society and education in newfoundland

volume II

edited by

amarjit singh

ishmael j. baksh

Society and Education in Newfoundland

Volume II

Edited by

Amarjit Singh
Associate Professor
Department of
Educational Foundations

Ishmael J. Baksh
Associate Professor
Department of
Educational Foundations

Faculty of Education
Memorial University of Newfoundland
St. John's, Newfoundland
Canada A1C 5S7

Contents

B. The Student in the School (160-203)

C. The School as a Complex Organization (204-276)

B. Values in Curriculum (325-361)

C. Science Education (362-409)

Preface

This is a second anthology consisting of articles which have been published in the *Morning Watch* over a period of five years (1977-1982). The first anthology was published in 1977 under the title *Society, Culture and Schooling: Issues and Analysis,* and it contained most of the articles which originally appeared in various issues of the *Morning Watch* covering the period from 1973 to 1977.

It is worthwhile to say a few words about the origin of the *Morning Watch.* Dr. W.J. Gushue, a former Head of the Department of Educational Foundations, was instrumental in helping with the launching of the *Morning Watch*. Publication commenced in 1973 and has continued through the Committee on Publication, Faculty of Education, Memorial University, St. John's, Newfoundland.

Dr. Gushue, in introducing the *Morning Watch* to readers, remarked that "... the birth of the *Morning Watch is* explained by the somewhat rapid awakening of the Newfoundland consciousness. Indeed, that fact is reflected in the title of the journal, in that it is the *Morning Watch* that precedes a new daya new and better era for Newfoundland and its people."

From the very beginning there has been no doubt in the minds of the editors that the *Morning Watch* exists in the main for the teachers of Newfoundland and Labrador. Over the period of nine years faculty members from various departments in the Faculty of Education and from other faculties of the university have written articles for the *Morning Watch.*

The orientation of this journal remains the same. Social scientists and educators often use jargon and tedious language while commenting on the complex interaction among society, culture and schooling. The editorial policy of the *Morning Watch* has urged, and still urges, contributors to write with as much simplicity and clarity as possible without forgoing the "respectable" level of sophistication required for social and cultural analysis. It was felt that there was need to introduce and explain to a specific audience in the province - students, teachers, supervisors, superintendents, members of school boards and the general public - some of the major social science concepts and perspectives that are often used in analysing social, cultural, political, economic and educational problems and in formulating policies pertaining to such problems. How well each contributor has met such objectives is evident in the articles included in this book. Also, by exposing his/her ideas, each individual writer has taken the risk of being critically evaluated by others. Hopefully, some of the ideas presented in the articles will initiate dialogue among students, teachers and others regarding pressing social and educational problems in the province and elsewhere. Readers are therefore invited to read these articles critically, to raise questions that are not raised in them and to develop perspectives of their own which may help them understand the larger problems associated with the survival of mankind in today's interdependent world and the

relationship of such problems to the individual's everyday life-style wherever he/she might live. This larger perspective on education and society makes sense to us because Newfoundland society and culture are going through rapid transformation under the impact of economic and technological forces such as the discovery of off-shore oil, re-organization of fisheries in the province and renegotiation of "hydro" power agreements. It is hoped that many articles written in the future for the *Morning Watch will* analyse the role of these new forces in the educational and social concerns.

A.S.
I.J.B.

St. John's
March, 1982

Introduction

There are **two Volumes** to this anthology: Volume One contains Parts I and II, and **Volume Two** consists of Parts III to VI. Altogether there are six parts to the anthology.

Part I includes articles dealing with larger issues pertaining to *Society and Education.*

Part II focuses on *Social Organization of The School.* This part is divided into three sections: (A) The Teachers in the School, (B) The Student in the School and (C) The School as a Complex Organization.

Part III discusses the *Content of Education.* This part is divided into four sections: (A) The Language Arts, (B) Values in the Curriculum, (C) Science Education and (D) Social Studies.

Part IV analyses the *Organization of Learning and Socialization.*

Part V deals *Early Childhood Issues.* Articles in this part are written from the perspectives of educational psychology. The article by Dr. N. Garlie was originally published in Vol. 2, No. 3, 1975, pp. 8-10, *The Morning Watch.* Similarly, the article by Dr. W. Nesbit, "Light or Heat?..... was first published in Vol. 3, No. 3, 1976, pp. 11-16.

Part VI includes articles dealing with *Continuing Education* and with emerging issues such as *Social and Educational Gerontology.*

A.S.
I.J.B.

Acknowledgment

We wish to thank all the authors who have contributed to the *Morning Watch* since its inception as well as those who have written for it more recently. We sincerely hope that in future others will also decide to write for the *Morning Watch* as our society and culture encounter the coming of oil-related and other is part is divided into changes. It is also obvious that the *Morning Watch* cannot exist without the ant in the School and support of the Committee on Publication, Faculty of Education, Memorial University. We are very grateful to the Committee.

Finally, as we have said earlier, any work of this kind requires collaboration, co-operation, commitment in terms of time, energy and morale and, above all, the understanding of various people. We wish to thank Dean Brose Paddock for his generous support. Special thanks are due to staff members at the Duplicating Centre and to Maureen, Brenda, Sharon, Phil and Marina who as a team helped us in preparing the manuscript for this anthology.

If there is any merit in this anthology, the credit is due to all these people. Needless to say, the editors bear the sole responsibility for any shortcomings which this anthology might have.

A.S.
I.J.B.

INDEX

The Morning Watch
Vol. 5, No. 1, 1977 to Vol. 9, Vol. 4, 1982
ISSN 0384-5028

Editors: Dr. Ishmael Baksh and Dr. Amarjit Singh, Department of Educational Foundations

Cover Design: Bill Griffin, Centre for Audio Visual Education

Printing: UN Printing Services

Published by: Committee on Publication, Faculty of Education, Memorial University, St. John's, Newfoundland, Canada, Al B 3X8

Brown, L. "Literature and the Teaching of Moral Values'", Volume 6, Nos. 3-4,1979, pp. 30-32.

Brown, L. "Children's Literature and the Development of Imagination", Volume 7, Nos. 2-4, 1980, pp. 2-11.

Brown, L. "Vocabulary Development of Primary Children: Implications for Teaching", Volume 9, No. 1, 1981, pp. 2-6.

Buffet, Fred. "The Responsibility of the Principal in School-Community Relations", Volume 5, Nos. 3-4, 1978, pp. 7-11.

Burton, B. "Science Projects for the Elementary School", Volume 9, Nos. 3-4, 1982.

Choudhury, M. "Teacher Demand and Supply Profiles", Volume 9, No. 2, 1982, pp. 36-41.

Clarke, G. "Values and Science Education", Volume 6, Nos. 3-4, 1979, pp. 28-29.

