
    d. Works for elementary school, but not usually for secondary school.

3. Rules - Reward - Punishment.

    a. Teach the rules.
    b. Punish those who do not follow rules.
    c. Reward those who follow rules.
    d. Works for secondary school.

4. Token economies or contingency management.

    a. Tokens are given for desired behavior.
    b. Tokens may be exchanged for tangible items, desired activities, free time, etc.

5. Written Contracts.

    a. Specific work to be done or behavior to be established and time line.
    b. Rewards are listed for completion of the contract.

IV. SOCIAL DISCIPLINE (Dreikurs & Cassel, 1972).

    A. Establishing discipline involves teaching the following concepts.

        1. Students are responsible for their own actions.

        2. Students must respect themselves and others.

        3. Students have the responsibility to influence others to behave appropriately.

        4. Students are responsible for knowing the rules and consequences.

    B. The three types of teachers.

        1. Autocratic.

        2. Permissive.

        3. Democratic.

    C. Why students misbehave.

        1. All students want to belong.

        2. Students choose to behave or to misbehave.

        3. Students misbehave to get the recognition they seek.

    D. Mistaken Goals.

        1. To get attention.

        2. To win in a power struggle with the teacher.

        3. To seek revenge.

        4. To display their own inadequacy.

    E. Actions which teachers can take (Always remain calm and understanding).

        1. The attention seeker: Ignore him or her.

        2. Power struggles: Refuse to fight. Admit you cannot make the student do anything. Later, try to find ways to help the student feel a sense of responsibility in the class.

        3. Revenge seekers: Don't retaliate. Acknowledge students feelings. Show you care. But apply consequences if necessary.

        4. Displays of inadequacy: Avoid criticism. Look for small success, build upon it.

F. Use consequences and not punishment.

1. Natural consequences. If a child has body odor, others may not like him.

2. Logical consequences. If a child has body odor, make him see a counselor.

3. Contrived consequences. If a child has body odor, make him weed the garden.

G. Use encouragement often and use praise sparingly.

1. Not all students deserve praise, but all students need encouragement to do better.

2. Praise is a reward for achievement, encouragement is an acknowledgment of effort.

3. Praise is patronizing, encouragement is a message between equals.

4. Praise can be withheld as punishment, encouragement can be freely given to everyone.

5. Praise connects achievement with personal worth, encouragement builds confidence.

V. MEETING STUDENT NEEDS WITHOUT COERCION (Glasser, 1969, 1985, 1990).

A. Reality Therapy.

1. Focus on the present, not the past.

2. The steps in solving behavioral problems using Reality Therapy.

a. Display warmth and caring to all students.
b. Identify the problem behavior.
c. Help the student make a value judgment (not a moral judgment) about the behavior.
d. Plan a new behavior.
e. Get a commitment from the student. Put it in writing.
f. Accept no excuses for not keeping the commitment.

g. Don't punish, but use natural or logical consequences agreed upon in advance.
h. Never give up on a student.

B. Control Theory.

1. Basic beliefs of Control Theory.

a. In contrast to Stimulus/Response theory, our behavior is internally, not externally, motivated.

             b.   We have control over our actions, we choose to act as we do.

             c.   All behavior is our best attempt to satisfy one or more of five basic needs.

     2. Glasser's hierarchy of needs.

             a.   The need to play and have fun.
             b.   The need to be free and make choices.
             c.   The need for power and influence.
             d.   The need to belong and love others.
             e.   The need to survive.

     3. The Quality School.

             a.   Good schools help students satisfy all their basic needs.
             b.   Good teachers are leaders, not bosses.
             c.   Bosses are coercive, leaders are non-coercive.
             d.   When students rebel, a boss punishes, a leader facilitates a solution.

VI. TEACHER EFFECTIVENESS TRAINING (Gordon, 1974).

   A. Determine who owns the problem.

     1. The student owns the problem if the behavior does not interfere with the teacher.

     2. The teacher owns the problem if the behavior interferes with the teacher.

     3. You both own the problem if your needs are conflicting.

   B. Teachers should avoid the roadblocks to communication.

     1. Ordering, directing.

     2. Admonishing, threatening.

     3. Moralizing, preaching.

     4. Advising, giving solutions.

     5. Lecturing, giving logical arguments.

     6. Judging, criticizing.

     7. Praising, agreeing.

     8. Ridiculing, shaming.

     9. Analyzing, diagnosing.

     10. Sympathizing, consoling.

     11. Probing, questioning, interrogating.

12. Withdrawing, humoring.

C. Alternatives to roadblocks when the student owns the problem.

    1. Attentive silence. Show you care by paying attention, but remain silent.

    2. Noncommittal responses. "No kidding!" or "Oh my gosh!"

    3. Door openers. Comments such as "Do you want to talk about it?"

    4. Active listening. Reflect the student's message back to him. Comments such as "It sounds as if you are angry because . . ."

D. Alternatives to roadblocks when the teacher owns the problem - Use I-Messages.

    1. The three parts of an I-Message.

        a. A non-blameful description of the other person's inappropriate behavior.
        b. A tangible effect that the behavior is having on you.
        c. A feeling that tangible effect is having upon you.

    2. Example of an I-Message: "John, when you talk to Harry when I'm teaching (part 1), I'm not sure if Harry understands the lesson (part 2). As a result, I feel that I may not be teaching everyone in the class as well as I might (part 3)."

E. Alternatives to roadblocks when you both own the problem - Conflict Resolution.

    1. Conflict Resolution tries to find a win-win solution.

    2. The six steps in Conflict Resolution.

        a. Define the problem.
        b. Generate possible solutions.
        c. Evaluate solutions.
        d. Choose a solution.
        e. Implement the solution.
        f. Evaluate the solution.

VII. ASSERTIVE DISCIPLINE (Canter, L., & Canter, M., 1976, 1992).

A. Remove roadblocks to Assertive Discipline.

    1. Have positive expectations of students.

    2. Believe you can influence the behavior of all your students.

    3. If needed, seek support from other teachers, parents, administrators.

B. Use Assertive response styles.

1. *Assertive* teachers get their needs met without violating the rights of their students.

2. *Hostile* teachers get their needs met, but do not act in the best interests of their students.

3. *Nonassertive* teachers do not get their needs met and do not act in the best interests of their students.

C. Learn to set limits.

    1. Identify general rules.

        a. No one may interfere with my teaching for any reason.
        b. No one may interfere with any students' efforts to learn for any reason.
        c. No one may cause physical or psychological harm to herself or himself or to other students.
        d. Good behavior will be rewarded.

    2. Identify specific rules.

    3. Steps in setting limits.

        a. Request appropriate behavior. "Everyone should be reading silently."
        b. Use body language and firm voice to deliver a verbal limit. "John, stop talking."
        c. If student objects, use the Broken Record Technique, repeat your original request.

    4. Follow through.

        a. Make promises, not threats.
        b. Select consequences in advance.

    c.   Set up a system of negative consequences you can easily enforce.

        i.   First offense: name on the board.
        ii.   Second offense: one check after name (15 minutes after school).
        iii.   Third offense: two checks after name (30 minutes after school).
        iv.   Fourth offense: three checks after name (call parents).
        v.   Fifth offense: four checks (remove from room, send to office).

5.   Have a system of positive consequences.

    a.   Give students personal attention.
    b.   Send positive notes to parents.
    c.   Give special awards for significant improvement, etc.
    d.   Give special privileges for good behavior.
    e.   Give material rewards.
    f.   Arrange with parents for rewards at home for being good at school.
    g.   Give group rewards.

SUPPORTIVE DISCIPLINE: PART III
OTHER USEFUL THINGS TO CONSIDER

I.   A SERIES OF ESCALATING RESPONSES.

    A. Make eye contact with offending student.

    B. Move towards the student as you continue to teach.

    C. Give a nonverbal signal to stop the off-task behavior.

    D. Give a reminder to the entire class about the class rule being violated.

    E. Praise students who are following the rule.

    F. Call the student by name and give a short verbal instruction.

    G. Quietly assign a punishment or consequence to the offending student.

II.   "My Action Plan" (Wong, H., & Wong, R. (1991).

    A. Make the student write a plan to solve the problem.

    B. What's the problem? What's causing the problem? How will you solve the problem?

    C. The student completes the plan with your help.

    D. If the plan is not followed, call the parent to discuss it.

    E. This teaches Problem Solving, Responsibility, and Self-Discipline.

III.   The Letter to Mom and Dad (Jones, 1987).

    A. Write a letter to the parent, place it in an envelop addressed to the parent.

    B. Tell the student he can tear the letter up at the end of the week if he is good in class.

    C. If he is not good, send the letter home; if he is good, he gets to tear it up.

IV.   Obtain Administrative Support.

    A. Ask the administrator for support in a non confrontational and friendly manner.

    B. Present your plan in writing to the administrator. Discuss it.

    C. Check that the plan is consistent with school, district, and state rules.

V.   Obtain Support of the Parents.

    A. Send copy of your discipline plan home for both student and parent signatures.

    B. If an elementary teacher, call each parent before or during the first week of school. Tell them you like their child, and ask their support in teaching their child.

    C. If is becomes necessary to call home for a problem, tell the student in advance that you are calling not to make trouble but to discuss the discipline plan.

VI.   Use Rewards to Motivate Desired Behavior (Reward Power).

    A. Social reinforcers are often the most powerful and most enduring.

        1. Verbal praise for the class as a group. Try to build a sense of unity in the class.

        2. Non-verbal praise (smiles, wink of an eye, thumbs up, etc.).

        3. Appeals to the student's sense of pride or accomplishment.

    B. Grades.

    C. Individual Recognition.

        1. Display of student work.

        2. Certificates or stickers.

        3. Verbal comments or praise by the teacher.

        4. School awards.

    D. Group Activities.

        1. Free time.

    2.   Go to the library.

    3.   Decorate the room.

    4.   Have a party or field trip.

E. Material incentives.

    1.   Food or candy or money.

    2.   Toys.

    3.   Books.

    4.   Gift certificates.

VII. Responsibility Training (RT) (Jones, 1987).

A. Limit Setting is designed to STOP disruptions, RT is designed to START learning.

B. You must have cooperation or you cannot teach.

C. In many classrooms, there are rewards for NON-COOPERATION (e.g., by being defiant, student can gain status with peers).

D. In RT the teacher gives the students time each day or week. You give to receive.

E. The time must be spent on learning related activities.

F. The activity must be something for which the students will work.

G. Give extra time for cooperation.

    1.   Hurry-up bonuses to teach students to hustle!

    2.   Automatic bonuses for everyday procedures such as being in seat when the bell rings.

H. Take away time for violations of class rules. ["It took you 1 minute to be quiet, so ...].

I. Everyone must be in compliance or bonuses are not won.

VIII. Omission Training, An adjustment to Responsibility Training (Jones, 1987).

A. If a student continually sabotages the group, his conduct does not count. However, he can win extra time for the group if he can behave for a specific amount of time.

B. Student can win time for the group, making him more acceptable to the others.

**CORRECTIVE DISCIPLINE: THE BACKUP SYSTEM (Coercive Power)
APPLYING CONSEQUENCES**

I.   The Backup System or Punishment (Jones, 1987).

    A. This is the LAST option, not the FIRST.

    B. Ideally, the punishment should be something the student wants to avoid.

II.   Small backup responses are private.

    A. Avoid going public if at all possible.

    B. The teacher looks sternly at the student.

    C. The teacher tells the student privately, "We are in the backup system now and if you continue, you will pay the price."

III. Medium backup responses are within the classroom, but public.

    A. Give the student a verbal reprimand.

    B. Have the student fill out a Behavior Improvement Form stating the misbehavior and the consequence if it happens again.

    C. Time out (isolation in the classroom or send to another teacher).

    D. Loss of privilege (such as recess).

    E. Detention after school.

    F. Loss of points on grade.

    G. Call the parents. You might try the letter or the action plan approach.

IV.   Large Backup responses involves someone outside the classroom.

    A. Send to principal or vice-principal or counselor.

    B. Send to an in-school suspension center.

V.   Extra large backup responses involve the law.

**SCHOOL WIDE DISCIPLINE: INVOLVEMENT
OF THE ENTIRE FACULTY**

I.   The Key Players.

    A. The Principal.

        1. The principal is the key leader in school and classroom discipline.

2. Should be visible and walk the hallways from time to time.

3. Should help create a positive school environment which welcomes students and parents.

4. Should communicate policies effectively to parents.

5. Should realize how difficult it is for teachers to discipline students these days.

6. Must respect and be willing to back up teachers when the heat is on.

7. Should periodically thank each teacher for doing a good job.

B. The Teachers.

1. All teachers should agree on the rules and standards to be enforced.

2. All teachers must enforce the rules each time they see the rule being broken.

3. Teachers must be involved. Discipline cannot be left to campus security guards.

4. Every student belongs to every teacher all the time.

5. An affront or assault on any teacher is an affront to or assault on all teachers.

6. Teachers should help one another with discipline problems. Do yard duty in pairs.

C. The Students.

1. Should be encouraged to take pride in the physical and social climate of the school.

2. Should know the expectations of the school.

3. Should help the faculty enforce school standards.

4. Should be rewarded when significant or admirable things have been accomplished.

5. Should be told that inappropriate behavior will not be tolerated. Bad behavior should be labeled "Bad behavior."

D. The Staff.

1. Should be included in discussions on student behavior and school discipline.

2. Should know and enforce school expectations.

E. The Parents.

    1. Should be informed about the need for a school discipline plan.

    2. Should be given an opportunity to contribute to or react to provisions of the plan.

    3. Should be invited to help with school activities when needed.

II. The Rules Should Cover all Aspects of the School.

  A. Classrooms.

  B. The cafeteria.

  C. The hallways, including going from one location to another as a group.

  D. The school grounds and play areas.

  E. Assemblies.

  F. The rest rooms.

  G. The school bus and on field trips.

  H. The Library and computer rooms, etc.

  I. Before, during, and after school.

III. School Wide Discipline Begins in the Classroom.

  A. Every teacher should receive the same training for dealing with discipline.

  B. The tone for school wide discipline is set by having firm classroom rules.

  C. Teachers should teach the School Rules at the same time they teach their classroom rules.

  D. Teachers must all be willing to help enforce rules anywhere on campus.

  E. Teachers who are strong disciplinarians should be willing to help those who need help.

  F. Teachers who need help must ask for it.

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MOTIVATION, COGNITION AND ACHIEVEMENT

CONSIDERATIONS ON MOTIVATION:
SELF-ASSUREDNESS AND AGENCY

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I wish to begin by a brief consideration of the distinctions between the different usages of the word "motive." When we speak of someone being motivated or not being motivated, we are referring to some qualities of the person's behaviours directed towards achieving some end. When we describe someone as being motivated to learn, we are making a judgement based upon observation of that person's behaviours: things they say, things they do, and the quality of the work they produce. In the context of schooling, a person motivated to learn may be characterized, in part, as someone who is willing to engage in the task (eagerness), will persist at a task, and is self-initiating and self-directing. Such a person demonstrates a commitment to learning by focussing on learning new skills, acquiring more knowledge, improving competency, understanding and mastering the work. On the other hand, someone who is not motivated to learn may refuse to do the assigned work or may do the minimum work necessary. That student may choose to do only the easiest work, perform the work in the easiest way possible, and avoid any unnecessary work. The student may shy away from challenging problems or situations which may tax his or her abilities. Such a person may be less interested in learning than pursuing other ends.