Clifton, R.A. and Bulcock, J.W. "Demography and Education: Implications for Newfoundland and Labrador", Volume 6, No. 1, 1978, pp. 9-18.

Clifton, R.A. and Covert, J. "Two Experimental Programs and the Professional Dispositions of Student Teachers", Volume 7, Nos. 3-4,1980, pp. 35-42.

Cochrane, D. "Moral Education and the Curriculum", Volume 6, Nos. 3-4,1979, pp. 3-11.

Covert, J.R. "Moral Education and the Curriculum: A Discussion of the Recommendations", Volume 6, Nos. 3-4, 1979, pp. 12-16.

Crocker, R.K. "Implementing Curriculum Change: Experience from Two Science Projects", Volume 9, Nos. 3-4, 1982.

Davies, C.S. "Microcomputers in Science Teaching'", Volume 9, Nos. 3-4, 1982.

Duignan, P. and Ponder, A. "Education: the Dawning of A New Day'", Volume 6, No. 2, 1979, pp. 11-17.

Fagan, M.J. and Ponder, A. "Utilising Teacher Characteristics as Criteria for Deployment Decisions", Volume 7, No. 1, 1979, pp. 2-9.

Fagan, M. "What Teachers Say About Teachers", Volume 7, No. 1, 1979, pp. 33-37.

Glassman, M.S. "The Language Metamorphosis of the Pre School Child", Volume 9, No.1, 1978, pp. 21-25.

Griffiths, A. "Science, Society and the Newfoundland Curriculum", Volume 9, Nos. 3-4, 1982.

Griffiths, A. "Science Education: Editorial", Volume 9, Nos. 3-4, 1982.

Jackson, R.W.B. "Education in Newfoundland: Projections and Prospects to 2001", Volume 6, No. 2, 1979, pp. 2-10.

Jackson, M. "From Theory into Practice", Volume 6, Nos. 3-4, 1979, pp. 18-25.

Jeffery, G.H. "Toys in the Toy Library: Their Role and Evaluation", Volume 7, No. 1, 1979, pp. 16-21.

Jeffery, G.H. "Let Me Tell You a Bit About Toy Libraries", Volume 7, No. 1, 1979, pp. 14-16.

Jeffery, G.H. "Towards a Model for Education: A Working Paper", Volume 8, No. 1, 1980, pp. 23-29.

Janes, E.M. "Language Development as a Framework for Beginning Reading", Volume 9, No. 1, 1981, pp. 7-12.

Jones, F.G. "Living in Society: A Master Plan for A Social Studies Curriculum", Volume 5, Nos. 1-2, 1977-1978, pp. 14-20.

Jones, F.G. "Skills in the Social Studies: A Consideration", Volume 6, No. 2, 1979, pp. 18-25.

Jones, F.G. "Values Instruction in the Social Studies", Volume 6, Nos. 3-4, 1979, pp. 33-36.

Kennedy, Mary. "The Art of Creativity", Volume 5, Nos. 3-4, 1978, pp. 20-21.

Kirby D. "Integrated Science", Volume 9, Nos. 3-4, 1982.

Macdonnell, A. and Martin, W.B.W. "The Social Organization of Education", Volume 9, No. 2, 1982, pp. 5-6.

Magsino, Romulo F. "Human Rights and Denominationalism: Hard Decisions Ahead in Newfoundland Education", Volume 5, Nos. 3-4, 1978, pp. 1-7.

Magsino, R. "What Moral Education in Newfoundland Schools?", Volume 6, Nos. 3-4, 1979, pp. 25-27.

Magsino, R. "Student Rights in Newfoundland and the United States: A Comparative Study, Volume 7, Nos. 3-4, 1980, pp. 11-19.

Martin, W.B.W. "Pupil Observations Relating to Ability Grouping", Volume 7, No. 2, 1980, pp. 26-29.

Martin, W.B.W "Views of Students on the Amount of Homework Assigned", Volume 8, No. 1, 1980, pp. 2-5.

Martin, W.B.W. "Voices for Homework Timetables", Volume 8, No. 2, 1981, pp. 2-5.

Martin, W.B.W. "Competing Forces and Students' Responses to Homework", Volume 8, Nos. 3-4, 1981, pp. 3-7.

Sclater, K. "An Eclectric-Procedural Model of Special Education", Volume 8, Nos. 3-4,1981, pp. 22-27.

Shuell, N.B. "Communicating Values in Religious Education", Volume 6, Nos. 3-4, 1979, pp. 37-39.

Singh, A. and Baksh, I.J. "Teachers' Perceptions of Problems in Teaching: Three Situations in Newfoundland", Volume 5, Nos. 1-2, 1977-1978, pp. 1-9.

Singh, A. "Theories of Social Gerontology", Volume 9, No. 1, 1981, pp. 34-43.

Singh, A. "Some Dominant Views of the Elderly, their Families and Caring for the Aged in Our Society", Volume 9, No. 2, 1982, pp. 7I6.

Singh, A. and Baksh, I.J. "Self-Concept of Teachers in Newfoundland", Volume 9, No. 2, 1982, pp. 29-35.

Spalding D.M. and Martin, W.B.W. "Participating in Continuing Education", Volume 9, No. 2, 1982, pp. 2-4.

Treslan, D.L. "The Senior High School Control Assembly - An Administrative Alternative", Volume 5, Nos. 3-4, 1978, pp. 14-20.

Treslan, D. "A Consideration of Relevant Assumptions Underlying an Ideal Senior High School Governance Structure", volume 7, No. 2, 1980, pp. 9-18.

Treslan, D.L. "Identification of Management Constructs Requisite to A Student Participatory Model in Senior High School Control", Volume 7, Nos. 3-4, 1980, pp. 20-26.

Warren, P.J. "Trends in Non-Urban School Systems", Volume 5, Nos. 1-2, 1977-1978, pp. 10-14.

Wolfe, F. "Mode and Genre-Again", Volume 8, No. 1, 1980, pp. 17-22.

Wolfe, F. "A Measure of Oral Reading Facility", Volume 9, No. 1, 1981, pp. 13-14.

Wolfe, F. "The Matter of Choice", Volume 9, No. 2, 1982, pp. 23-29.

PART III

The Content of Education (277-554)

VOCABULARY DEVELOPMENT OF PRIMARY CHILDREN: IMPLICATIONS FOR TEACHING

Lloyd Brown
Curriculum and Instruction

When children begin school they have already learned the basis of their language. That is not to say that they know the nature of language in a conscious way, but they have an unconscious, tacit knowledge of it. For example, they can create and understand sentences that they have never heard before. They use all of the basic sentence patterns, and, with few exceptions, they have mastered all of the phonemes of the language. They make some errors in noun and verb endings, but these result from over generalization. For instance, they know that an 's' added to a noun is generally the way to form the plural, so they say or write "foots" instead of "feet". And because they know that "ed" is frequently added to the present tense of a verb to form the past tense, they may say or write "goed" instead of "went".

Two points, then, need to be emphasized. One is that children, when they come to school, have mastered many aspects of their language; the other is that this mastery is limited, that they still have many things to learn, and they experience many difficulties in learning them. The purpose of this article is to discuss the development of one aspect of a young child's language - vocabulary - and to suggest implications for teaching.

Vocabulary development is very important for success in school. For example, it is generally accepted that reading ability is highly correlated with knowledge of words. It is also generally recognized that 'an extensive knowledge of words and their meanings is one of the best single indices of general intelligence ' (Kingston, 1965, p. 265).' A wide knowledge of words is also important in thinking and expression. This knowledge, however, is not for decorative purposes or for showing off one's learning; it rather allows one to communicate one's thoughts with clarity and precision. In fact, Vygotsky (1962) goes further. He says that "Thought is not merely expressed in words; it comes into existence through them" (p. 125). This is so, he says, because a word does not refer to a single object but to a group or class of objects. Even a word with a physical referent such as "tree" does not refer to a particular tree but to a class of objects that includes many particular kinds of trees such as fir, spruce, maple, etc. In other words, the word "tree" is a generalization; but, says Vygotsky, a "generalization is a verbal act of thought;" therefore, he concludes, a word "is an act of thought" (p. 5).

Given, then, the centrality of the word in the child's learning, it is important for us to examine some aspects of his vocabulary development.

First, what is the nature of the meanings which children attach to words? How does a child's meaning for a word develop into an adult meaning?

Feifeland Lorge (1950, pp. 1-18) analysed the vocabulary of children between 6 and 14 years. They required the children to give what they considered to be the "best" definition of a given word. The responses of the children were classified as follows:

(a) synonym
(b) use and description
(c) explanation
(d) demonstration, illustration, or repetition

(e) error

For example, if the given word were ""puddle," the responses, using the above classification, might be:

(a) a small pool of water
(b) children splash in it
(c) water in the middle of the road
(d) a puddle of water
(e) the ocean

The conclusions of the experiment were as follows:

(a) As children get older they use more and more synonyms.
(b) At age 9 or higher they use synonyms more frequently than any other kind of definition.
(c) Explanation is also typical of older children.
(d) Use and description are used frequently by children age 6-7.

The point to be emphasized here is that the young child's knowledge of words is more functional and concrete than the older child's. Even abstract concepts are translated into concrete action: "Bravery is like jumping off a cliff into some water." For the young child a word represents only some particular object or some concrete instance of an event. For the older child the meanings for words gradually become more abstract, so that they include all the instances or attributes that may be combined together. For instance, "bravery" may be defined as "courage" or "daring," thus synthesizing all the appropriate concrete instances in an abstraction, a fully developed concept. It is only when the child has this mastery of abstraction that he can form genuine concepts.

Not only does a child move in his vocabulary development from concrete to abstract, but he also adds, as he matures, more features of meaning to words, thus differentiating shades of meaning. For example, the young child may describe a horse thus: "It is black, big, has four legs, is hairy." These attributes, being few and general, do not allow us to distinguish between horse and cow. The older child, however, adds many more attributes and qualifications, thus making his meaning more precise and exact. He may describe horse as an animal that "has a mane, pulls things, walks, trots, gallops, is used for transportation, is shod, is big compared to goats, but small compared to elephants." So, the child, as he matures, gradually narrows down his initial, rather general meaning of the word "horse" until his meaning of the word corresponds to the adult meaning.

This brief discussion of the development of meaning vocabulary may shed some light on difficulties young children usually have with some words. When they reach first grade, children know thousands of words (some say as many as 20,000). However, they do not use them all in their speaking; nor can they explain them all. They have encountered them, but they have a limited knowledge of them. For example, they may know only a single meaning of a multi-meaning word. They may know "game" in "I played a game of baseball," but not know it in "I'm game to ride my bike downtown." They may know "ran" in "I ran down the street," yet be confused with "He ran for parliament." This limited knowledge of multi-meaning words is universal among primary grade children. It is clear in the response of the seven-year-old girl who, when asked what "rears" meant in "The lighthouse rears out of the fog," answered, "It means the backs of something."

The fact is that such multi-meaning words are usually common words, familiar to most children, and we are apt to take a child's knowledge of them for granted, forgetting that he may know them in only one context, and, therefore, know only a single meaning.

There are other familiar words that may cause problems for the young child: it may be that the words are too abstract, or that the child has not reached the stage of intellectual development nor acquired broad enough experiences to enable him to develop precise meanings of words. Kindergarten children, for example, are familiar with the common relationship words such as "under," "beneath," "below," "over," "above," "across," but many have not mastered the fine distinctions between some of them.[2] What are the differences between "over" and "above"? Are "under" and "below" interchangeable? These are basic words in the child's everyday experience and in his reading. They are, for instance, key words in this sentence: "The dog lying by the bed, under the chair, has a bone between his paws," and must be understood to comprehend the sentence.

Connectives such as "because," "although," "but," "if," are all familiar words to primary grade children, but they are frequently the source of much difficulty. Robertson (1968, p. 416) says that, although children use dependent clauses (and, therefore, connectives) before they go to school, they do not develop a sufficient understanding of the meanings of connectives in print for a number of years later - even elementary children, the subjects of her study, experienced some difficulty with them. Piaget (1968, p. 29) points out that before age seven children rarely give logical justification for their actions. He says that one is struck by their "incapacity to find grounds for their statements." This logical difficulty may explain the problems young children have with such connectives as "therefore" and "because." Church (1961, p. 174) maintains that it is only after the child has mastered the word as abstraction that he can:

> deal with words as operators, words with little in the way of constant content but which are functional units in the construction of utterances: but, through, of, whether, and so forth.

The point to be emphasized here is that, although connectives are familiar, we cannot consider them too simple to teach except as sight words, that they are important in signalling relationships between ideas, and knowledge of them is necessary for reading comprehension.

Young children use infrequently, and have some difficulty with, words which express non-literal, figurative meanings. For example, one six year-old was thoroughly confused by a striker's sign which read, "Scabs, keep out." Another interpreted "I'm snowed under with work" as "I have a lot of snow to dig." The work of Asch and Nerlove (in De Cecco, 1967) with double-function words (words such as "hard," "bright," "deep, "which are frequently used to describe psychological as well as physical properties) also shows that young children have difficulty with words expressing non-literal meanings. Often, the children of their study in the 5-8-year group understood only the physical referent of a word - bright object, but not bright people. Only thirty-two percent of the children in this age group used the words provided to describe psychological properties, whereas in the 9-12-year group ninety-four percent of them did.