In contemporary cognitive psychology, metacognition has emerged as a dominant construct characteristic of the type of motivated person described above. Good learners are metacognitive, poor learners are not. Good learners are mentally active, poor learners are not. It is the quality of this mental activity that determines immediate and future performance. By metacognition, we mean the orchestration and utilization of mental resources to address the task at hand. When a student approaches a task, the student must identify the type of task and know what the task requires. The student must also know about ways to complete the task, or strategies. The student must know what strategy might work and what strategy might not work. Yet, the learner must also regulate thinking while performing the task. The learner needs to make plans, monitor strategy use, and evaluate performance on the task. In other words, the learner must be mentally active. The student needs to be aware of his/her thinking, in control of his/her thinking, and be willing to modify his/her thinking.

The development and utilization of this mental activity is closely connected to motivation to learn. Not only does this mental activity describe a person motivated to learn, the motivational disposition of the learner may sustain and enhance this mental activity. A student who is motivated to learn is a student who will be mentally active. Because the students is mentally active, utilizing components of the metacognitive system, he or she is more likely to achieve success through his or her efforts. Having achieved success through effort enhances the development of the metacognitive system and sustains motivation to learn. This motivation will increase the likelihood that the student will put forth the necessary mental effort enabling the student to achieve future success. Thus motivation to learn, metacognition, and success become interrelated in a way that promotes the development of the child.

On the other hand, a student who is not motivated to learn will not engage in the mental activity necessary to achieve success. Consequently, he or she may fail.

In failing, the student does not acquire the metacognitive knowledge and skills needed for future learning. Motivation may continue to be low, or pushed lower. The student eventually falls into a pattern of failure which may become debilitating. Understanding motives is important to improving academic performance.

When we speak of a person as having a motive, we refer to the reason a person engages in some behaviour, such as an act or speech. This reason may be external to the person such that the person is compelled to engage in the behaviour. Such a view is not uncommon and was a powerful force in early psychology. Early attempts at formulating laws of learning and behaviour tried to explain behaviour in terms of reinforcements and punishments. A person who was rewarded for engaging in some behaviour ought to be likely to engage in similar behaviours in similar circumstances. Such thinking underlies the current and prevalent practice of businesses offering token points for utilizing their services which may be accumulated and exchanged for some tangible merchandise. This particular school of thought views human behaviour as contingent upon reinforcement of responses to certain antecedent conditions. Something happens; we respond; there is a consequence to our response which determines whether or not our future responses will be similar to our initial response. Behaviour is conditioned, and the motive for our behaviour is conditioned -- we have learned to respond in a certain way in a certain situation.

Other schools of thought have suggested that the reasons for our behaviour, our motives, are internal -- they originate within us. Some view motives as arising from drive reduction, need satisfaction, or thoughts and beliefs. The drive reduction and the needs satisfaction views suggest that humans have drives that must be reduced or needs that must be satisfied. Our behaviour is subsequently directed towards reducing the drive or satisfying the need. For example, psychologists might postulate adults have a sex-drive or a need for sex, and behaviour is subsequently directed towards engaging in sexual activity to reduce that drive or satisfy the need. Such is the thinking underlying the suggestion of inducing learning behaviours in students by using novelty or tricks to stimulate interest or curiosity. The intent is to create a need to learn which will be satisfied by doing the assigned work. However, the cognitive school of psychology has suggested that the reasons for behaviours are more profound and arise from beliefs held by the person and it is this particular view I wish to expound.

Two constructs have emerged as being paramount in the cognitive view of motivation. The first construct is self-assuredness, the second is agency. To understand the role of self-assuredness, it is important to understand the constructs of self-efficacy and self-worth. Self-efficacy refers to a person's belief that he or she is capable of performing a task, a perception of competency. It is a confidence judgement about being able to what is being asked. The research in self-efficacy theory has resulted in some very straightforward claims. Students who believe themselves to be capable are more likely to be motivated; those who believe themselves incapable will not be motivated. This explanation is readily apparent when we witness a child exclaim "I can do that!" and readily attack the task at hand, or when we witness a child proclaim "I can't do that" and refuse to attempt the task.

Yet, we must also admit that this explanation is unsatisfactory on two accounts. First, while it may seem sensible enough to say that students who judge perceive themselves incapable will not be motivated to learn, it is not necessarily the case that students who are not motivated to learn see themselves as incapable. This point is evidenced by the bright but bored underachiever who does the minimum to get by. Such a student may feel capable but attaches no value to effort beyond the

minimum. Second, we may have witnessed children proclaim "I can't do that" but proceed to attempt the problem anyway. A child may state that they do not know how to do something but that perception of incapability may not necessarily hinder that child.

However, if we view motivation as an attempt to protect self-worth then we can provide a more powerful explanation than self-efficacy theory. Covington has suggested that motivation may be explained as an attempt to protect self-worth. Each person has a need to believe that he or she is worthy and valued. According to Covington, many people believe that self-worth is inherently tied to one's ability to perform. Thus, who you are and your value as a person becomes inherently connected to one's ability to do something well.

If you will allow me to digress for a moment, a story will clarify what Covington is trying to point out. I happened to see a television interview of figure skater Kurt Browning on a CBC show called Champions. In this interview, Kurt was recollecting the events of the 1993 World Championships and 1992 Olympics. He was expected to win a gold medal at both events but during his performance at each event, he fell after attempting a difficult jump. At the end of one of the performances he came off of the ice crying and made the remark that this must be what it feels like to lose a child. He received many faxes and telegrams of support from fans, but one of the letters he received was from Barbara Underhill who had lost a child. She told him this is not what it feels like to lose a child. It was just a competition. In the interview, Kurt stated that when he read that, he realized that figure skating is not who he is, it is just something he does. Unfortunately, many people believe that who they are, their worth and dignity as people, is intimately connected to their ability to perform.

According to self-worth theory, self-worth is intimately connected with performance for many students and doing well is important to one's self of worth and dignity. Yet, if students cannot perform well, they seek ways to make it appear as though they could have succeeded. In other words, no matter what else occurs, do not look incompetent. Consequently, if students perceive themselves incapable of performing well, they become motivated to protect perceptions of competency, for if they can convince themselves and others they could do well they will maintain some sense of worth or dignity.

For example, imagine a student who has been given a test to complete. The student looks at the answers and realizes that this is a hard test. Instead of answering the questions, the student fools around and fails the test. The teacher admonishes the student by saying that with some effort the student could have passed. This is exactly what the student wanted, because the student and the teacher have blamed the failure on lack of effort, leaving the student's perception of competency and self-worth unthreatened (for now).

In summary, self-worth theory posits that if a student believes that self-worth is conditional upon performance, and performance is not satisfactory such that perceptions of competency may become threatened, that student will behave in such a manner as to protect perceptions of competency and self-worth. This is consistent with self-efficacy theory, for if the student believes himself or herself to be capable, then he or she will be motivated to do the work. If the student does not believe that a satisfactory performance is possible, the student will not be motivated to do the work. Covington describes such students as failure avoidant.

However, if the student does not believe that self-worth is conditional upon performance or that ability is the source of performance, competency perceptions may not influence motivation for a task. These students seek to learn, and increase competency. Failure, for such a person, does not necessarily imply incompetency or lead to a lower sense of self-worth. Failure is interpreted as meaning that one lacks some skill or knowledge needed for the task which can be acquired. Thus, even though initial confidence is low, a student may still be motivated to perform a task because he or she can learn from doing it. More importantly, the student, despite low competency perceptions, may engage in a task because the student sees himself or herself as a causal agent. Such a student believes that with effort and knowledge success is attainable.

Agency has emerged as a second important construct in contemporary motivational theory. The basic premise of agency as a motivating force is that people who see themselves as agents are more likely to be motivated than people who are passive. By agency, I refer to a sense of control and autonomy. Students who believe that their success lies within their control attribute their success to internal, controllable factors (e.g., effort or strategy use). These are students who will feel proud, satisfied, and competent. These students recognize that it was through their own efforts they succeeded, they feel good about themselves and have attained a measure of self-worth. Consequently, these students are more likely to choose to work on harder tasks, persist in the face of difficulty, and produce work that is of good quality. These students will be self-regulating and self-determining. Such behaviours should lead to more success which should result in enhanced feelings about self.

Some students do not see themselves as agents of success. These students will attribute success to internal, uncontrollable factors (specifically ability) or to external factors (e.g., luck, teacher's help). Consequently, they do not feel proud or satisfied with the work they do. These students tend to be less motivated. They prefer to work on less-challenging tasks and do not persist in the face of difficulty, produce work that is of lesser quality, and are prone to maladaptive or dysfunctional behaviours.

Of particular importance is the attributional pattern in which success is attributed to external factors (e.g., luck) but failure is attributed to internal, uncontrollable factors (especially inability). Such a pattern is characteristic of students who are helpless. If they fail, they blame themselves; if they succeed, they do not give themselves credit. The result of this pattern of thinking is a student who does not see himself/herself as an agent and feels very little control over his/her learning. He/she does not feel proud or satisfied and his/her sense of self-worth disappears. Consequently little learning occurs and the metacognitive development of the learner suffers.

Yet agency is not just a matter of believing that one is in control. Agency is an essential part of the human condition that stems from an innate human desire to behave in an autonomous manner. That is, people seek to be self-determining and behaviours are directed towards becoming autonomous or maintaining autonomy. Students who believe themselves to be acting in a self-directing manner will be more motivated -- they will be self-regulating, take greater interest in their work, experience more positive emotions about their work, and develop deeper conceptual understanding of the content. If students perceive that they are being coerced, or if their sense of autonomy is threatened motivation to learn will decrease as other motives arise (such as please the teacher or not fail the test).

Motivation, being motivated, is closely connected to the formation of the self. Students who are motivated are in the process of becoming aware of themselves and have a strong sense of self. They are self-assured and have a sense of agency or autonomy; they are motivated to learn and their behaviours are self-enhancing. If this sense of self becomes jeopardized or threatened, or if students lose a sense of self, then their behaviour becomes dysfunctional. They begin to engage in behaviours which are self-protective or self-destructive.

A sense of self-assuredness and agency develop, not from curriculum innovations or educational reforms, but from human interactions. Students come to feel good about themselves and come to develop a sense of agency through interactions with teachers and parents who are perceived to be caring, respectful, and striving to promote feelings of competency and agency.

The relationship between self-assurance and motivated behaviours has two important implications. The first implication concerns the messages we send to students about the opportunities for success and the value of success. What opportunities do we provide to students so that they can meet success with effort? Often the rewards that are offered to students are distributed such that only a few can share in the rewards and achieve success. Grade distributions are arbitrarily constructed such that only a few can achieve A's within a class. Special privileges are often allocated to those who finish fastest or have the most correct, cutting of most students from a chance to share in those privileges. Consequently the opportunity to achieve success is a remote possibility for some students.

Further, if performance and self-worth are as closely connected as Covington suggests, are we providing opportunities for students to find things that they are good at (such as the arts, trades, academics), and thus obtain some measure of self-worth? Do students have an opportunity to display their various skills or are all assessments written format? Such considerations are important because there are certain trends that present the real possibility of cutting students off from sources of self-worth through displays of competency. For example, many students with reading disabilities have very good spatial skills and are good artists or musicians. While they may not read or write very well, they can draw or perform. If the only opportunities these students have to express their knowledge is in written form, they may not do very well and self-worth may suffer. However, if they can express their knowledge in other forms (through art or music, for example), they may come to see themselves as competent, be seen as competent by their peers, and thus attain some measure of self-worth.

Yet we must also consider the types of programmes that are being offered and being cut through economic downsizing. If programmes in the arts, music, the humanities, and physical education are eliminated, and math, science, and technology become valued as the programmes to which resources should be allocated, many students will be cut off from sources of self-worth. A large number of students do not see themselves capable in math or technology. Yet if math and technology are the paths students are pressured into because of scarcity of resources and economic priorities, many students will be cut off from a major source of self-worth.

As an example, I watched a documentary about a school in Western Canada which implemented a new pass/fail system in math and science in which the passing grade was raised to 80%. From a self-worth perspective, students who were achieving at 75% may be able to raise their performance to 80%. But students who were performing at the 60% level may see the new pass level as unattainable. If so, they

would perceive themselves as having little chance of success; self-worth would be threatened and motivation to learn would disappear.

Yet, the most important implication of self-worth theory pertains to the formation of the performance-worth link itself. The belief that worth comes from performance creates a conditional sense of worth. I am worthy as long as I am good at something. But is it possible to unconditionally accept someone? Can we say to our students that you are a good person, you are important to us, we love you even though you may not be getting A's? What messages are being sent by teachers and parents about the worth and dignity of the person? You are valued only if you do well?

The agency-motivated behaviour relationship has important implications for teaching, specifically the types of messages we send and the opportunities we offer students for making meaningful decisions. Psychological research has pointed out that students who are motivated to learn are students who see themselves as agents. Students who are not motivated to learn are students who make external or uncontrollable attributions. What messages do we send about the causes of success and failure? Does our language and do our practices leave students with the belief that ability is the cause of success or failure? Or do we teach them the importance of strategy and effort in success and failure?

Offering opport unities for students to be autonomous is critical for the development of self-determination and self-regulation. But do we provide students with the opportunities to make meaningful decisions in their learning? Do students have a role in decision-making matters with in the school? Could they be given opportunities to make decisions about what they might learn, how they might learn it, what tasks they might accomplish, or how they might be evaluated? Are students given an opportunity for making meaningful decisions?

Motivation to learn is strongly related to self-assuredness and agency. Students who are sure of themselves and have a sense of agency are students who will be motivated to learn. But this sense of self and agency is developed through interpersonal relationships. Parents and teachers who are seen as caring and supportive will help students develop a strong sense of self. Parents and teachers who are seen as uncaring, manipulative, or punitive will stunt the growth of the sense of self within the student. For example, the inappropriate use of reward systems can lead to a decrease in motivation to learn by decreasing students' sense of agency. Students may begin to form external attribution patterns and feel a loss of autonomy. Classrooms which get students to think about how they learn and solve problems, create meaning in the work for students, give students opportunities to make decisions, and place emphasis on effort and strategy use tend to be classrooms in which students are motivated to learn.

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One of the more interesting issues to consider in schooling is that of motivation. Teachers often lament about students' lack of motivation. Psychology has been interested in motivation for some time, and many theories have been developed as a means of trying to explain and enhance motivation. However, these theories seldom seem to find their way into classroom practice in an explicit way. Good teachers, though, seem to have an intuition about students' motivation that is consistent with these theories. The following article shows how one teacher has struggled with implications of the ideas from psychology in her classroom.