The difficulties which the young child has with figurative and double function words (when used to describe psychological properties) may have a number of causes. The nonliteral meanings of these words are far removed from the literal meanings with which

the child is familiar. His limited experience tells him that "iron" is a metal, and "fist" is a clenched hand. But this does not help him understand, "The teacher rules with an iron fist." Used literally, the words are more concrete; what they refer to is more obviously "out there" to be seen or handled. The figurative expression "iron fist" does not refer to any specific, concrete object. The teacher, that is, does not require "brass knuckles," as one pupil thought, to rule with an iron fist. But this child's difficulty is understandable when one recalls that the thinking of children in the preoperational and concrete-operational stages is bound to concrete situations. The understanding of words with non-literal meanings calls for flexibility of thought because it requires us to change the meanings previously given to these words. It also requires the ability to note similarities in the two referents - the literal iron fist and the unyielding discipline expressed by the figurative iron fist - to synthesize these into a new, meaningful whole.

These, then, are some of the important aspects of the vocabulary development of young children. What, in general, are the implications for teaching of our knowledge of these aspects?

1. Word meanings evolve with experience and intellectual development. We should, then, develop real or vicarious experiences to help children develop fuller meanings of words, and remember, that, if a word is to be understood, it should be presented to the child at his conceptual level.

2. We should help children develop new meanings for the words they already, in varying degrees, know.

3. We should be aware of the difficulty that some children (especially kindergarten pupils) may have with relationship words, and, to refine their understanding of these words, provide practice with them through discussion and concrete experience.

4. We should, in listening, oral, and written work, provide practice in comprehension of connectives.[3]

5. We should recognize, in teaching and testing vocabulary, that a word is rarely completely known, that one knows words in degrees. Perhaps the following questions may be used to guide us in analysing a child's knowledge of vocabulary:

   (a) Can the child define the word? What is the nature of his definition? (See my discussion on the way that children attach meaning to words.)

   (b) Will the child understand the word when it is used in a variety of contexts?

   (c) Can the child recall the different meanings of the word?

   (d) Can the child use the word in a variety of situations?

6. We should consider with children the way that authors use certain words to refine the children's meaning of them.

7. We should provide opportunities for children to use figurative expressions in their writing, and help them understand them in their reading.

8. To guard against "empty verbalism" we should remember, in teaching words, that to develop vocabulary

FOOTNOTES

1. For a more detailed discussion of the topic see J.H. Langer, "Better Abstract Vocabulary - Higher Intelligence Quotient." Elementary School Journal, 1967, 68, 157-161.

2. See a study carried out at the University of Alberta by E.M. McLeod in 1969, "Kindergarten Children's Understanding of Prepositions of Spatial Position."

3. For details of lessons dealing with connectives see an internship report by Stephen Anderson prepared in 1979 at Memorial University, "Testing and Teaching Grammatical Connectives to a Special Grade Six Class."

REFERENCES

Asch, B. and H. Nerlove. "The Development of Double Function Terms in Children: An Exploratory Investigation." In J.P. De Cecco, **The Psychology of Language, Thought, and Instruction**. New York: Holt, Rinehart and Winston, 1967, 276-290.

Church, J. **Language and the Discovery of Reality**. New York: Vintage Books, 1961.

Feifel, H. and F., Lorge. "Qualitative Differences in the Vocabulary Responses of Children." **Journal of Educational Psychology**, 1950, 41, 1-18.

Kingston, A.J. "Vocabulary Development." **Journal of Reading**, 1965, 8, 265-271.

Piaget, J. **Six Psychological Studies**. New York: Vintage Books, 1968.

Robertson, J.E. "Pupil Understanding of Connectives in Reading." **Reading Research Quarterly**, 1968, 3, 387-417.

Vygotsky, L.S. **Thought and Language**. Cambridge, Mass.: The M.I.T. Press, 1967.

LANGUAGE DEVELOPMENT AS A FRAMEWORK FOR BEGINNING READING

Ethel M. Janes
Curriculum and Instruction

Beginning reading is dependent on language development. Reading does not begin only after the attainment of a particular level of reading readiness as measured by a reading-readiness test. All of the children's reading-related activities in the pre-school years can be considered part of beginning reading. At a very early age many children pretend to read, indicating that they have begun to realize the printed material conveys meaning. They have discovered the essence of reading, or, as James Britton (1977) says, they know what reading is.

While helping her mother open Christmas cards, one two-and-a half-year-old child announced that she would "read this one." The picture showed Santa Claus riding a bicycle, although lightly falling snow was beginning to accumulate on the roadway. He was carrying his sack from which were steaming cards inscribed "Season's Greetings" in different languages. She read:

> Here is Santa. He is riding on his bicycle. It is snowing. But if the snow comes, I think he will have to get his sleigh.

At that early age she had developed a sense of story, and she certainly knew that reading is concerned with meaning. Although she did not know that particular combinations of letters represent particular words, and maybe could not differentiate between words and letters, she was reading that Christmas card. It is interesting that she developed a story instead of just naming the objects and events in the picture. As a good reader does, she read beyond what the author (or, in this case, artist) said.

For too long, reading-readiness programs have ignored children's knowledge of language and of the world. In recent years the situation has improved and some opportunities are provided for children to use their knowledge. But there is also, in some instances, a great deal of attention given to letter-sound relationships. Reducing printed words to individual letter sounds and recombining the sounds to form spoken words, however, does not ensure reading with understanding. Indeed, it usually neglects meaning. This approach stresses word identification rather than meaning and may produce word-callers who do not relate their reading to their prior knowledge of the topic. Report cards of children taught by this method in grade one often record a high grade for phonics and a lower one for comprehension. But sometimes we find report cards indicating that comprehension is very good and phonics is only good. In the latter situation the children know what. reading is, but it is not evident that the others do. Let us, then, delay the teaching of phonics until children know what reading is and how phonics may help them in their reading for meaning.

All children come to school knowing what language is. They cannot explain what it is, but they use it meaningfully. Their sentences are grammatical, but they are not the kinds of sentence necessarily found in readers. They are grammatical in that the parts are ordered, or the words interact, to convey meaning. For example, the child may say, "I owns that dog," but he never would say, "I that owns dog" or "That dog owns I (or me)." The first sentence is grammatical and meaningful, although the usage is not at a high level of acceptability; the second is not grammatical and not meaningful, and no child

would produce it; and while the third is grammatical, it is not meaningful except in a humorous way. Just recently a five-year-old boy, reading an unfamiliar selection in his reader, demonstrated that he demanded meaning from his independent reading. After reading these three lines (Kambertz, Burns, and Proctor, 1968), he paused to say, "That

> Can you see?
> Can you see
> A surprise on a jet? (p. 58)

doesn't make sense." (He had read the second line with the same intonation as the first.) When it was suggested that he read the second and third lines without pausing after the second, he did so and agreed that they then made sense. He still insisted, however, that the first line did not make sense. Although he has a good knowledge of language and of the world, his sentence patterns apparently do not include questions that have no ready answers. That understanding will come soon as he interacts with people and as he continues to read, skipping the occasional construction that doesn't make sense and that is not crucial to the meaning of the passage.