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A TEACHER'S INTERPRETATION OF MOTIVATIONAL STRATEGIES: TOOLS TO HELP STUDENTS SUCCEED

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St. Kevin's High School
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In reflecting on an eleven year teaching career I have tried to come to terms with one question that everyone asks: How do you motivate your students? Most of the time I laugh it off and say, "I have no idea". However, I have come to realize that I do know how I motivate my students. **I do not motivate them**: they motivate themselves. What I do is give them the kind of classroom environment that fosters their motivation. Therefore, to answer the question "How do you motivate students", I have to analyze my teaching strategies, classroom environment, instructional strategies, and goals as well as my students' self-efficacy/self-worth, cognitive strategies, evaluation processes, attributions, and their interpretation of belongingness in my classroom.

There are a variety of ways to accomplish this mammoth task: (1) understand the interaction of students and their interactions with others; (2) interpret the perceptions of students; i.e. their perceptions of teaching and other students; (3) develop personal goals for a classroom and allow the students the same right; (4) develop a form of evaluation for all the stakeholders, and (5) encourage students to develop a sense of self-esteem and worth, a love for learning and the experience of new challenges, and a greater understanding of how they as individuals add to the classroom environment. In order to attain this very important task teachers also need to focus on their own emotions and those of their students. We are teaching students a love of learning and a "way of being" (Seifert, 1996).

In order to develop a motivational atmosphere in any classroom one must have a definition or understanding of what educational motivation actually means. According to Weiner (1990), motivation consists of various cognitions that are interrelated. He lists five such cognitions; casual ascriptions, efficacy, control beliefs, helplessness, and goals for which one may strive. However, I also believe that Atkinson's (1964) theory of emotions, Covington & Beery's (1976) theory of self-worth, and Dweck's (1988) goal theory are highly relevant to developing a motivational classroom and must be included in a working definition of motivation. In our classroom we use the following definition for motivation: "Classroom achievement motivation is a students' and teacher's set of

beliefs and behaviours that guide both in a social environment to interact with teaching and learning".

The next step is to take the classroom environment and link it to what current research has to say regarding motivation. The five motivational theories of attribution, self-worth, self-efficacy, self- determination, and goal (social cognition) are, I believe, the most important in developing a motivational classroom. Each theory adds another dimension to a classroom environment and the beliefs and methods of teachers and students. If teachers can understand and find ways to implement what the theories propose in their classroom practices, then teachers will have ample data to develop motivational strategies for their classrooms.

First Strategy for a Motivational Classroom

As a new teacher I never paid attention to how students interpreted their learning outcomes. I attached no value to how they felt about their normative evaluations. I never believed that success or failure mattered much to future learning. If students passed it was good; if they failed, they would try harder the next time or I would try to encourage them to review their test for future reference. I did, however, write comments regarding their performance. I never asked the question "What caused this student to do well and that student to do poorly"? After reading Weiner's Theory of Attribution I can now answer such a question with some degree of knowledge and comprehension.

Weiner's theory (1984) proposed that students try to understand and uncover why a happening has occurred. For example; "Why did I fail this test"? Students will attribute the cause of failure or success to either effort, ability, others, emotions, task difficulty, or luck. What we as teachers have to do in our classrooms to enhance motivation and continue success is to help the students develop healthy attributions about their successes and failures. We have to help the students interpret the event in a positive way so they can maintain their sense of the value of the learning experience. How do we do this, one might ask. I focus on the positive aspects of the performance. If a student did poorly in a particular test I would find a way to put it in a positive light. For example, I would ask questions to ascertain if the student's knowledge was adequate to complete the assignment successfully or if their study skills were effective. We have to help students develop a sense of control over their successes and failures.

Second Strategy for a Motivational Classroom

Any motivational classroom must have incorporated a strategy for developing and fostering a sense of self-worth and self-esteem in students. When we discuss a definition of students' self-worth we need to understand that students' perceptions of value and their ability are primary activators of achievement behaviour. Covington's self-worth theory (1984) proposed that there is a direct link between ability and effort, performance and self-worth. Covington and Omelich (1982) asked first year college students to rate their successes and failures to their feelings of self-worth in the courses. A path analysis showed that the grades the students received accounted for one-fourth of the feelings of self-worth and that perceived ability, independent of grades, accounted for one-half of the feelings of self-worth. I believe that high school students are no different from first year college students; therefore, the research carried out by Covington and Omelich would apply to a high school classroom.

The first question to be asked is "How do teachers affect students' self-worth?" I believe that teachers have great influence regarding students' self-worth through perceptions of and interactions with students. Teachers therefore need to be cognizant of the fact that what is said and done will greatly affect students. Research (Ames 1977, Kelly 1971, Schnur 1982, Covington 1984) has shown that high school students and young adults perceive that ability is the most important causal factor in their achievement. It behooves us as teachers to make sure that we try to help students develop a sense of value in our classrooms regardless of their academic achievement. We must give students the control they need for their learning but it must not be a conditional control. Like unconditional love, unconditional value is of the utmost importance in developing students' sense of belonging and self-worth.

To develop a self-worth motivational strategy a teacher needs to focus on the individual student. This must be done in the beginning weeks of class. Using ice breaker strategies like "getting to know you bingo" will help all members of the class come to know one other. Having all classroom participants set guidelines for the year also shows the students that they have some control over their learning. Setting up in-class-helpers for various tasks allows all individuals to feel they are part of the development of the classroom activities, be it just as motivators or timekeepers. All of these classroom practices help foster self-worth and well being. If we focus on self-worth based on belonging and value in the class and believe that all students have that value and belonging, regardless of academic achievements, then student's self-worth will grow in a positive direction. Self-worth can be accomplished while maintaining standards and goals. We must remember that all students have various degrees of ability, so we need to set, at the beginning of the year, standards based on the goals the students have set for themselves.

Third Strategy for a Motivational Classroom

When students make personal judgements regarding their performance capabilities in any subject they are using what Bandura (1977) termed the "Self Efficacy Theory". As teachers we need to understand how a student's self-efficacy works in our classrooms and how it affects a student's achievement. According to Schunk (1985), self-efficacy is believed to have very diverse effects on motivation, achievement, performance and the choices of activities for the student. Bandura (1981) also proposed that students gather information about their self-efficacy in any domain from evaluations, experiences, social interactions, and physiological states. It is very important for teachers to know this because if we give students the wrong information regarding any one of the elements of this theory then we are going to influence a student's sense of self-efficacy.

Self-efficacy can develop in a negative or positive direction. Collins (1982) found that students, regardless of their ability on standardized tests, would try more mathematical problems and solve more problems correctly if they had a high self-efficacy. This finding helps teachers understand that if students' judgements regarding their performance is high then, even if their abilities are not as high as others, they will persist longer and expend greater energy in trying challenging activities. Students with high self-efficacy are not afraid to try new activities. While this is not the solution for all low ability students, if we can help develop a student's self-efficacy then we can give them the foundation to try and perform to their full capability. Schunk's (1985) studies have shown that the effects of any student's performance on self-efficacy can be changed by the cues derived from a teacher's educational practices. If we as

teachers do not engage in positive feedback during and after instruction then students may feel their performance is lacking and if their expectations and the teacher's do not match then the chances are that students will develop a low self-efficacy or not maintain the high level of self-efficacy they had before starting the class. If teachers at the beginning of the year asked students how they weigh their learning and performance cues, then the classroom learning goals and activities can be developed to suit the various cues. However, learning goals for students must also be viewed as a very important component in developing a motivational classroom.

Fourth Strategy for a Motivational Classroom

According to Seifert (1995), recent research has shown that when it comes to achievement motivation goal theory emerges as the predominant explanation of students' motivation and behaviour. Again the first question that teachers need to address concerns what goal theory means. Dweck (1986) argues that students pursue two very different types of goals. These are performance goals (wanting to gain other people's good judgements about performance) and mastery goals (wanting only to learn to gain competence). In any given classroom students are motivated for various reasons to attain these two very different types of goals.

Teachers need to be aware of the goals their student engage in during classroom activities. If teachers know in advance what type of goals their students engage in, they can find ways and means to help students become mastery learners (wanting to learn for competence). This training will be a skill needed for life long learning and the processes that the teacher and students go through will be a valuable experience for both. How does a teacher ever get to know what their students' goals are? According to Dweck (1986) a teacher has only to develop goals that focus on mastery rather than on performance of a task. Students need to internalize that it is more important to focus on if and how they learned and not on whether they did better then their classmates. Consequently, the focus shifts from a performance goal to a mastery goal. Teachers, therefore need to develop goals orientated toward developing students' abilities and not toward adequacy of their abilities. Feedback from teachers during the task is very important in developing a motivational classroom that focuses on goal theory.

Fifth Strategy for a Motivational Classroom

Regardless of all the principles derived from the last four theories, students who feel in control of their learning and who have choices in their learning do much better in classroom activities (Deci & Ryan 1987). This is the proposition advanced by Self-Determination Theory. There are two dimensions in self-determination: they are intention and choice. An intention is generally thought of as a determination to engage in a behaviour (Atkinson,1964). For a teacher, this implies that students have personal causation and this motivates the student to act. When students engage in a task, their behaviour plays a role in the initiation and regulation of the learning outcome. Students will have a desire to achieve positively valent outcomes or avoid negatively valent ones (Deci & Ryan, 1987).

According to Deci & Ryan (1987), one way to enhance motivation and learning is to give students the opportunity to choose some of the tasks they want to do. This is not that difficult to accomplish. Teachers and students have to design from the very

beginning what activities can be carried out in class, how they can be carried out, and how are they evaluated. When classroom environments' accomplish this task the students are given a choice over three important elements of learning. Several studies (Pintrich, Roeser and De Groot, 1992) reported that high school students were more likely to focus on learning and mastery if they were in a positive focused classroom. Students were found to have high levels of task interest and value for the course material when the classroom environment provided the students with some choice of tasks, the work was interesting, the teacher provided good explanations, and allowed the students to work with each other. This classroom environment also fostered high levels of self-efficacy and low levels of test anxiety. Students also engaged in cognitive and self-regulated strategies.

Sixth Strategy for a Motivational Classroom

The final element in developing a motivational classroom environment encompasses the emotions of teachers and students. In 1983 Weiner wrote "Affective reactions and affective anticipations, in conjunction with expectancy of success, are assumed to influence a variety of motivational indexes, including persistence of behaviour, choice, and approach or avoidance of tasks and other people" (p. 531). This statement is very significant for teachers, students and the development of classroom environments. Studies conducted by Dweck (1975), Reimer (1975), Weiner (1971), supported the findings that a theory of motivation must take into account the full range of the self, including the emotions of the self. Atkinson (1983) developed the emotion motivation formulation which states that a student will approach or avoid a goal depending on the affective elements of pride, shame, anger, gratitude, guilt, and pity. Teachers have to take into account all these emotions and feelings that they and their students possess in planning feedback, classroom activities and evaluation. If we do not consider the students' emotions then we are not providing a motivational classroom. Weiner (1985) developed a theory consisting of emotion and motivation. The theory has five elements: causal antecedents, casual ascriptions, causal dimensions, psychological consequences and behaviour consequences. Under the elements of causal dimensions, psychological consequences and behavioural consequences fall in Weiner's opinion (1985) the four determining motivational factors of controllability, expectancy, affective involvement and persistence.

If teachers would take the time in the beginning of the year to talk to the students about their emotions and feelings that arise in a classroom, the students would be knowledgeable about the emotions that may effect their motivation and achievement. We have to remember that students do not try and fail, that what they do is try to be or look successful by maintaining their self-worth. This is accomplished in ways and means that are either beneficial or not beneficial to their future successes and learning. Some educators may believe that teachers do not need to be concerned with all of these theories and findings, that theory and practice just do not equate to a learning environment. However, research has shown time and time again that a nurturing caring attitude develops and fosters a motivational learning environment.

When a teacher steps into the classroom at the beginning of the year there is always high hopes that all will go well, that students will be motivated to work and achieve success. Students are human beings and because of that fact they have just as much right to dignity and worth as do teachers. If we give them that dignity and worth from the beginning we will be sending a message that they have value in our classroom, that they add another dimension to our teaching. Our motivational classroom would not

be the same without them; therefore they belong and have value in the teaching/learning paradigm. If we can realize these beliefs, then we help students maintain their academic success, self-worth, self-efficacy, a set of positive attributional beliefs, self-determination and a set of goals that foster mastery learning. All of these elements need to be individualized and if they are then it is not the teacher who motivates the student but it is the students who motivate one another.

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Agency and autonomy are two constructs critical to the formation of self, which is, in turn, critical to motivation. The classroom environment is, in the first place, psychological in nature. Social interactions ultimately impact on the students' sense of self by fostering agency and autonomy, or constricting agency and autonomy. Teachers' comments and expectations for students are natural occurrences within that social interaction and profoundly influence the psychological environment of the classroom.

Craig Janes is a graduate student in our Master of Education programme. He has undertaken a review of the literature on teachers' expectations and written a solid paper on the topic. His summary of the research conducted in this area, when considered in light of the other two papers on motivation, illuminates our understanding of schooling in an important way.

Timothy L. Seifert

AN EXAMINATION OF THE RELATIONSHIP BETWEEN TEACHER EXPECTATIONS, ATTRIBUTION THEORY AND STUDENT ACHIEVEMENT

R. Craig Janes
Fall 1996

In a document prepared by the Newfoundland Government entitled, Adjusting The Course (1994), it was emphasized that a fundamental priority of Newfoundland's educational system be that high levels of expectations and standards be maintained for the success of the schools and students. A shift in our approach to educational achievement was necessary, a shift that would form the basis for establishing high standards and for creating an expectation that these standards can be met. The repetition of the word expectations is not merely for literary purpose but is indicative of the growing emphasis placed on the causal relationship between expectations and student achievement. It will be useful at this point to examine how the literature defines expectations.

Lawler, cited in Saracho (1991), defined expectancy as "the persons' estimate of the probability that he will accomplish his intended performance, given the situation in which he finds himself" (p. 27). Saracho (1991) then went on to state that teacher expectation is the "teachers' estimate of the child's academic performance within the classroom" (p. 27).

The other concept that we are attempting to understand is attribution theory and more specifically how attribution theory and teacher expectations relate to one another. On a very simplistic level attribution theory undertakes to explain "why" an event occurred when there is an unexpected outcome (Weiner, 1984). On a deeper level, this theory analyzes the perceived causes of an event from a number of causal dimensions:

1.   Locus of Control - was control of the cause within or outside of the individual.

2.   Causal Stability - does the cause always exist or is it only present for a short period of time.

3.   Controllability - whether or not the cause was something they could control (effort vs. illness).

4.   Intentionality - Poor effort vs. poor use of a strategy.
     (Weiner, 1984)

Once such an examination takes place, the learner will attribute the unexpected event to a particular cause and this will result in some affective or emotional change (Weiner, 1984). For instance, if a student attributes a good mark on a test to ability, a perceived stable and non-changeable cause, they are likely to experience feelings of pride and a sense of accomplishment. Failure attributed to a stable and non-changeable cause results in feelings of guilt or shame (Tollefson, 1988).

In the realm of motivation, how the student attributes the cause of an event will directly affect his or her level of motivation for future tasks. Tollefson (1988) argued that students who attribute success to a stable factor such as ability increase their expectations for success and are therefore encouraged to greater task persistence. When failures are attributed to ability, the student's expectancy for future success decreases and along with it task persistence. There is a sense of hopelessness and resignation in that the learner feels there is nothing he/she can do about it. Weiner (1984) echoed this hypothesis when he noted that once success or failure has been attained and as long as the conditions or causes of that outcome are perceived as remaining unchanged, then individuals will anticipate success or failure for future tasks with a certain degree of certainty.

If a learner believes, however, that the causes are a result of unstable and changeable factors, such as luck or effort, then the focus of motivation shifts. If failure is attributed to an unstable factor there is still a high expectancy for future success but, if success is attributed to either of these factors, a low expectancy for future success results (Tapasak, 1990). The basic premise is that a learner will not expect to succeed later if the present success was a result of something that can change from situation to situation. In the same vein, failure as a result of something that can change would not reduce one's possibility for future success. The fact that the factor can change implies that it might, so there is no reason to think that one will always fail.

To summarize thus far then, expectations are the beliefs that a teacher and student hold for that student's future success in learning situations. Attribution theory states that where a student attributes the causes for their success or failure will affect his/her emotional state and expectancy for future performance. The connection to be made at this point is that what one expects to happen in the future with regard to success or failure is inherently linked to what one believes to be the cause of past successes or failures. Therefore, expectations for success or failure can sometimes be linked to how one attributes past successes or failures. But this may be a reciprocal relationship in that one's expectations for success or failure may dictate where one attributes the causes for past events. If one expects to be successful, they may determine that a changeable factor was responsible for past failures and a stable one responsible for past successes.

In either case, the expectations and attributions that a student holds must originate from somewhere or, at the very least, be fostered in some manner by outside

influences. It is here that we have to examine the role of the teacher in this relationship. In other words, how does the teacher influence the students' expectations for success or failure and thereby influence the attributions that students make.

Theories on how a teacher's expectations, for the success or failure of a student, influences that student's actual achievement are varied and some times even contradictory. One of the original studies by Robert Rosenthal and Lenore Jacobson (1968) entitled *Pygmalion in the classroom* showed a definite relationship between the expectations of a teacher for a student and that student's level of achievement. Teachers were told that some students were high achievers while others were low achievers when, in fact, there was no actual measured difference. At the end of the study, those labeled as high achievers had actually done better than those labeled as low achievers. However, later studies done along the same lines often failed to produce the same results (Clairborn, 1969). In fact, Williams (1975) put forth that it is mainly the intellectual capacity, social origin, and structural arrangements that a school provides which affect students' performance. This would echo the findings of **'The Coleman Report'** which claimed that no particular school characteristic had a measurable, positive impact on student achievement (Towers, 1992). The report even went so far as to claim the only factor considered to have any impact on student achievement was the social class of the student body.

More recent studies and literature, however, have reported that there is a relationship between teacher expectations and student achievement. Although the major body of literature agrees the relationship exists, it is the exact nature of the relationship which needs to be examined further.

Early research held the notion that there was a direct cause and effect relationship between teacher expectations and student achievement (Anderson, 1991). It was felt that the simple possession of high expectancies for students would translate into increased achievement levels. The belief was that if students knew what they were expected to do and how they were expected to act, they would behave accordingly (Monhardt, 1995). Hassenpflug (1994) asserted that a teacher with high expectations could raise students' expectations and have a positive effect on students' achievement. She goes on to say that "students actually can and will do better if quality work is expected of them..." (Hassenpflug, 1994, p. 161). This line of thinking may, in fact, need further development, for Anderson (1991) maintained that such an interpretation may be naive and superficial in light of the current research. This basic association between expectancies and achievement will need further refinement and clarification.

Much of the literature reviewed attempted to explain the relationship in a more succinct and detailed manner by attributing the relationship between teacher expectations and students' achievement to one or more of the following concepts: Perceptual Bias, Sustaining Expectation Effect, and Self-fulfilling Prophecy (Anderson, 1991; Kolb & Jussim, 1994; Saracho, 1991; and Weinstein, 1995).

The concept of *perceptual bias* revolves around a very simple premise. Kolb (1994) stated that perceptual biases result when the expectations of the teacher influence the teacher's evaluation of the student's achievement. In other words, a teacher feels that a student is a high achiever and evaluates them higher than their abilities merit. In this particular case, then, there is no action on the part of the student which affects his or her achievement but rather the action is on the part of the teacher.

Closely related to perceptual bias is the notion that in some teachers there is the tendency to expect students to continue or maintain previously developed behaviour patterns, disregarding the students' abilities. This is the process known as sustaining *expectation effect* (Saracho, 1991). Anderson (1991) further clarified this effect by stating that "teachers expect students to sustain previously developed behaviour patterns to the point that they take these behaviour patterns for granted and fail to see or capitalize on changes in the students' potential" (p. 22).

A further development in the analysis of teacher expectancy comes in the form of the concept *self-fulfilling prophecy*. Merton (1948) first coined the phrase to describe how erroneous beliefs about people and situations sometimes create their own fulfillment. Kolb and Jussim (1993) refined the notion when they explained that self-fulfilling prophecies occur when teachers induce students to perform at levels consistent with their (teachers') initially erroneous expectations. In other words, if a teacher believes a student to be bright then the interactions between the two may be such as to ensure that this expectation comes true (Anderson, 1991). This is where we begin to see a deviation from the notion of a direct causal relationship to one that is more detailed and explanatory.

The prominent notion being argued now is that it is not the expectations themselves which influence the students' achievement and behaviour but rather how those expectations cause the teacher to interact with the students thereby affecting achievement levels. In each of the three concepts mentioned the onus is placed on the teacher and his/her interactions with the students as the major factor affecting achievement levels. It is also within an examination of teachers' communicated behaviours towards students that we can understand how a teacher's attributions about student success and failure is delivered to the student, internalized by the student, and subsequently affect expectancies for future success. It is here that the complementary nature of expectations and attributions begins to take form when the role of the teacher and their behaviours are incorporated into the argument.

Much of the research and literature now holds fast to the notion that, although teacher expectations are an integral part of the issue, it is more a matter of how the expectations are communicated in 'differential treatment' that actually influences student achievement (Weinstein, 1995). In fact, Anderson (1991) endorsed the notion that "current analysis of teacher expectations shows that while the expectations teachers hold for students may indeed be influential, the way in which the teacher responds or behaves as a result of these expectations is a more important variable" (p. 22). Numerous studies (Gottfredson, 1995; Hall, 1993; Kolb and Jussim, 1994; Lee-Corbin, 1994; Taylor and Reeves, 1993) have been done to determine the validity of the thesis that if a teacher has different expectations about pupils, they then respond differently toward those pupils.

Studies (Gottfredson, 1995; Hall, 1993; Kolb and Jussim, 1994; Lee-Corbin, 1994; Taylor and Reeves, 1993) have concluded that there is a great deal of evidence to support the premise that teachers interact differently with students based on their expectations for those students. Teachers tend to call upon those who they think will know the answers more often than those who they feel will simply provide an incorrect response (Taylor, 1993). Also, when a teacher has high expectations for a student, they often develop an interest in that student and focus on improving his/her (student's) performance (Saracho, 1991). This inherently implies, then, that students about whom negative perceptions are held are not provided the same opportunities for performance improvement. In fact, the following behaviours are used more often with perceived low

achievers: insincere praise, less frequent and informative feedback, paying less attention to the student, making less eye contact, and making less use of students ideas (Gottfredson, 1995). What could these behaviours communicate to a student about how the teacher attributes the student's success or failure?

A teacher's perceptions about the causes of students' behaviour is extremely important. Peterson and Banger (1988), as cited in Fennema (1990), maintain that a teachers' causal attributions are vital because their view on why a student succeeded or failed influences the teachers' expectations for future achievement on the part of the student. If a teacher felt failure was a result of ability and therefore unchangeable, they are less likely to react toward that student in the same manner than if such failure was attributed to effort. This is where the communication aspect comes into play.

It is my contention that students will develop their own attributions based, to a certain degree, on how the teacher interacts with them following failure or success on learning activities. Complementary with expectancy theory and the transmission of perceived expectancies comes the notion that attributions are also transmitted to a student. Kurtz and Schneider (1990) contend that...

"Teachers influence cognitive development and school achievement not only through explicit strategy instruction but also through overt and subtle messages about their perceptions of children's' abilities and their attributional theories about other factors that influence achievement." (p. 269)

An example of this line of thought is provided by Tollefson (1988). If a teacher attributes failure to some uncontrollable cause such as ability, he or she is more likely to help and praise the student. However, when combined with the standard behaviours of teachers toward students with perceived low ability, such praise may simply be gratuitous and given simply to placate the individual (Saracho, 1991). Such behaviour communicates to the student that their failure is a result of something they, the student, cannot control and this, in turn, will cause the student to lower their expectancy for success in the future. They lower their expectancy for future success because they have attributed their failure to a stable and unchangeable factor based on the teacher's behaviour toward them. Anger and frustration toward a student's failure communicates that the attribution is a controllable one such as effort and therefore does not result in a reduced expectancy for future success.

Kurtz and Schneider (1990) maintain a similar argument by claiming that the attributional theories about achievement a teacher possesses combined with their expectancies for various students will affect the amount of praise and/or criticism they provide to the children. It also plays a significant role in the level of intimacy and degree of power sharing a teacher has with certain students (Grant and Rothenberg, 1986 cited in Kurtz and Schneider, 1990). Transferred to expectancy theory, the argument is that students with perceived low ability are given less autonomy when it comes to working on tasks (Saracho, 1991). This would communicate to the student that not as much is expected of them because they are incapable of doing the work. Here, then, low ability is equated with low expectancies for success. What results is a certain degree of influence relating to children's' achievement expectations, effort expenditure and resulting achievement. Tollefson (1988) views the relationship in a cyclical manner...

"A student believes he/she cannot do the work without help. The teacher believes that the student could do the work if he/she tried harder and withholds help. The student develops an attitude of 'what's the use in trying if I am going to fail'. The

teacher maintains his/her attribution and continues to be angry, critical, and unhelpful, and reinforces the student's beliefs and subsequent behaviour." (p. 264)

While the teacher in this instance may believe the student capable of doing the work, the critical and unhelpful nature displayed actually communicates the opposite according to expectancy theory. Such behaviour is characteristic of teachers who perceive low ability in and have poor expectations for students. Therefore, a perception of low ability on the part of the teacher and subsequent teacher behaviours communicates to the student that the cause of their failure is uncontrollable therefore the student experiences the emotions of hopelessness and resignation.

A detailed list of teacher behaviours based on high and low expectations is provided in Appendix A and while their existence does not guarantee the theorized effects in all situations, the research evidence does hold that there is a correlation.

Fennema (1990) tied this element to the expectancy of teachers in the following way. The instructional decisions that teachers make which, in turn, transmit to the student their views on what caused the event are mediated by the teachers' beliefs. Teachers have a wide range of preconceived ideas and beliefs about students based on a number of factors and such beliefs vary from student to student.

Such discrepancies in expectations can result from a number of traits: race, gender, age, appearance, handicap, perceived effort, and socio-economic status (Anderson, 1991; Gottfredson, 1995). While a complete analysis of all these topics is beyond the scope of this paper, it is interesting to note a couple for their inclusion is important when examining possible solutions to the effect.

These so-called 'foundations' for expectancy differences can be succinctly summed up using two words: stereotyping and labeling. Stereotyping leads people to have preconceived notions or ideas about someone simply because that person possesses some of the characteristics of a particular group of individuals. Once labeled as part of this group the teachers' behaviour may change accordingly. When combined with expectancies in the school setting, a number of interesting conclusions have been drawn.

First of all, students of a particular race, about which preconceived notions are held, often have expectations about them in line with the 'stereotype'. Minority students are often given subtle messages by their teachers about their ability and worth thereby negatively influencing their achievement (Hall, 1993). Studies such as the one carried out by Fennema (1990) addressed the myriad of contentious issues surrounding the perceived gender differences between boys and girls in the area of math achievement. It was discovered that teachers tended provide more encouragement for boys than for girls to engage in math. Boys' success in math was often attributed to ability and, as already discussed, success attributed to ability results in feelings of pride and a sense of accomplishment (Tollefson, 1988). For the girls, their success was often attributed to effort, a changeable factor, which results in a decreased expectancy for future success (Weiner, 1984).

When Tapasak (1990) examined how males and females, themselves, attribute success and failure he discovered the same pattern. Males tended to attribute success to stable factors such as ability and failure to changeable factors such as effort. Women, on the other hand, made attributions in the exact opposite manner. Therefore, they attributed success to an unstable factor such as effort and failure to a stable factor

such as ability; both situations often result in reduced expectancies for future success. These situations would appear to be a result of the preconceived stereotypes that individuals hold which have tended to propagate the idea that boys are better at math than girls.

The discussion thus far has been purely one of providing information about a situation that exists within the school system today. Such a task would be worthless without an examination of suggested solutions or intervention strategies to the problems created by differing expectations in the class.

From the study so far it is quite obvious that the problem in this situation lay not with the student but with the teacher. Therefore any discussion of solutions will naturally have to center upon those actions that teachers can take to correct where necessary their thoughts and behaviours.

On a very simple scale, Metcalf (1995) said that it is important to think differently about what you do in the class - to look beyond the negative behaviours... and focus on the positive. Using labels and stereotyping may help to rationalize the behaviours of students but it does not help to solve the problem. Teachers need to be better educated on the effects of racism and discrimination (Hall, 1993). Grant and Zeichner (1995) incorporated this line of thinking into their discussions on reflective teaching. They stressed that the reflective teacher must be dedicated and committed to the teaching of all students not just certain students. This would imply that teachers must reject the thoughts that restrict them in their teaching practices and develop new ways of viewing the teachability of all students. Weinstein (1995) felt it was vital for teachers to be exposed to situations whereby evidence, which he called 'disconfirming' evidence, would be provided to dispel the previously held notions about certain groups of students. Although this particular solution is tied to the notion of stereotypes, it is linked with far more significance to an overall strategy for success:

> "...interventions need to provide an ongoing context in which negative
> beliefs can be disconfirmed and more positive beliefs and actions can
> be developed, and which would enable teachers and administrators
> to play a reflective and active role in both diagnosis and prevention
> of low expectancy practices." (Weinstein, 1995, p. 126)

On a deeper or more sophisticated level, the changes necessary are much more complicated. Weinstein (1995) asserted that in order to create a 'positive expectancy climate' changes must occur to the eight interactive features of the organization of classrooms and school life. These eight features are:

a)   curriculum
b)   grouping for instruction
c)   evaluation
d)   motivation
e)   student responsibility structures
f)   relationships within the classroom
g)   relationships with parents
h)   relationships within the school

When concentrating on motivation and attribution theory, the possible solutions are quite similar in that the perceived causes of the events, and in particular failure, need to be changed (Weiner, 1984). Altering teacher behaviours when addressing the

notion from the vantage point of expectancies is a deliberate step in the right direction. But like expectations, the underlying reasons for the behaviours must be dealt with if a profound and long lasting change is desired. Tollefson (1988) asserted that the solution resides in the elimination of the negative thoughts and actions and their replacement with positive ones. Teachers must become cognizant of the effects that subtle behaviours have on the attribution patterns of students. Once aware that gratuitous praise and pity communicate to the student that their, the students', ability is the cause of their poor results, the teachers can strive to communicate more productive and positive messages. Such radical changes in the thought processes of both teacher and student will require a commitment to work together to solve the problem.