We can see in their ability to use language to communicate with others that children entering school have a wide knowledge of language. But how did they learn that language? Nobody taught them rules for constructing sentences, nobody spent hours insisting that their utterances should communicate meaning to their audience, and certainly nobody taught them all the sentences they speak. They clearly generate their own sentences, so that they must have developed, or acquired in some way, a set of rules of grammar. They have learned all of this through using language in interacting with others. It is true that imitation probably plays some part in language acquisition, but imitation cannot account for a child's seeming regression when, for example, he internalizes rules for adding endings to indicate plural, comparison, or tense, and overgeneralizes their application. One five-year-old proudly pointed out all the G's on his first report card, saying, "I think that I must be the goodest boy in the class." He knew the word best, but maybe best was not really the meaning he intended. It was the number of G's that was important.

A five-year-old girl, who was a member of a group discussing summer plans, explained: "We're going camping. We're going to Gander and Grand Falls and New Brunswick, and that's a long while." Now that is not what an adult would have said, but there is no doubt about what she meant. And she put all her ideas together so beautifully. Let us consider another example. A seven year-old boy and a six-year-old girl were talking about their plans for the weekend. The boy said, "Oh, we're just going in the country." (The country meant his summer cabin.) The girl replied, "I'm going to my country too." All of these children communicated meaning effectively, but they were certainly not imitating a more adult speaker. (It is not clear whether "that's a long while" meant "that's a long distance" or "that will take a long while," or whether "my country" meant "my cabin" or "visit friends in the country." The exact meaning was not necessary for effective communication). In developing this ability to communicate effectively, all that children need is interaction with others whose responses tell them whether they are communicating their ideas. When their utterance has the desired effect, they have succeeded; but when it does not, they try another approach. In other words, children learn language through using it.

At home children usually have plenty of opportunity to use language, and they do not have to wait for their mother or father to initiate verbal interaction. In fact, most of the

time they are the initiators. How different the situation is in school! There the teacher most frequently initiates verbal exchanges with the children. Even in the most open situations each one has to share the teacher with many other children and to learn to conform to a more structured situation than is present in the home. This structure must always be sufficiently open to encourage, rather than stifle, further development of the language they used at home. There they learned to anticipate meaning from listening; at school, they will have to learn to anticipate meaning from print also, if they have not already learned to do so at home. They have to understand that print can be turned into speech that conveys meaning. They also have to understand that print moves from left to right, that a printed word is preceded and followed by a space, and that a letter is different from a word. These are concepts that we sometimes take for granted, but even children who know what reading is all about do not necessarily have them. Again, these are most easily taught and acquired as the children interact with books or with their own language in print. As Marie Clay found in her research in New Zealand, attempting to teach these concepts in isolation "only slows or interferes with the rate at which they are acquired" (McDonell and Osborn, 1978).

For some time now in Newfoundland, we have advocated an integrated language arts program in the primary grades. We say that language and reading cannot be separated, yet in our readiness programs we often have given insufficient attention to the wealth of knowledge of language and the world that the children bring to school. Their language should be the framework within which we teach them to read. In the process of developing their language they have' used their knowledge of context (what they know about the world) to understand speech. That is, they have used their prior knowledge of the subject and of the words already used by the speaker to anticipate or predict what might come next. In school, this ability is extended when in reading a poem or story the teacher, through a slight pause, encourages children to supply with her the next word. They get a feeling for words that "go together," because feedback as to the appropriateness of their predictions is given immediately as the teacher speaks the word. In the reading situation, also, children should be helped to use their prior knowledge of the subject to anticipate or predict words. As they read they gain more knowledge, which enables them to make better predictions or guesses, and the necessary feedback comes when they ask themselves, "Does it makes sense?" If it does, they can read on; if it doesn't, they will reread to make corrections, or maybe they will just know what was wrong and correct it next time. But here the teacher has to free herself to allow the children to make mistakes without her immediately correcting them. When they were learning to use language, nobody at home became upset when they experimented with words and sentence structure. Rather, they were encouraged to use language. Now that they are beginning to read they need the same kind of encouragement so that they can learn to read through reading.

Introducing children to reading instruction through experience charts is bound to be meaningful to them, since the language of the charts is their own. Through these charts the teacher can teach reading as an aspect of language or a part of the language process rather than as a set of skills. The children watch their speech being changed to print, and as they and the teacher read it, the print is changed back to speech which conveys a message - to them an important message. Constructing and reading experience charts helps children recognize that printed words represent the language they speak. They are interacting with their own experience. That is, they must make the transition from reading their own language to reading book language.

Before interacting with an author's experiences through independently reading print, children should have many opportunities to do so through listening to others reading good children's literature. Through these experiences they accomplish a number of things. They enlarge their knowledge of the world as they think about new information in terms of their prior knowledge. And, last but not of less importance, they experience an enjoyable activity that can help them develop a love for books, which is marvelous motivation for learning to read.

Children need to have books read to them each day, both before and after they begin to read independently. There should be a balance among the kinds of material the teacher chooses for reading aloud or for them to read. There should be fiction, both realistic and fanciful; there should be poetry, including nursery rhymes, story poems, and any others that the teacher enjoys reading; there should be animal stories, both talking animals and animals as animals; there should be fairytales; and there should be informational books. The types chosen should be those the children enjoy. Otherwise, instead of providing motivation, they may make reading unattractive. The message communicated to the children must be one that has importance for them or that delights them.

Through listening and reacting to what they have heard, children develop strategies for understanding spoken language. This is a part of language development. In school the teacher must not only provide a good language model - in vocabulary, snytax, and choice of books for reading aloud - but also provide opportunities and encouragement for children to use their language freely so that they may enrich and extend it. There should be situations that make them feel a need to communicate with others. This requires a flexible classroom climate where children can choose at least some of their own activities. After children have begun to read, these language situations will, on occasion, provide corrective feedback for their reading. In such situations, too, children have a desire to read, because they are surrounded by written language that they need to understand.

Children have to become aware that reading is similar to listening, or, as Kenneth Goodman (1972) says, "the direct counterpart of listening." It must make sense just as listening must. They developed their own strategies for understanding listening and will develop their own strategies for understanding reading. The teacher is more of a facilitator than instructor here, helping the children use graphic, syntactic, and semantic clues to derive the meaning the author intended. In listening, kindergarten children have become somewhat proficient in the use of syntactic and semantic information, although there is not a level of proficiency common to all children. Use of graphic information to convey meaning, however, is new to many. They do not distinguish between letters and words; and even the ability to name letters does not help with reading at this stage. They will easily learn some words - remember the visual symbol - through seeing their experience stories written and through reading them, and they will remember word labels, provided the labels are functional. The context in which they occur gives the children an idea of what the words are likely to mean. They will each try to read those words and those books that are of special importance or interest to them. Pictures will aid them, as will their knowledge of the story, that is, what they remember from listening. At first the reading has to be done for them, but as they begin to gain competence, they just need help - when they really need it, that is, not as soon as they stop or miscall a word. To interrupt as soon as they say on for in, or house for horse, is to frustrate their development of the most basic strategy of all, and, besides, it makes them feel incompetent and afraid to risk making a mistake. It is much better to let them read on

until they realize that something is wrong and then to reread and correct it, or to ask for help.