In the area of expectations, collaboration and cooperation from teachers is paramount to the success of any intervention strategy designed to be used in a positive manner (Hassenpflug, 1994; Metcalf, 1995; Taylor, 1993; & Weinstein, 1995). Taylor (1993) insisted that success can only be achieved if teachers agree to train together and provide mutual support for the implementation of new teaching strategies to encourage active student engagement. Kolb and Jussim (1994) suggested that teachers must be educated about the subtle ways in which they may have created an environment that can depress some students' performance. A couple of studies are so confident of the relationship between expectations and student achievement that they stress the importance of maintaining high expectations as a viable intervention strategy (Kolb and Jussim, 1994 & Taylor and Reeves, 1993). In both cases, they felt that for any substantial rise in the achievement of students to occur, it was paramount to keep expectations high as a motivational factor. This would appear to mirror the message stated at the beginning of this paper concerning the document *Adjusting the Course* (1994, p. 10); "High expectations and standards are necessary and all students, except those with specific disabilities, should be able to meet those expectations and standards".

From a review of the literature it is apparent that the findings of the Coleman Report are dubious in light of the evidence which asserts a direct link between teacher expectations and student achievement. The research would also support the notion that a teacher can communicate 'why' the success or failure occurred influencing how the students attribute their success or failure. Although the exact nature of this relationship is open to some interpretation as to the degree to which perceptual bias, sustaining expectation effect, or self-fulfilling prophecy operate on those concerned, it has been proven that they do operate in some fashion.

First of all, there is evidence of some correspondence between what a teacher expects from a student and what that student's achievement levels turn out to be. How these expectations manifest themselves in the behaviour of teachers is the key to understanding the relationship. Studies have shown that high and low expectations on the part of the teacher lead to observable differences in achievement. Studies have also shown that the perceived cause of the event will influence the expectations for future success or failure and that these perceived causes can be transmitted from teacher to student. In both cases their interaction is closely linked through the behaviour of teachers toward students. The degree and type of feedback and amount of teacher interaction with the pupil are just two such behaviours where differences have been recorded.

Secondly, such expectations arise from the misguided behaviour of stereotyping and labeling. Many teachers hold certain expectations about a student based on the particular group to which that student belongs. Teacher expectations are

influenced by gender, race, and socio-economic background just to name a few. Such expectations, based on an irrelevant factor such as gender, have shown that they influence the attributions of both teachers and students.

Due to their close interaction and reliance on the communicated behaviours of teachers', solutions to the expectancy/attribution problem are very similar. Efforts must be made to dispel the underlying thought processes which guide and dictate behaviours. The elimination of stereotypes and labels is a positive step in the right direction. Secondly, teachers must become aware of how their obvious and not so obvious behaviours communicate poor messages to the students. Once aware, they can work to moderate their behaviour and direct behaviour which communicates constructive messages to those who need them.

Appendix A
Examples of Teachers' Behaviours
Based on their Expectations

Teachers who perceive students to have a higher ability:

Teachers who perceive students to have a lower ability:

Public Performance

Higher ability	Lower ability
1. provide them honest and contingent feedback on their responses.	1. give them less honest and contingent feedback but more gratuitous feedback.
2. elaborate on their responses.	2. accept their responses and go on to something else.
3. help them to arrive at the correct answer by providing them with clues.	3. reject their response and call on someone else.
4. encourage them to provide open contributions.	4. call them for very brief and controlled contributions.
5. respect them as individuals with diverse needs and interests	5. have less respect for them as individuals with diverse needs and interests.
6. treat them with warmth.	6. treat them with less warmth.
7. praise any of their efforts and assist them with their responses.	7. fail to praise their strong efforts but criticize their weak efforts.
8. encourage students to initiate interaction.	8. discourage students to initiate interaction.
9. give them freedom to express their feelings.	9. control their behaviour.
10. provide them with opportunities to achieve during group time.	10. provide them with limited opportunities to achieve during group time. (ignored or criticized)
11. permit students to reflect on their responses.	11. provide them with limited opportunities to respond to a question.

Group Assignments

1. assign students to a high ability group with assignments which require students to use their analytical and comprehensive skills.

1. assign students to a low ability group with assignments which require them to work on meaningless tasks such as drill and practice.

2. allow them enough time to complete their tasks.

2. allow them limited time to complete their tasks.

Learning Responsibilities

1. give them more autonomy such as selecting assignments and hardly interrupt them.

2. encourage students to conduct self evaluations.

1. limit their freedom such as constantly monitor their work and intrude.

2. evaluate students or have another responsible person evaluate students.

Source: Saracho, 1991.

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MOTOR LEARNING, METACOGNITION AND TEACHER COMPETENCIES: CRITICAL COMPETITORS IN EDUCATIONAL TECHNOLOGY

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Abstract

The main idea presented in this paper is that successful adoptions of educational technology are usually a consequence of the decisions made by a teacher about her critical competitors. We begin with a definition of "critical competitors" and likely interactions between the humans and their newest technologies. My goal in writing a paper with such a focus is that other educators will choose to examine some of the controversial perspectives and debates associated with using technology in educational settings.

Critical Competitors

The term "critical competitor" first emerged in Scriven's 1981 work on product evaluation (Scriven, 1981). Scriven used "critical competitor" to mean a creative alternative which adds value and provides comparable or even better results. For example, Scriven recommended that during 1970's print-based instruction was still a viable critical competitor to CAI. Ragsdale (1988) extended Scriven's usage to include equally agreeable alternatives to computers in all curricular areas, including Phys Ed. In Math Education for example, peer tutoring was seen as a critical competitor of CAI. Around this time, critical competitor adopted an axiological, more context-dependent meaning: 1) that something is gained and something lost; 2) that student literacy is likely to suffer over the short-term; 3) that student clicking with a mouse will replace the requirement to remember anything; 4) that typing may replace social interaction; and, 5) that their student assignments will tend to reflect a group mandate. Then in 1990, Geisert and Futrell introduced four "paradigms of computer use" (i.e., task-defined, timed, milestone and open), and four possible "users-per-station" (i.e., one, small groups or whole class). In this way, critical competitors were seen as important decisions about competing needs among students, facilities and instructional intent. Knowing our critical competitors, therefore, means knowing how to prioritize our computing requirements based on factors under our control.

Motor Learning

A critical competitor for many novice users of educational technology is the time it takes to complete a task with a keyboard, mouse, scanner or other input device. Since the 1950's in fact, completion time has been a critical competitor to student aptitude, motivation, software attributes, teaching method, and other factors in educational technology; that is, time required to access a site, time required to pull down a menu, and required time to type a paragraph. The need for a more accurate prediction model of movement-time in computer input tasks has been stronger than it has been for the past thirty years. Bit mapped displays and office and desktop

metaphors have replaced nested menus and command lines. Cursor and function keys have been largely replaced by computer mice and pull-down menus. Arguably, the best understood measure of task difficulty as it applies to the time required to complete a task is Fitts' Law (Fitts, 1954). Psychomotor studies have shown high correlations between Fitts's measure of task difficulty and the time required to complete a task (MacKenzie, 1991). In comparing four devices for selecting text, Fitts law was found to provide good movement-time prediction for a mouse and joystick. In a Keystroke-Level Model for predicting user performance times, Fitts law was cited as an appropriate tool for predicting pointing time (Card, Moran & Newell, 1980). In weighing the cognitive benefits of movement time and task difficulty then, should one paraphrase text by keyboarding-in the text, scan with a hand scanner, or use a mouse to "block and paste" from someone else's web page? The correct response to this question can now be expected to improve efficiency of using computer software and online services.

Another critical competitor for many novice users of educational technology is the growing requirement for learners' to shift their attention between detailed information presented visually and gist information presented in auditory prompts (Mann, 1995c; Mann, 1997c). We know that gist is best assimilated by listening, and detail through reading; gist and detail may be considered to be critical competitors of one another in educational technology (Mann, 1995b; Mann, 1997b). In this way, sound design is a parsimonious approach to retain our multitasking efficiency while reducing the cognitive load associated with using computer software or online services. Similarly, auditory design as well as visual design should be considered critical competitors in educational technology.

Teacher Competencies

When educators begin to feel informed enough to get beyond the intimidation of technology within the educational system in which they work, they tend ask someone, "What do I need to know?". At this moment, the process of understanding one's critical competitors begins. And a wise response should be, "know something about each of the thirteen 'Technology Foundation Standards For All Teachers' established by the International Society for Technology in Education (ISTE)" (Thomas, 1993). These are:

• Demonstrate an ability to operate a computer system to successfully utilize software.
• Evaluate and use computers and related technologies to support the instructional process.
• Apply current instructional principles, research and appropriate practices to the use of computers and related technologies.
• Explore, evaluate and use technology-based materials, including applications, educational software and associated documentation.
• Demonstrate knowledge of uses of computers for problem solving, data collection, information management, communications, presentations, and decision making.
• Design and develop student learning activities that integrate computing for a variety of student grouping strategies and for diverse student populations.
• Evaluate and select and integrate technology-based instruction in the curriculum of one's subject areas and or grade levels.
• Demonstrate knowledge of uses of multimedia, hypermedia and telecommunications to support instruction.
• Demonstrate skill in using productivity tools for professional use, including word processing, database, spreadsheet and print graphic utilities.

- Demonstrate knowledge of equity, ethical, legal and human issues of computer use as they relate to society and model appropriate behaviours.
- Identify resources for staying current is applications of computing and related technologies in education.
- Utilize computer-based technologies to access information to enhance personal and professional productivity.
- Apply computers and related technologies to facilitate roles of the learner and the educator.

That said, the assimilation process requires diligence with the technology (Poole, 1997). And at the institutional level, the implementation of the assimilation process has been identified as an important catalyst for educational change. There have been three distinct approaches to assimilating technology into educational institutions: "transformationalism", "collaborationism" and "incrementalism". See Mann (1994) for an explanation of each of these perspectives. The preferred position advanced in this paper is incrementalism. Incrementalism is consistent with the Japanese management practice of kaizen, meaning "slow, never-ending improvement in all aspects of life" that focuses on quality control. Continuous improvement differs from the classical Western approach to improvement principally in that it relies on an investment in people, not on equipment. Incrementalists propose that inservice courses in educational computing be provided to assist instructors in how to implement computers in the instructional process. Preparing instructors to cope with and use computers in the classroom and laboratory is considered to be a complex task, continually buffeted by technological advances and constrained by resources. "Unless instructors become advocates of the change, the innovations are implemented pro-forma, if at all".

At most levels of the educational system, successful changes to educational computing with a minimum of discomfort requires policy-makers' attention to certain factors. The first factor affecting the successful adoption of the distributed learning environment is the support and leadership exhibited by the administration. Many educational computing facilities, however, are still planned and managed by non computing administrators. "It is only when faculty see chief administrators using technology do they feel the need to learn it themselves". A second factor affecting the successful adoption the distributed learning environment is an incremental adjustment plan-of-action. This type of planning should reflect the current total quality management trend in business which advocates several small-steps' over the complete replacement' approach. The probability of successful implementation increases when technology plans are tied to the goals of the institution. Carnegie Mellon University has implemented a major inquiry called "The AAAA Initiative" which is expected to produce recommendations in the next few months. The A's ask, "What makes it routinely possible for anyone, to send or receive anything electronically from or to anyplace at anytime?".

In most educational settings, it seems that there is still a range of experience and expertise in educators' knowledge and skills with technology. From the limited research (Mann, 1994; Schrum & Berenfeld, 1997), it appears that incremental implementations should logically occur in three stages.

- Stage One: From Extracurricular to Curricular Enhancement. At this stage, educators do not redesign their curricula or teaching practices to enhance courses with web-based activity. The use of the Internet and web-based material is often introduced as extracurricular activity, though preferably still within I.S.T.E.

Standards. After an exploratory period, these activities are then introduced into specific courses.

- Stage Two: From Curricular Enhancement to CMC Modules. Educators in most educational institutions still lack the training, experience, or confidence to abandon their conventional teaching practices in favour of new and unfamiliar ones. In most educational settings, this lag is apparent throughout the entire educational subculture (See Mann, 1994). Nevertheless, some educators who have successfully augmented their curricula with the Internet and web-based activities tend to approach the next stage of technology integration by inserting specially-designed web-based modules into traditional courses; again, preferably within I.S.T.E. Standards.

- Stage Three: Telecommunication Fully Integrated Into Curricula. At this stage, integrating the Internet and other computer-based activities into daily instruction is more challenging than merely downloading files or sending email. Full integration of technology using I.S.T.E. guidelines eventually requires a redefinition of pedagogical goals, restructuring of curricular offerings, provision for instructor training and support material, and sufficient online tools for the collection of student data.

Unfortunately, most educators do not implement technological integration in discreet stages. What tends to happen is that the initial confusion about how to proceed is compounded somewhat by stochastic and idiosyncratic advice, though this trend may be starting to change.

One of the greatest new areas of confusion about how to proceed is compounded by stochastic and idiosyncratic advice is "tele-learning". As a catchall term, "tele-learning" of the 1990's is replacing 1980's terminology such as, "computer-mediated communications", "telecommunications in education" and "educational networking". Although this new field has already generated many of its own critical competitors, only a few will be discussed here. Most educators now recognize that current web-based technology is a bona fide critical competitor to conventional technology. E-mail is a critical competitor of telephone voice mail. Chat Rooms, though not often used in education, can be seen to be a critical competitor to answering the telephone. And The Internet is a critical competitor to using the local public library, or is it? The Internet is only a distributed environment, not a distributed learning environment. Academic rigor gives way to popular culture, most of questionable origin and character. So it should not surprise educators when the Internet offers them and their students mediocre educational material.

Unlike much of downloaded material from the Internet, an educator's curricular web page can be original and theory-based, reflecting one's own experiences or aspirations in their teachable area. Despite this capability however, instructional design templates are recommended for instructors who want to design new courses to be taught over the web. In our recent study (Brown & Mann, in press) of using templates in the web site development process, we found that a print-based template served to assist subjects as they restructured school lessons into a personal expression on a public document on the institution's web site. Implied in this process of students' mental restructuring of textual data was that their interpretation of the text for web site presentation changed the mental organization of that information for the student. We found that the web design activity added to their mental restructuring process.

Today, many colleges and universities foresee their future prosperity in terms of the swiftness with which they can create and maintain sophisticated World Wide Web-based courses, or more correctly, "a distributed learning environment website". Toward this end, interest has been re-kindled in instructional design and its application to the Internet environment. And to this end, software developers have been scrambling to offer educators design tools for such a purpose. WebCT is a good design tool for the creation and maintenance of sophisticated World Wide Web-based courses.

WebCT (Goldberg & Salari, 1977) is one example of a tele-learning technology that is being seen as a critical competitor to conventional technology. WebCT incorporates many of these newer web-based technologies (and coincidentally many of the critical competitors) in one teaching tool. WebCT has its own e-mail, now a critical competitor with the University e-mail service, or that of the local Internet Service Provider. WebCT offers four separate Chat Rooms. And of course, unlike these other features, WebCT offers educators and their students a flexible yet structured, distributed learning environment; a critical competitor to most things done by educator with students in classrooms and labs. Of course, everything in WebCT is controlled by the educator or instructional designer. In a word, WebCT is a good design tool for the creation and maintenance of sophisticated World Wide Web-based courses. The open learning environment provided in WebCT works best with experienced, traditional learners and tele-workers (learners on the job). Most of the benefits can be found with this group because WebCT can accommodate individual differences in objectives-setting, assignment completion and flexible test-taking. Less experienced traditional learners and tele-workers can be accommodated in WebCT using a traditional behavioural objectives approach to instructional design. For less experienced traditional learners and tele-workers, conventional timelines would be set by their instructors with the usual requirements to complete quizzes and tests at prescribed time periods.

Metacognition

Contemporary educational technologies place new demands on students' attention and motor learning. The Faculty of Education at Memorial University has recognized these current challenges. Some conventional and online courses have been modified to conform to the I.S.T.E. Standards and Explorer Centres implemented to deliver some of the technology-based tasks (Mann, 1997). An Explorer Centre is a self-contained unit, a computer connected to a videotape recorder by a thin wire through an inexpensive conversion box. There are two Explorer Centres currently in use in the Faculty of Education at Memorial University: one self-contained unit in a private room connected to the Internet, and the other unit doubles as the video editing suite also connected to the Internet.

Explorer Centres appear to have strengthened the application of the I.S.T.E. standards with teachers (Mann, 1996). For this reason, Explorer Centres are considered to be critical competitors to simple pc set-ups for practicing and assessing student and teacher knowledge and skills. Explorer Centres are individual computer/video workstations wherein a computer and microphone are linked to a videotape recorder. Explorer Centres: 1) can model the appropriate learning behaviour on a demo tape; 2) can give each preservice teacher a platform for generating the appropriate learning behaviour on tape, and; 3) can provide a record from which to assess each preservice teacher's verbalizations about the learning process. Explorer Centres may be less intrusive due to the absence of the investigator's tape recorder, and more accurate than traditional observation transcription. In this way, Explorer

Centres are considered to be critical competitors to simple PC and Mac set-ups in The Faculty of Education.

Summation

Many teachers still feel that that they do not always have sufficient knowledge, skills and resources in educational technology (Bartholomew & Hulett, 1996). This paper has highlighted a few of the challenges for those who are considering the integration of technology into their daily teaching routine. In doing so, my intention was to illustrate the complexity that can affect making decisions about using technology in educational settings, particularly where budgets and jobs are likely to be affected. The challenges ahead are continuous, from co-ordinating activities between eye and hand, to gaining minimum competency as an computing educator, to metacognition through an Explorer Centre. What I hope to have shown here is that, more often than not, what starts out as a good challenge becomes a choice among critical competitors.

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972

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Intelligence and Education

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This belief was not constrained to a small group of propagandists but was a widely held belief advocated by prominent politicians and scientists. For example, in the Lincoln - Douglas debate, Lincoln stated:

> There is a physical difference between the white and black races which I believe will forever forbid the two races living together on terms of social and political equality. And in as much as they cannot so live, while they do remain together there must be the position of superior and inferior, and I as much as any other man am in favor of having the superior position assigned to the white race.[1]

Thomas Jefferson wrote "I advance it, therefore, as a suspicion only, that the blacks, whether originally a distinct race, or made distinct by time and circumstance, are inferior to the whites in the endowment of both body and mind." He contended that although blacks were inferior, their deprivation in intelligence was no measure of their rights. David Hume, the prominent English philosopher, advocated the separate creation and innate inferiority of non-white races and Charles Darwin wrote about a future time when the gap between human and ape will increase by the anticipated extinction of intermediates such as chimpanzees and Hottentots.[2]

Prior to the turn of the 19th century, America lived in the shadow of European scholars, and subscribed to European theories and philosophies. The first great theory to be advanced in America was that of polygeny - the basic premise that blacks and Indians are separate species and inferior to whites. The first of the great polygenist was Louis Agassiz, a Swiss born naturalist who immigrated to America in the 1840's. There he became a professor at Harvard where he founded and directed the Museum of Comparative Zoology.

Agassiz's theory of polygeny argued that races were created as separate species. The Bible does not speak about parts of the world unknown to the ancients. The tale of Adam refers only to the origin of Caucasians. Negroes and Caucasians are as distinct in the mummified remains of Egypt as they are today. If human races were the product of climatic influence, then the passage of three thousand years would have engendered substantial changes. But modern races occupy definite, non-overlapping, geographic areas - even though some ranges have been blurred by migration. Agassiz wrote:

> There are upon earth different races of men, inhabiting different parts of its surface, which have different physical characters, and this fact presses upon us the obligation to settle the relative rank among these races, the relative value of the characters peculiar to each, in a scientific point of view. The indominable, courageous, proud Indian - in how very different a light he stands by the side of the submissive, obsequious, imitative negro, or by the side of the tricky, cunning, and cowardly Mongolian! Are not these facts indications that the different

974

races do not rank upon one level in nature. Social equality I deem at all time impracticable. It is a natural impossibility flowing from the very character of the negro race. For blacks are indolent, playful, sensuous, imitative, subservient, good natured, versatile, unsteady in their purpose, devoted, affectionate, in everything unlike other races, they may but be compared to children, grown in the stature of adults while retaining a childlike mind. Therefore, I hold that they are incapable of living on a footing of social equality with the whites, in one and the same community, without being an element of social disorder. Blacks must be regulated and limited, lest an injudicious award of social privilege sow later disscord.[3]

Samuel Morton was a distinguished scientist and physician in Philadelphia and was also the owner of a collection of some 1000 skulls. His goal was to test a hypothesis - that a ranking of races could be established objectively by physical characteristics of the brain, particularly by its size. His methodology consisted of collecting skulls, filling the cranial cavity with sifted mustard seed, pouring it back into a graduated cylinder and reading the skull's capacity in cubic inches. Later on, he became dissatisfied with mustard seed and used 1/8 inch diameter lead shot to achieve more consistent results.

Needless to say, Morton's findings confirmed American beliefs - whites have the largest brain capacity, Indians are in the middle, and blacks are on the bottom. Furthermore, among caucasians, Teutons and Anglo-saxons are on top, Jews in the middle, and Hindus on the bottom.[4]

Gould reanalyzed some of Morton's findings and reported that Morton's summaries were a patchwork of fudging, finagling and miscalculation. In calculating averages for Indians, Morton included an extremely high proportion of small skulled Peruvians which had the effect of lowering the mean for that group. On the other hand, in calculating the average for caucasians, he omitted small-brained Hindus from his sample which had the effect of raising the average for Caucasians. Furthermore, half the skulls in the caucasian group belong to males, while in the negroid group, only 1/3 of the skulls belong to males. Caucasians also tend to be bigger people, and bigger people tend to haver larger skulls. This does not imply that they are smarter. When Gould recalculated the averages, correcting for sampling and omissions, he found no differences between the races.

Following the ground breaking research of Agassiz and Morton, a new fevor swept across America in the second half of the 19th century. This fervor was fueled by two trends - the development of craniometry, and the allure of numbers. The science of craniometry involved measuring heads (and later, bodies) with the goal of objectively ranking the races. Indeed, much effort was spent measuring heads and bodies of people from various races, and comparing them to each other and to apes. The conclusion was that blacks and other races, and women were inferior to white males, and that such differences were innate. This research was lead by notables such as Francis Galton.

Galton, in addition to being a scientist, was an accomplished mathematician. He had a passion for measurement, and it was under his guidance that the notion of quantification came to play an important role in the assessment of intelligence. Another of the prominent craniologists was Paul Broca. Broca was noted for his enormous care in generating data and his precise measurements. Broca began a search for means of

measuring skulls to rank races. It should be noted, that such endeavours were often undertaken with a priori convictions that races could be ranked, and that the outcome of such ranking was really never in doubt. To this end they developed a series of measures on the skull.

First, they started by measuring cranial capacity - the volume of the skull. However, at one point, Broca became dissatisfied with the measure of capacity. He conceded that brain size and intelligence were not correlated for groups of superior intelligence but that the correlation was still strong for groups of inferior intelligence.[5]

This was followed by the development of two more refined measures - the cranial index and the facial angle. The cranial index was defined as the maximum width to the maximum length of the skull. Relatively long skulls were thought to be indicative of superior intelligence and relatively shorter skulls were thought to be indicative of inferior intelligence. This belief was held with such conviction that Anders Retzius constructed a theory of civilization based upon the cranial index. Retzius believed that Stone Age people possessed relatively shorter skulls while the more progressive Bronze Age people who invaded and replaced them possessed longer skulls. This theory was supported by the fact that people in Sweden, England, America and Germany were found to have relatively long skulls. However, imagine the problem when it was discovered that African blacks and Australian aborigines turned out to be the world's longest headed people! Broca argued that the lengthening of the skulls in blacks occurred at the rear of the skull whereas for whites the lengthening of the skull occurred at the front. The front of the brain was thought to be responsible for higher order thinking, while the rear was responsible for more mundane functions such as involuntary muscle movement, sensation, and emotion. Hence, Broca constructed a neat little argument demonstrating the superiority of whites.[6]

Another measure Broca adopted was the position of the foramen magnum. The foramen magnum is the hole in the base of the skull where the spinal cord passes through. In mammals, the hole begins at the base of the skull and moves to a position at the back of the skull by birth. In humans, it moves very little. In apes it moves more, so that it is further back on the skull. The general consensus was that the higher the race, the more forward the foramen magnum. Again, imagine Broca's discomfort when it was discovered that the distance from the back of the skull to the foramen magnum was the same for blacks and whites. And furthermore, since blacks tended to have longer faces, the foramen magnum of whites was relavitively more anterior than that of blacks. The solution was to subtract out the influence of the longer faces, a sort of statistical correction. Having done that, Broca then found that the hole for blacks was relatively more to the rear than for whites and the problem was solved.[7]

The work of these men has been very influential upon social policy and still carries weight within contemporary thinking. What we must keep in mind is the time period in which they were working - the late 19th century. These ideas are only 100 years old. Indeed, Hooten was still talking about measuring head circumference as a measure of intelligence as late as 1939! In fact, one of the variables Rushton measured in his famous paper of the mid-1980's, which created an uproar, was head circumference. These ideas are not that far behind us. The second point that we must keep in mind, is that these ideas represent influential and pervasive beliefs within the culture that we live. The idea of an innate entity called intelligence is a very dominant force within our society. And it can be traced back to the ideas of these researchers and their views. And it was from these men that intelligence testing was born.

Alfred Binet was initially interested in measuring intelligence, and he, like his contemporaries, began measuring intelligence by measuring heads. However, Binet became dissatisfied with the procedure - he recognized its inconsistencies and lack of real differences. Thus he was led to abandon the use of head circumference as a means of measuring intelligence. He turned to psychological methods and began to develop a set of tasks that would enable him to measure reasoning. He declined to give an exact meaning to the number that emerged on his test, and he recognized that it could become a number indicating something that could be labelled and perverted by misuse, teacher expectancy and the self-fulfilling prophesy. The ultimate purpose of the test was to identify those children who needed special help, and even cautioned teachers against hereditarian assumptions. The test was meant to identify students who needed help, and not for labelling.[8]

Binet developed three principles for his tests:

1. The scores are a practical device; they do not support any theory of intelligence. They do not define anything innate. We may not designate what they measure as "intelligence".

2. The scale is rough, empirical guide for identifying mildly retarded and learning-disabled children who need special help. It is not a device for ranking normal children.

3. Whatever the cause of difficulty, emphasis shall be placed upon improvement through special education. Low scores shall not be used to mark children as innately incapable.

Unfortunately, American psychologists took Binet's test and used it to measure a single, innate, immutable entity called intelligence. The first of these was Goddard. Goddard translated Binet's test and articles into English.and began to use the test to identify in order to recognize limits, segregate, and curtail breeding to prevent further deterioration of an endangered American stock, threatened by immigration from without and by prolific reproduction of its feeble-minded within. An unabashed hereditarian, Goddard wrote that "the chief determiner of human conduct is ... intelligence: that this process is conditioned by a nervous mechanism which is inborn ... that it is but little affected by any later influences except such serious accidents as may destroy part of the mechanism." This led Goddard to form such opinions such as preventing feeble-minded people from bearing children, and preventing the immigration of feeble-minded people. Given the nature of the test, this amounted to the exclusion of almost any non-english speaking immigrant! (It should be noted that Goddard did back down on many of his views later in life).[9]

Lois Terman developed the Stanford-Binet test by engaging in statistical analysis to refine the items on the Binet test. However, Terman's major influence came about as an advocate for universal testing. Terman hoped to establish a gradation of innate ability by which people could be assigned to their proper stations in life. Testing soon became, and still is, a multi-million dollar industry. Terman decided that we must first restrain or eliminate those whose intelligence is too low for an effective or moral life. Next, Terman hoped that his testers would determine the minimum IQ necessary for success in various occupations. Substantial success, he suggested, would require an IQ of 115 or 120, which would effectively eliminate ¾ of the population from any opportunities for substantial success. An IQ of 75 or below would be an unskilled labourer. 75 to 85 would be a semi-skilled labourer.

Interestingly enough, Terman measured the IQ of 47 courier employees and found the average IQ to be 95. This low achievement in life, Terman suggested, was probably due to certain emotional, moral, or other desirable qualities. Some may have even been prematurely forced out of school due to economic pressures. What is noteworthy is that although he was hereditarian in his assumptions, he appealed to social and environmental factors as predictors of intelligence when evidence did not match predictions! As well, he found the average IQ of 256 hobos and unemployed to be 89, higher than that he advocated for firemen and policemen, a finding which seemed to refute his ideas.[10]

But IQ testing really took off in a big way with R. Yerkes from Harvard University. As the first World War approached, Yerkes persuaded the Army to submit its personnel to IQ testing. Working with Goddard and other colleagues, Yerkes developed forms of the IQ test to be administered to the 1.75 million men in the army. While Gould suspected that the army never really made much use of the tests, the tests did have significant impact. The Army began to use tests as a pre-screening for officer training, perhaps one of the first instances of institutionalized screening of intelligence. Probably the most significant impact of his work was the development of methods for mass testing everyone.

With the development of mass testing came the development of standardized testing including the Scholastic Aptitude Test (SAT). With the advent of mass testing and the proliferation of the SAT, higher education began to adopt an appearance bearing remarkable similarity to the vision of Goddard, Terman, and Yerkes. In the 1950's American colleges began a process of screening applicants for selection based upon intelligence. For example, in 1952 the average SAT score for first year students at Harvard was 583, but by 1960 it was 687, a gain of more than 100 points. The trend, starting in the 1950's, was to identify the brightest and most talented individuals for admission into college with a doubling in the number of individuals from the top quartile of IQ attending college from 1950 to 1960.[11] Furthermore, as more of the top students began going to college and university, the colleges began to sort themselves out to create a stratification within higher education.