Word identification is, of course, important in the reading process, but meaning is more important than accurate oral reading. If the mistakes, or miscues, are important enough to be corrected, they will interfere with meaning, and the answer to "Does it make sense?" will have to be "No". And then the reader will find it necessary to go back. If they do not interfere with meaning, they can be dealt with at another time, if necessary. As for word identification skills, context clues, which for many years have been considered the most important single aid to word recognition, retain their importance. Phonics, however, has been over-stressed. It is important to teach some phonic principles, but many that are stressed in phonics programs are practically useless, especially for beginning readers. Phonics will make much more sense to them later when they can see the situations in which it might be useful. Furthermore, at the beginning of their learning to read, children cannot cope with sounding out words and comprehending the message.

Because children enter school at different levels of language development and with different kinds of knowledge about the world, the teacher has to be sympathetically aware of, and to make provision for, each child's feelings, interests, and abilities. Frank Smith (1978) says,

> Where children have difficulty in reading, teachers must see that they are helped. In part, this assistance can be given by developing the confidence of children to read for themselves, in their own way, taking the risk of making mistakes and being willing to ignore the completely incomprehensible. Even bizarre personal interpretations are better than none at all; children find out soon enough the mistakes that make a difference. (p. 187)

Smith's last statement is significant, for it implies that children learn a great deal that cannot be taught. Sometimes we get in children's way, and through our teaching of skills keep them from reading. We spend so much time teaching them how to read that they have no time to read. Let us remember that reading is an aspect of the language process. Just as children learned language through using it, they will learn to read through reading. And so, even in the beginning stages, children need time to practice reading.

REFERENCES

Britton, James. Language and the nature of learning. In James R. Squire (Ed.), **The Teaching of English**. Seventy-Sixth Yearbook of the National Society for the Study of Education. Chicago: National Society for the Study of Education, 1977.

Goodman, Kenneth S. Reading: The key is in children's language. **Reading Teacher**, 1972, 25, 505-508.

Kambertz, M., Burns, D., and Proctor, J. **What a dog**! Pre-Primer One of the Integrated Language Program. Toronto: Ginn and Company, 1968.

McDonell, Gloria M., and Osborn, K. Bess. New thoughts about reading readiness. **Language Arts**, 1978, 55, 26-29.

Smith, Frank. **Understanding Reading** (2nd ed.). New York: Holt, Rinehart, and Winston, 1978.

A MEASURE OF ORAL READING FACILITY

Frank Wolfe
Curriculum and Instruction

If we might view diagnosis as simply apart of the job function of the working classroom teacher of reading, and if we might consider diagnosis itself not as an exercise in evaluation but as a structured interaction setting within which certain reading behaviours can be provoked, such behaviours then to be interpreted by the teacher, we could then proceed to the construction of diagnostic devices themselves. Certain members of our profession have committed themselves to this set of assumptions, then to work, as a consequence of which we can now point to a number of procedures and kinds of devices which would appear to have proved their worth. All are "informal" instruments; each is designed to focus attention upon just one kind of response pattern; all are simply tools of the trade for the working teacher. Each is dependent upon the interpretive skills of the teacher.

One such device is what I have chosen to call an ORF: a measure of "oral reading facility". To this time it has been used with many youngsters, elementary and secondary level - indeed, I still use it myself as a matter of course. (Perhaps I should explain that it was constructed originally to fit the immediate needs of seventy-six budding diagnosticians in Michigan. To my knowledge, it is still being used.) Terribly modest though it is, it works. It works principally to. get a quick fix on the present performance level of a reader. Such information can be significant in certain places.

Let me present this instrument in stripped format, acknowledging immediately the written permission of the publisher of the actual reading matter used in constructing the device. Any working teacher might choose to construct such an instrument, based upon whatever connected discourse she thinks appropriate.

Oral Reading Paragraphs

(Selections from **Basic Reading Series**, 1966 J.B. Lippincott Company. By permission).

Pre-Primer

Tom sat on a rug.
Pat sat on a cot.
Tag sat on the rug.
Tag is a pet cat.

Tom and Pat run to the man.
The man has a pet dog.
The dog has a hat.
His hat is red.

Primer

A goat sat near the side of the road.
He was an old, fat goat.
His coat was black as coal.
The goat saw a green toad go down the road.
"I want to hop like a toad," said the goat.

1

The bears had three beds in their house.
One was a big, hard bed.
Father Bear slept in it.
One bed was not so big and not so hard.
Mother Bear slept in it.
Then there was a tiny, soft bed.

2

The old man did see his pet deer again.
Sometimes he would see him racing through the woods,
or just standing still, looking at his old friend.
The deer grew big and strong and had fine antlers.
He became a great fighter.

3

Something had to be done, and luckily
Brownies can do things that nobody else can do.
He thought he would change himself into a mouse,
and gnaw a hole through the door.
But then he suddenly remembered the cat.

4

There was droning sound among the leaves beside him and a big fat bumblebee came around the edge of a leaf right in front of Tiger's nose. Tiger's experiences with bees of various kinds had not been very comfortable.

5

Everything that Dr. Carver touched turned into a kind of riches. Nothing that went into his laboratories came out without having found its proper use. Paving blocks came from cotton, rubber from sludge, potent medicines from barks and herbs.

6

At seventeen, young Jefferson left the plantation to enter William and Mary College. He was six feet two inches tall, thin, loose jointed, and awkward. His hair was a sandy red, his freckles were still prominent, and his features were angular.

7

When fog hides the lighthouse and its beacon, mariners are warned of danger by distinguishing blasts from its giant foghorn. The shrouded light can be identified by the number of seconds of silence between blasts and the duration of a single blast.

8

By what he calculated was eleven o'clock, the wind had become unbelievable. It seemed to him that he had become light and ethereal; that it was he that was in motion; that he was being driven with inconceivable velocity through unending solidness.

SCORING

1. Administration time: 4 - 10 minutes.

2. Validity is based upon the readability level built into the basal. (In effect, we trust J.B. Lippincott Company)

3. The language is presented just as it appears in the basal text.

4. The paragraphs are from 39 to 42 words in length.

5. Accuracy is judged immediately by the examiner.

6. Two recognition errors = 95 percent accuracy.

7. Testee proceeds until he exceeds 2 errors per selection.

8. "Instructional Level: Oral Reading Facility" is the level preceding the selection in which cut-off was established.