The trends in American education suggest that the vision of Goddard, Terman, and Yerkes has come, in a very quiet and subtle way, to fruition. The identification and selection of individuals with the highest IQ scores has led to the formation of a `cognitive elite' in America which has come to, and is continuing to, separate itself from the masses, who are shaping American society, and are reaping the social and economic benefits of their intelligence. "The upper end of the cognitive ability distribution has been increasingly channeled into higher education, ..., thence into high-IQ occupations and senior management positions ... forming a new class."[12] Members of this class have become, and will become, leaders in business, medicine, law, science, media, government, think tanks, and special interest groups while enjoying the privileges that accompany such status. Concomitantly, with the emergence of a cognitive elite is the development of an underclass whose members suffer from economic and social hardships such as high unemployment, high crime, and high illegitimacy. Membership in this class is defined by low IQ, and offspring of members of this class will, statistically speaking, continue as members of the underclass.[13] The education system serves the function of identifying and nurturing highly intelligent children.

That the education system should come to be used to identify the most highly intelligent is the result of economic and social policy which is founded upon a strictly materialistic psychology. As a materialistic psychology has come to assert itself

education has become a natural battlefield from which such a way of thinking can exert its influence. While certain groups seek to establish a basis of education in epistemology, (e.g., Paul Hirst), epistemological theories are neither necessary nor sufficient to establish conclusions about education. Epistemology may provide relevant considerations in determining answers to educational questions, but education is, at the bottom, based on ethics and politics, and even the content is politically determined.[14] That is, currently the practice of education is a ideological mechanism that "encompasses and is built upon a particular theory or view of man and the world"[15] and seeks to instill in people that particular way of seeing the world. In constructing an education system and devising a curriculum, there is an implied concept of man and what is good for man. Education serves as an ideological mechanism which "everyone is compelled to live through for a long period of time."[16] The question that emerges is what sorts of views of humanity are embedded in the education system, and is it a view that has at its foundations a degraded notion of being human and the propagation of a materialistic psychology?

The power of education to deliver the will of the political elite has been taken for granted by those in authority, and this political will has come define education in a strictly materialistic sense by proposing that education is the pivotal means of wealth generation. "Indeed, there is now a new 'consensus' on both the left and right of the political spectrum which has defined education as the key to economic prosperity."[17] For example, a report by the Science Council of Canada stated that in "an age when international economic success increasingly depends upon knowledge and technological innovation, universities need to engage more actively in economic renewal in Canada. ... Ways must be found to strengthen the role universities play in the economy. Universities must reorient some of their activities to provide the teaching and research required by the private sector ... they are the primary source of people and knowledge so urgently needed for industrial revitalization."[18] These sentiments are echoed by the American President in a major address:

> The key to our economic strength in America today is productivity growth. ... In the 1990's and beyond, the universal spread of education, computers and high-speed communications means that what we earn will depend on what we learn and how well we can apply what we learn to the workplaces of America.[19]

Consequently, education has come to be viewed as knowledge acquisition which is no longer an end in itself, nor is necessary for human growth, but a commodity for exchange. "The old principle that the acquisition of knowledge is in dissociable from the training (Bildung) of minds, or even of individuals, is becoming obsolete and will become ever more so."[20] But more importantly, there is a shift in the purpose and activity of education. Education is no longer about who we are, life, and the world in which we live. Acquiring the good through reason and understanding (e.g. Plato) has been replaced by using knowledge to attain materialistic ends. Traditionally, it is through education that we come to know who we are, where we came from, and our place in the world. Education is a distinctly human endeavour about the nature of our humanity. We have conferred upon us a unique dignity as beings. As humans we possess unique characteristics; we are moral, rational and free beings. Education is "the process by which man becomes man. ... The peculiarity of truly human life is that man has to create himself by his own voluntary efforts; he has to make himself a truly moral, rational, and free being" through the process of education.[21] However, in a contemporary materialistic view education is a means of acquiring knowledge to generate wealth. Technique replaces self-awareness and education is no longer about who we are but how well we can manipulate the world.

Yet within a materialistic view, economic efficiency demands getting the most talented people into the most important and technically demanding jobs, regardless of social circumstances. If individuals had the ability to succeed, they would ascend the social ladder. The key to this ascent lay in the notion of intelligence. "It was assumed that in society there was a limited pool of individuals with high intelligence who were required to run the engines of industrial growth. This pool of talent needed to be selected and promoted through the education system because, as Halsey and Floud (1961) noted, education is a critical type of investment for the exploitation of modern technology."[22] "Intelligence was also the critical factor in Goddard's and Terman's social engineering. Goddard, for example, argued that democracy means that the people rule by selecting the wisest, most intelligent and most human to tell them what to do to be happy."[23] "In our society there is a pervasive tendency to equate accomplishment [or perceived accomplishment] with human value, or simply put, individuals are thought to be only as worthy as their accomplishments."[24] Consequently, in a materialistic psychology intelligence is the most critical feature of education and the task in education is to search out the brightest, most capable students and train them for positions within society for the betterment of that society with the result that such students would reap the benefits and rewards of their talents.

The unfortunate repercussions of such a materialist way of thinking is a degraded notion of being human and a loss of our dignity. While it is a traditional American belief that one should achieve according to one's potential and be rewarded for one's accomplishments, the result of the result of the reification of intelligence is a necessary degradation of the human. Those students who are viewed as less intelligent come to believe as though that they are less worthy than the smarter students. They experience failure and feel considerable shame and humiliation in the process. If a person is not deemed intelligent, that person cannot enter into the cognitive elite and will be socially powerless and worthless. Once a man feels that he has no worth or that "I-have-no-significance. [and} I am unable to influence others. The next step is apathy. And the step following that is violence. For no human being can stand the perpetually numbing experience of his own powerlessness."[25]

An education system which is built around the principal of identification and rewarding of intelligence is a system perpetuating the belief that intelligence is the cause of success and failure. Whether true or not, the belief that success and failure is due solely to ability is a belief that is psychologically crippling. Such a belief leaves students feeling worthless, because they are not valued either for who they are or worthless because they can't perform, and powerless because they are unable to effect any change.[26]

The psychological constructs of worthlessness and powerlessness are crucial to understanding the modern condition and the social consequences that emerge. In feeling worthless the individual feels that he has no value, that he is not respected and has no sense of dignity. Such a person feels unloved. Yet, feelings of self-worth are critical for the healthy functioning of the human. Feelings of worthlessness are strongly associated with depression, personality and behaviour disorders, and suicide. On the other hand, feelings of worth are strongly associated with healthy behaviours such coping with difficulty, forming healthy relationships, and achieving success. In feeling helpless the individual feels and believes that he has little or no control over events that happen. His life is no longer in his control and the individual is powerless to effect any change in his life. Helplessness is strongly associated with worthlessness, depression, passivity, aggression and anger. Modern man loses his sense of self.

The loss of sense of self resulting from powerlessness and worthlessness cultivates a way of thinking and being that is symptomatic of this crisis, a way of being that the American psychologist Martin Seligman has called victimology. Individuals no longer accept responsibility for themselves. Rather, the trend is to adopt an 'external explanatory style' in which events are explained by external forces. If things go wrong, "it's not my fault!" In this way of thinking, the individual stops being an agent, indeed stops knowing he is an agent, and becomes a victim who feels helpless and worthless, with tragic results. "The psychological changes [that have occurred in the last 40 years] are even more frightening [than the physical changes]. Traditional American child-rearing in individual responsibility has been replaced by a self-esteem movement ... [and] our kids are imbued with victimology, which today has become the American way of blame. It is too routine for adults and their kids to explain all their problems as victimization. When a boy in trouble sees himself as the victim, this festers into seething anger. With easy availability of guns, it can explode as murder."[27] Recent events in American schools seem to support, at least in part, this hypothesis.

Defining people by intelligence, then, has serious consequences. Yet, a more fundamental question remains to be asked: "What is intelligence?" Psychologists in the last century have been preoccupied with measuring intelligence at the expense of figuring out what it is they are measuring. To this end, the most recent theories of intelligence emerging have a different view of intelligence than their predecessors. These are Gardner's theory of multiple intelligences,[28] and Sternberg's triarchic theory of intelligence.[29] Both have implications for the way we view intelligence, intelligence testing, and how we view ourselves.

Gardner's view of intelligence postulates that intelligence involves manipulating symbols. There are, at least seven different symbol systems, and thus seven different symbol systems - mathematics, language, music, bodily-kinesthetic, interpersonal, and intrapersonal. Furthermore, Gardner points out that ability or intelligence in one domain does not necessarily correlate with intelligence in another domain. Right away we can see this has implications for education. If Gardner is right, then we see that intelligence tests as currently designed are not testing all possible intelligences, but are just focussing on the mathematical and linguistic intelligences. Second, this theory has motivational consequences. If a person lacks one intelligence, it need not be the case that the person will lack intelligence in another domain. Hence, the opportunity exists for students to develop segregated and differentiated aspects of self and foster compensatory strategies to maintain self-worth. That is, a person can be a dummy in one area, but be competent in another. Opportunities exist for developing one's skills.

Sternberg's theory postulates that intelligence is comprised of three components: (1) a meta-cognitive component for planning, evaluating, and monitoring; (2) performance component in which tasks or skills are executed; and, (3) a knowledge-acquisition component in which students use various means for acquiring new knowledge. Sternberg's theory has implications for the way in which we view intelligence. Most importantly, Sternberg's view suggests that intelligence is not a fixed, innate entity. Intelligence can be improved with training. By teaching students to use strategies, such as comprehension monitoring strategies, self-instruction strategies, or various study strategies, students can increase their repetoire of cognitive processes comprising any one of the three components that make up the intelligence.

Gardner maintains the same view, although implicitly. Gardner describes tasks that measure intelligence as things like writing/telling a story, playing a song, or drawing

a picture. The quality of the product in each one of these tasks can be improved by instruction - teaching students strategies for producing the product. For example, teaching students the rudiments of story grammars - that stories have a setting, theme, and plot, can improve their writing immensely. Given such conditions, Gardner's theory implies that intelligence is not only multi-faceted, but changeable as well.

Angoff argued that the question of the innateness of intelligence is irrelevant. What is noteworthy that intelligence, or certain aspects of intelligence, can be changed. Barrow argued for an educationally relevant definition of intelligence. Such a definition in his view constitutes reasoning logically, thinking critically, recognising relationships, discriminating concepts, and interpreting situations and people well. In looking at this definition, we see that the capacity to engage in each one of these behaviours is something that requires knowledge and strategies. What is more important, though, is recognizing that through effort and knowledge acquisition students can achieve success. This recognition leads students to form attributions to internal, controllable causes. Students stop feeling worthless and helpless and start recognizing that they are agents and research has consistently shown that feeling of control and competency are predictive of healthy, adaptive behaviour.[30] Research also shows that the most important factor influencing students feelings of competency and control is a caring and nuturing teacher. In other words, teaching has as its foundation a human interaction based upon respect and dignity, and not upon intelligence.

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984

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MISCELLANEOUS

DON'T SMILE UNTIL CHRISTMAS:
AN HISTORICAL LOOK AT EFFECTIVE TEACHING

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What can student teachers expect to make of courses in effective teaching? Can they expect to glean from the epistemological cream of distilled knowledge anything that is scientifically solid, reapplicable, or movable from class to class or from school to school? Are there markers which will emerge for students which give a good sense of what is effective in teaching? One would hope so, but Gary Thomas's (1997) recent article, "What's the Use of Theory?, made me wonder if the whole notion of effective teaching isn't a bit of a shame. Indeed, I am never really sure what has been effective in my own classroom practice. Inner feelings that I have been particularly effective in class have often been dashed by an overheard conversation in the hall just after class. Conversely, I have been told that, what I thought was a minor point, mentioned only in passing, radically changed someone's thinking about a topic. Thus, I am led to wonder how much we say about effective classroom practice is often a vague romanticism in which a pedagogical moment is turned into a nostalgic idealistic ghost. It would seem that any rules for best practice based on such romantic notions as "teachable moments" need further study and explanation about what is going on in the teacher's mind in these instances. To test Thomas's provocative arguments against the continued use of theory in education, I decided to look at the field of effective teaching to see if there are any rules that could be sifted from the literature on effective teaching to help guide the novice towards what might be considered best practice.

The Research on Effective Teaching

First off, Borich (1992) warns that there are no tests of personality traits, attitudes, aptitudes, or psychological characteristics that can be used to single out prospective effective teachers. Borich sees too many variables in classroom practice for such tests or lists of characteristics to emerge.

In the past, classroom teaching has been studied from a number of vantage points and empirical studies have focused on a variety of research areas, e.g., the cognitive and intellectual behaviour of students, classroom communications, the emotional and social climate of the school, and the various teaching techniques and instructional strategies. Traditionally, and especially since the early 1950s, methods of educational inquiry have generally been empirically based and scientifically oriented. They have often tried to generate data that could be transferred into an easily accessible and quantifiable format. Terms like "knowledge delivery systems," "assessment strategies," "peer tutoring and evaluation," "growth schemes," "discovery based learning," "supervision for growth," and "the six-day cycle" foster the idea of teaching as being both technical and scientific. However, whether teaching is viewed and studied from a behavioural, sociological, psychological, or anthropological perspective, our understanding has frequently seemed incomplete or unsatisfactory.

In the 1960s and 1970s preservice teacher education was dominated by both an applied science or technical view of teaching and by a craft conception of practice. States Zeichner (1983),

> ...the most influential of the general approaches to the education of teachers rests upon the foundations of a positivistic epistemology and behaviouristic psychology and emphasizes the development of special and observable skills of teaching which are assumed to be related to pupil learning (p. 3).

These skills led to a student teacher's classroom 'performance' being evaluated along prespecified levels of proficiency. Little time was given to critical reflection on social continuity, meaning, or change. Thus, it was the acquisition and demonstration of very basic and general skills which were of central importance.

The craft conception of teacher education is viewed as a process of apprenticeship and/or internship. Tom (1980) traced this approach toward teacher education back over a period of one hundred years, but points out that because of the dominance of the behaviouristic approach to teacher education and because of attempts to 'professionalise,' teaching the craft conception of teacher education has had few proponents since the normal school era.

Behaviourism, in one form or another, came to dominate the research into effective teaching in the 1970s. Its preeminence can be demonstrated by the influence it has had on teacher preparation in the United States. Various states have legislatively mandated teacher education and/or evaluation programmes[1] that rely heavily upon behavioural research. Indeed, a review of the sections that cover tests of 'professional knowledge' in a number of preparatory study guides for the National Teachers Examination (NTE) reveals a preponderance for behavioural related questions (see for example Weinlander). What is emphasised in these texts is the acquisition of special and specific skills. Speaking to this point, Zeichner states,

> the knowledge, skills, and competencies to be taught to prospective teachers are those that are felt to be the most relevant to the teaching role as currently defined and are specified in advance. Furthermore, the criteria by which success is to be measured are made explicit and performance at a prespecified level of mastery is assumed to be the most valid measure of teacher competence (p. 4).

He goes on to say in the next paragraph that underlying this view of teacher education and competence,

> is a metaphor of "production"...a view of teaching as an "applied science" and a view of the teacher as primarily an "executor" of the laws and principles of effective teaching...which they are to master is limited in scope (e.g., to a body of professional content knowledge and teaching skills) and is fully determined in advance by others often on the basis of research on teaching effectiveness (p. 4).

Hence, the means of producing and distributing knowledge about teaching can be controlled by those who set the parameters for performance and the criteria for competence. Zeichner recognised a behaviouristic view of teaching as falling with in the technical tradition of teacher education which allows little room for the teacher's own practical knowledge.

An Historical View

Although research about reflective teaching is relatively new, research about teacher effectiveness has a long history (see Charters, 1918; A.S. Barr, 1929; Gage, 1970). Historically, teacher effectiveness studies have grown in numbers over the past fifty years. Indeed, by 1974 over 10,000 published studies were available. Dunkin and Biddle (1974) quote Gage's 1960 reported in which he states, "not only is the literature on this subject overwhelming, but even the bibliographies on the subject have become unmanageable" (pp.12-13). However, the results essentially have been ineffective and disappointing.

In 1952, the American Educational Research Association's Committee on the Criteria of Teacher Effectiveness reported a list of discouraging findings:

> The simple fact of the matter is that, after 40 years of research on teacher effectiveness during which a vast number of studies have been carried out, one can point to few outcomes that a superintendent of schools can safely employ in hiring a teacher or granting him [sic] tenure, that an agency can employ in certifying teachers, or that a teacher-education faculty can employ in planning or improving teacher-education programs (p. 657).

In 1976, Shavelson and Dempsey reported that, so far, none of the research results into teacher effectiveness had "identified consistent, reapplicable features of...teaching that lead directly--or even indirectly---to valued student outcomes" (p. 553). In 1978, Doyle reported that his analysis of nine studies on teaching produced "few consistent relationships between teacher variables and effectiveness criteria..." (p. 161). In his 1989 address at the annual meeting of AERA, Gage (1989) quoted the work of both Tom(1984) and Barrows (1984) to sum up his own review of the research conducted on teaching during the sixties, seventies, and eighties by saying that such research had been characterised as "at best, inconclusive, at worst, barren" and "inadequate to tell us anything secure and important about how teachers should proceed in the classroom" (p. 135). To quote Tom directly, "even a cursory historical review of the meagre research results from this tradition should cause teacher effectiveness researchers to consider abandoning their approach" (p. 53).

Given the negative results of these studies, something seems dramatically askew with the research about effective teaching or with its premise. Indeed, in the 1980s researchers began to recognise problems with the scientific or quasi-scientific approaches to the study of teaching. Kagan (1988), writing in a paper reviewing a multitude of studies on how teachers have conceptualised and ordered their instruction in both the United States and Europe since 1974, concluded her findings by saying that the model for studying teacher cognition is showing teaching to be a more complex and dynamic activity than originally thought. She states that because teaching involves the weaving together of various intellectual structures, and because so much of a teacher's lesson is improvised once it has begun, recent results of studies into teacher cognition (Leinhardt and Greeno, 1986; Brown, McIntyre, and McAlpine 1988; Krabbe, McAdams, and Tullgren 1988) have "effectively moved teaching further from science and closer to art" (p. 497). Though Kagan does not specifically delineate what she means by 'art' she is essentially suggesting that research on teaching needed to shift away from the scientific and technical ways of perceiving and analysing the teaching act and to move closer to an artistic position similar to that suggested by Eisner (1968, 1982).

It has often been common practice for educational researchers, whenever they reach an impasse in their definition of teaching, to allude to the art or the artistry of

teaching to explain any enigma. What is significant about Kagan's analysis is that she has tried to go beyond affixing the label 'art' to that which is difficult to scientifically delineate and is calling for an abandonment of effective teaching research and for an analysis of teaching with artistic principles in mind.

Eisner's Thoughts

In 1982, Eisner, as one of the few proponents of an aesthetic conception of teaching, encapsulated the numerous problems associated with prescriptive models of teaching. Among his arguments are what he calls the four fallacies of the scientific view of teaching.

The Fallacy of Additivity. Eisner states that it cannot be assumed that the various parts of a teaching behaviour can be afforded equal weight nor can the frequency counts of 'good' teacher behaviour be totalled to determine a teacher's competency. Eisner argues that the quality and depth of each of the various teaching behaviours must be accounted for within the context of the teaching activity. Thus, the tone and the quality of a teacher's remarks take on significant, but varying, importance to each individual student within a particular class. As Kagan observes, the false but "implicit assumption of the scientific knowledge base provided by process-product research is that the whole is equal to the sum of its parts...." (p. 497).

The Fallacy of Concreteness. It is falsely assumed that all the act of teaching encompasses is observable in the behaviour of the students and teacher. This fallacy shows a disregard for perceived meanings and intentions of students and teachers.

The Fallacy of the Act. Here Eisner points out the assumption that teaching can be evaluated in a single detached event. Inherent in this fallacy is the belief that perception can be increased by controlling the variables within the teaching act. When evaluators go into classrooms to observe and record questioning techniques, verbal rewarding systems, probing methods, or other phenomena, there is the conviction that their frequency counts or noted data can be used in exclusion of other classroom events or teacher-directed activity.

The Fallacy of Method. Importantly, Eisner questions the methodologies used by those who advocate a scientific view of teaching. He says that teachers assume classroom behaviour can be validated by using multiple observers to record classroom teaching activities. However, by using inter-rater reliability counts or tabulations from observed behavioural check lists and other 'objective' measurements, all a teacher's subjective views as to why he or she proceeded to create meaning within a given context are removed. The observers' perceptions are all that count in gathering data and drawing conclusions in the methodology.

Additional Problems

At the heart of any analysis of effective teaching are the conflicting conceptions of what exactly should be observed and considered when viewing classroom action, and precisely what it is that constitutes teaching proper within that action. We are again forced to consider how teachers think about their work as opposed to how researchers traditionally conceptualised it.

Additional problems arise with the prescriptive views of teaching which need to be articulated. First, in many cases there is an attempt to 'teacher-proof' the curriculum. This phrase highlights the current practice of manipulating and controlling the end results of classroom instruction. (Ontario's recent move into Outcomes Based Education epitomises this conception). The view of teaching as a precise technical activity has been used as a model for framing restrictive educational goals and objectives. This preordination of the curriculum in behavioural terminology then allows for preselected objectives to be tested and evaluated once the teaching act has taken place. The effect of this positivistic oriented process/product conception of education is that for both teacher and student there are built-in pathways constructed for thinking about and arriving at prescribed curriculum destinations.

This view of teaching fosters control by managerial evaluation. When enough students do not arrive at their prescribed 'destination,' the school management team can be brought in to trace back along the 'instructional' route and find out where things became derailed. Subsequently, teacher's instructional techniques can be assessed, modified, and brought back on line. The 'product' can be manipulated to flow more easily and more directly to its predetermined destination. Future tests can then be run to examine if the preset behavioural objectives are being met. Assuming they are, the teacher can be told that he or she is doing a satisfactory teaching job. Since the 'product' is now classified as satisfactory, the teacher need only to monitor his or her process (teaching) to keep production on line. Any deviations, digressions, or alternative methods of teaching the prescribed curriculum run the risk of negatively affecting the preselected goals as outlined by the systems management team. The result of any experimentation or digression by the teacher could cause a future visit by the bureaucracy to assess what has gone 'wrong'. Obviously, when teaching is conceptualised in this manner, there is a desire to gain exacting control over all the dimensions of the teaching act, to insist on the mastery of a series of effective teacher behaviours, and to limit direct teacher input. Hence the new phrase 'teacher-proofing the curriculum' can only be seen as an effort to downplay the human interaction side of teaching. This seriously limits the effects that teachers can have on curriculum outcomes.

A second problem with the scientific view of teaching is the failure to recognise that teaching phenomena are fabricated and that teaching problems have a variety of possible solutions (solutions which may be unknown prior to the start of the teaching act itself). Hence, any generalities or patterns thought to be found are likely to shift or be lost over time with the arrival of new or different classes of students. The effective teacher could indeed turn out to be a person who is able to choose the 'right' course of action from a diverse teaching repertoire, which has been assembled over a long and varied teaching career, and apply it situationally.

A third problem with the prescriptive view of teaching is that at its base is the notion of manipulation and control. It starts from the assumption that teachers can be viewed as technicians who are hired to apply prescribed curricula. A teacher's (or student's) own agenda is given little weight and seen as an addendum in curriculum planning. As Apple (1979) has pointed out, the systems managers, in their quest for certainty and regularity in human behaviour, must be manipulative if they are to achieve their goals (pp. 110-111). To admit individual teacher goals into subject planning would require giving up some authority.

A fourth problem with the scientific or technical approach to teaching, is the belief that pervasive educational problems can be solved by outside specialists and

experts. It is believed that when the specialist finds a 'solution' to a particular problem, the teacher need only apply the right technique or remedy to the problem and it will be solved. Often the individual teacher is totally removed from the equation (or is questioned on the periphery for specific pieces of information) because answers are seen and assumed to be 'technical' in nature. Hence, resolution can only be achieved by the specialists--the ones who have the appropriate 'technical' knowledge and know how.

The process/product way of looking at educational planning is, by its very nature, a simplistic approach and methodology. It seldom takes into account the realities, the diversity, nor the complexity of classroom life. Teachers who have taught the same elementary grade for a number of years reach a point where they can look back on past years and extract the elements that made a particular year go well or pinpoint the worst experience they have ever had with a mathematics group, or detail the willingness of a particular class to stretch their investigation skills and sweep the awards in a local science fair. Whatever elements made those classes good or difficult or exciting came together at a particular time and in a particular room for those involved and could not be preplanned or predicted nor repeated. A technical view of teaching has difficulty accepting the transience or randomness of these factors.

A fifth problem is the quest by some to transplant systems management techniques into educational institutions, it is believed that certitude, regularity, and efficiency will be established. However, as Apple has tried to make clear in Ideology and Curriculum, this is based on an assumption that systems management is neutral:

> The problem of drawing upon reconstructed logic is further compounded by our belief in the inherent neutrality of systems management. There seems to be a tacit assumption that systems management procedures are merely 'scientific' techniques; they are interest-free and can be applied to 'engineer' nearly any problem one faces (p. 110).

This assumption is grounded, not only in the supposed neutrality of science, but also in its supposed efficiency and crisp effectiveness. Additionally, it is taking into account only the skills involved in practice. But as Kuhn (1970) has quite clearly demonstrated, science can be a very messy business. Indeed, good science allows for and works with ambiguity, incertitude, and suspicion; paradigms compete against one another, wrestle with each other's theories and notions, pulling apart and reconstructing various ideas. Good science, it can be said, seeks out conflict and ambiguity in its effort to make new discoveries and explain phenomena. It also can be said that 'failure' is far more often the case in science than 'success'. Setbacks are all part of thoughtful experimentation and exploration; they are all part of the risk taking, the leap of faith, the creative processes involved in good experimentation and laboratory work.

Critical theorists (Apple, 1970; Giroux, 1981; Beck, 1990) have shown that scientific investigations into the nature of teaching are often not scientifically neutral or without cultural bias. They have linked the political, economic, and social powers in society to the overall structure within educational institutions. They stress the view that the present conception of education is serving the dominant social classes and perpetuates this dominance by controlling certified knowledge, curriculum materials and content, and teacher actions. Because research into teaching has consistently focused most of its attention on the technical aspects of the profession, the critical theorists accuse educational researchers of having avoided any political commitment regarding

educational research design, questioning, or classroom relationships. Furthermore, critical theorists accuse the educational researchers of having, more or less, ended up serving the dominant classes by reproducing existing inequality and perpetuating dominant class interests and agenda. Thus, the aims of such positivistic research approaches are seen as trivial in light of the need to restructure society more equitably.

While focusing on the qualitative, holistic, and interpretive approach to classroom instruction, qualitative researchers reject, as Eisner does, the notion that teaching can be studied as individual pieces of behaviour, or that classroom activities can be viewed and quantified without regard for the subjective or inside view of classroom phenomena. They also reject the assumption of uniformity in nature. Hence, observed educational events cannot be expected to occur similarly in different places or under different classroom circumstances. To pin down objective causality in the shifting moods and nuances of the classroom is seen as fruitless from their perspective.

Thus, to conclude this analysis of the scientific and technical conception of teaching, we must place alongside the historical documentation for the failings of the scientific and technical approaches to the study of effective teaching over the past fifty or sixty years, the more recent issues raised by the critical theorists and the qualitative researchers.

Conclusion

If it can be assumed that the educational research community has continued to generate (at a modest rate) additional studies on effective teaching during the three decades since Gage identified the 10,000 studies in 1960, a staggering figure begins to emerge. Something is dramatically wrong with research that consistently fails to produce any significant findings or results. Surely by now we should have a sound body of codified knowledge derived from the empirical findings of the discipline from which to add to or branch out from. Observers (e.g., Barrow, Tom, Eisner, Kagan, Gage, Raven) offer a number of detailed reasons for the failure of the research. Whatever the reasons for this failure both here and abroad, not every one of the thousands of researchers can be doing bad science. The fact remains that, because so many studies have failed to document any significant findings on effective teaching, the underlying assumptions upon which this research has been based must be questioned.

It has been the quest for efficiency and certitude that has governed a prescribed and technical approach to the study of teaching. The underlying metaphors are of production and measurable outcomes. Thus, hard binary improvements are sought in the products of students. But what of the other competencies we wish students to possess which are not easily measured or quantified? These competencies include communicating, observing, finding information needed to achieve a particular goal (collected by observation or by talking to people rather than by reading books), inventing, persuading, or showing leadership. How do we quantify a student's ability to take what was read and to think laterally about it or to discard what is irrelevant and to reformulate required information? Indeed, Raven (1992) has argued that "learning" has invariably been referred to as a mastering of the content areas. Yet he sees no reason why learning should not be conceptualised as including an ability to do such things as persuade, muster arguments, judge, make good decisions, initiate hunched-based action and use one's feelings to monitor its effects, put others at ease,...make one's own observations, develop better ways of thinking about things, or build up one's own

understanding of how society works and the willingness and the ability to influence it (p. 347).

To include these types of learning outcomes and others like them muddies the waters for those wishing to quantify the results of effective teaching. The items on Raven's list, after all, are difficult to measure and need large amounts of time to penetrate and assess.

It is time for researchers to look to other metaphors of teaching to explain the actions of the thoughtful teacher. Teaching might better be thought of as 'a work in progress' for it does not seem to get any easier of time.

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996

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NOTES

1. The National Teachers Examination is administered by Educational Testing Services of Princeton, New Jersey, and is made up of a core battery and speciality area tests. These tests are administered several times a year throughout the United States. Test scores are sent from Princeton to the various state departments of education. Each state is responsible for setting the minimum passing score it will accept for teacher certification.

2. In the United States, where even some individual school districts ask for a prospective teacher's NTE test results in addition to their state certification, a case can be made that faculties of education are limited in the amount of control they have over the content of their own curriculum. Since their students are required to take an external examination, there is pressure, if not an obligation, for education faculties to 'cover' material thought to be on such teacher examinations.