THE DEPICTION OF THE DISABLED IN JUVENILE LITERATURE - A REVIEW OF THE CRITICISM

Betty Brett
Curriculum and Instruction

Although the terms disabled and handicapped are often used synonymously, it is frequently social attitude which determines whether or not a disability is indeed a handicap. The year 1981 has been designated as The International Year of the Disabled. Throughout this year public attention has been focused on the disabled and the social attitudes which make it difficult for them to function as contributing members of society. The emphasis has been on attitudinal change based on understanding, and the involvement of the schools has been significant. Certainly the schools may play a leadership role in destroying for children stereotypic images of the disabled. One of the ways in which it may do this is through the use of carefully selected literature. Through encounters with fictional characters presented honestly, realistically, and convincingly, even young children may come to understand and appreciate those individuals who suffer from physical or mental impairments. Recently there has been a spate of books featuring disabled individuals in both leading and supportive roles. Not all of these books are of comparable literary merit, however, nor do all of them depict the disabled characters appropriately. There is a danger that maudlin sentiment may be substituted for genuine concern, and pity, for empathy. Those who select books for children will be helped by an awareness of what the critics of juvenile literature have to say regarding the acceptable portrayal of disabled.

That there is little criticism of books about the handicapped is, perhaps, not surprising. Society has been slow to accept disabled people into its mainstream, and books are mirrors of cultural practices. Negative perceptions of the disabled have, in the past, pervaded almost every aspect of society. Objects of curiosity, fear, and superstition, disabled individuals have been ignored, ostracized and ridiculed. Physical and mental handicaps have been considered as identical or concomitant ills, and associated with them have been poverty, ugliness, guilt, loneliness, alienation, rejection, and helplessness. Emphasized have been the characteristics which segregate the handicapped, rather than the common humanity of all people. More recently, increased knowledge and understanding of the nature of physical and mental disabilities have resulted in the quickening of the social conscience regarding the rights and needs of disabled people. Baskin and Harris (1977) report, however, that still, "daily experience provides ample evidence that the disabled are not considered part of the mainstream of the common citizenry." (p. 11)

In the critical literature the term handicapism has been used to refer to the prejudice, discrimination, and stereotyping practised by society against disabled peoples, and, like racism and sexism, it has connotations of the host of negative attitudes with which society often regards minority groups. One manifestation of handicapism, Bikler and Bagdan (1977) believe, is the reflection by the media of just such negative images and attitudes. (p. 5) Baskin and Harris (1977) believe, however, that books of excellence for children may effectively counter such portrayals. Maintaining that better and more complete acceptance of the handicapped will result from increased contact with them, either through actual experience or through honest portrayals in literature, they say:

> Books that children read provide continuous stimuli through their formative years, and latent and overt messages in stories of exceptional individuals

> accumulate to form subsequent perceptions. Literary presentations that avoid distortion and that accurately reflect the reality of impairment, help readers separate the disability from the false superstructure imposed by society.
>
> (p. xv)

Although the amount of criticism on the subject of handicapism is minimal, authors, publishers, and consumers of such books may find a useful critical base in what does exist. What emerges is a clear and perceptive analysis - albeit incomplete - of the positive and negative features of books depicting the handicapped. Primary concerns in the criticism examined are the techniques of the author in the presentation of the handicapped, and the image of the handicapped that emerges. The problems of language and propaganda do not, in the criticism, assume the proportions that they do in the criticism of racist and sexist books, though it is obvious that the potential for both may be present. Criticism of language is of an indirect and general nature, relating to the demeaning of the handicapped through the figurative and idiomatic use of language in such expressions as 'a lame duck,' 'a blind alley,' 'deaf as a post,' or 'blind drunk'; and the use of euphemisms such as 'slow learner' or the 'emotionally ill" to refer to unpleasant or objectionable situations. The observation is that idioms derived from disabilities are always negative, and that they, as do the euphemisms, reveal unconscious values and beliefs about disabilities. (Baskin and Harris, 1977, pp. 7-8). Some reference is made also to the frequent use by authors of slurred and stumbling speech as a characteristic of almost any physical or mental impairment, and often portrayed as the object of ridicule. (p. 7)

In the literature reviewed the one reference to the danger of confusing art and propaganda was made by Baskin and Harris (1977) who refer to "literary manipulation" which may be "counter productive." (p. 48) They comment:

> Many advocates of out groups assert that the public must be saturated with models that reflect prodigious accomplishments or quintessential goodness - models that are antidotes to the ubiquitous stereotypes found in many cultural forms. This posture frequently surfaces in children's literature where the focal character is so idealized that resemblance to an actual person vanishes. The result is a packaged item, like a gas ripened tomato, superficially attractive in its untroubled perfection, but without taste, substance, or relation to its real counterpart.
>
> (p. 49)

They add further that any practices which attempt to obliterate unfavourable portrayals from the literature will be self-defeating. (p. 49) What is important is not that the disabled always be presented in a positive manner, but rather that their depiction be honest. The honest portrayal of any individual or group may include negative as well as positive features. A negative image of any individual or group, regardless of race, sex, age, or physical fitness, is appropriate when such a portrayal is justified by context and is not merely a stereotype.

Reference has already been made to the work of Baskin and Harris (1977). Their Notes from a Different Drummer: A Guide to Juvenile Fiction Portraying the Handicapped, the most significant contribution to the evaluation of the literature depicting the handicapped, provides both descriptive and critical analysis of more than three hundred juvenile books published in the period 1940-1975. The philosophy on which this

valuable collection is based is that "impairment should neither be exaggerated nor ignored, neither dramatized nor minimized, neither romanticized nor the cause of devaluation." (p. xv) The authors believe that people with impairments are human beings with human idiosyncrasies. They have human needs and desires; human hopes and fears. Neither saints nor sinners, neither superheroes nor social parasites, the handicapped are possessed of strengths and weaknesses, wisdom and folly, industry and slothfulness. In short, within the constraints of their particular disability, they are like the rest of society, and it is as such that they should be portrayed in books for children. This is equally true whether they play major or minor roles. Schwartz (1977), who shares that viewpoint, charges that some authors portray the disabled as handicapped, and by always using examples of people like Helen Keller and other disabled superachievers, both authors and society minimize the no less valiant struggle of ordinary people. (p. 15) This is not only undesirable, it is inappropriate.

In assessing items for inclusion in their guide Baskin and Harris are especially critical of books which portray the handicapped in any "patronizing, pitying or romanticized" manner, and it is their judgment that a book will succeed or fail on the basis of its literary excellence, regardless of the integrity of its intention. (p. xiii) The ideal book, they believe, would combine excellent writing, wide appeal, and honest and sympathetic portrayal of people. (p. 54). Because such books on any subject are rare, they have made some compromises in their selection. In their interpretative and literary comments, however, they consistently draw attention to both messages and merit and the successful integration of the two. Since, in books for young children, the illustrations carry much of a book's impact, they note with concern the usual omission from illustrations of all representations of aberrations, even when characters have obvious impairments. Such omissions, they declare, are expressions of a negative attitude toward the disabled.

Not all books which focus on the handicapped communicate attitudes which are equally positive or healthy. Describing much of the literature about the handicapped as "infused with emotions that call for tears and lamentations", Frank (1969) concludes that well written books should evoke compassion that is informed rather than sentimental, and strengthening rather than resigned." (p. 136) Baskin and Harris (1974), however, believe that the best writing will evoke empathy; and empathy, which focuses on "acceptability based on knowledge and closeness", is a more positive response than is compassion, which concentrates solely on suffering. (p. 56) Haynes (1974) in his perceptive analysis of Let the Balloon Go (Methuen, 1978), 1 Can Jump Puddles (Chesire, 1973) and I Own the Racecourse (Hutchinson, 1968), states that each of the books is successful in developing this empathy in the reader"by enabling him to see the world through the eyes of the handicapped child." (p. 17) Haynes examines the authors' treatment of spasticity, infantile paralysis and mental retardation. The handicaps are different, the authors' techniques are different but collectively these books exemplify some of the best aspects of literature about the handicapped. In discussing these Haynes draws valid conclusions which have generalizations beyond the three books under discussion. He points out, for example, that superstition often surrounds the handicapped, that the physically handicapped are not necessarily mentally handicapped, that parents are often overprotective of handicapped children, that society tends to emphasize the difference between the handicapped child and the normal child, that even parents and peers, as well as society at large, subject the handicapped individual to cruelty. He shows how the authors of the books under discussion handle these problems positively and effectively. Haynes defends Southall's graphic depiction of a spastic attack (I Own the Racecourse), claiming that nonhandicapped - adults as well as children -

need to confront the realities of the handicapped in order to understand their point of view, for it is of such understanding that empathy is born.

In an attempt to determine how fictional characters manage deafness, how novels of the deaf may be improved, and future directions for such novels, Groff (1976) analyzes six novels in which deafness is portrayed. He discovered that in all six novels the author is successful in developing an empathy between the deaf child and the other characters and that all books end on a happy note. The inevitable happy ending Groff questions, believing that the problem of the deaf child may be more realistically presented if some note of tragedy were permitted. As alternatives to the happy-ending approach, Groff suggests three options for authors. Authors may, he suggests, continue to write as before, evoking sympathy for the psychological status of the deaf child, but minimizing the assurances that circumstances will improve; they may have more characters who engage in exploits of daring and adventure with little or no references to their deafness; or they may use a fantasy approach in which all problems related to deafness are solved "either by futuristic scientific events or devices, or by magical bodies, forces, charms, or implements." (p. 201) Groff also suggests that, to be more psychologically attractive, novels for the deaf need to be more humorous, mysterious and adventuresome. His theory regarding the most effective approach to writing for the deaf may be generally applied to writing depicting any disabled people. He says:

> 3. the prevailing supposition in children's literature, that the best way to change present-day apathy toward the deaf to an interest in and acceptance of them is to continue recounting the miseries of their emotional ghetto, is wrong. What is needed is the creation of aggressive and productive characters who prevail because of their handicap, rather than being its mean-spirited or pitiable victims.
>
> (p. 201)

Groff's insistence that the handicapped be portrayed as "aggressive" and "productive" human beings finds unqualified support in the critical literature. Baskin and Harris (1977) demand that characters with exceptionalities be treated as people, rather than devices (p. 34), and they identify as literary flaws the "vague and insubstantial treatment of the disabled", and characters who are "so sweet and good as to be offensive." (p. 54). Huck (1979) believes that well written stories of disability should evoke respect for what the child can do rather than pity for what he cannot, and that characters should be ""multidimensional persons with real feelings and frustrations" (p. 422); and Haynes cites as one of the strengths of I Can Jump Puddles the attitude of the parents toward their son's handicap.

In the most comprehensive statement of criteria in the literature examined, Bikler and Bagden (1977) warn against depicting disabled people only in a receiving role. Rather, they demand that they be presented as multi-dimensional individuals, in a wide variety of situations, capable of a full range of human emotions, neither the perpetrators nor the victims of violence, interacting as equals, and giving as well as receiving. (p. 9)

What is of primary importance in books about the handicapped, as it is in books about race or sex or any other subject, is the honest and sensitive portrayal of both situation and character by an author who recognizes that any message he communicates is subordinate to his artistic creation. With reference to the criteria by which any book for children should be evaluated, Tucker (1972) suggests:

> One might ask of a children's book whether it offers a child simply one viewpoint which is perhaps rather like the child's own, or whether it offers two viewpoints, which is the beginning of wisdom. (p. 56)
>
> The best books about the handicapped will offer the child that wisdom of which Tucker speaks.

Synthesis and Emerging Principles

The amount of criticism related to books about the handicapped is small, reflecting perhaps the lack of recognition which, until recently, society generally has afforded this segment of the population. Such criticism as does exist presents an effective analysis of the books, focusing on the techniques of the author in the presentation of handicapped characters, and on the images those characters portray. Problems related to language and political propaganda do not assume, in the criticism of writing about the handicapped, the importance which has been attached to them in the criticism of sexism and racism. The question of political propaganda does not arise in the criticism reviewed. Criticism of language relates exclusively to the use of negative, figurative, and idiomatic expressions derived from disabilities. The prevailing criticism is that of stereotypic presentation of characters, and in this regard the critics denounce the perspective of many authors. The critics agree that disabled characters should be featured in children's books in both major and minor roles, but they insist that a clear distinction must be made between a disability and a handicap, and that no disabled individual should automatically be depicted as handicapped. The critical consensus is that physical and mental impairment, in both text and illustration, should be neither ignored nor exaggerated, neither minimized nor dramatized, neither romanticized nor patronized. Individuals with disabilities should be treated as full human beings, possessed of all the strengths and weaknesses, vices and virtues, to which human nature is prone. They should be portrayed neither as suffering saints nor deserving sinners who have been punished, but as ordinary individuals who, within the constraints of their particular disability, function as 'normal' citizens. Such characters should be portrayed in multidimensional roles, neither totally helpless nor dependent, but contributing to society as well as receiving from it.

Writing which features the handicapped, must succumb to neither sensationalism nor sentimentality, but must portray both character and situation with honesty and sensitivity. The best writing will evoke respect for what disabled individuals can do rather than sympathy for any limitations their disabilities may impose. It will evoke empathy rather than compassion; it will convey a picture of a community in which members possessed of varying degrees of well-being live together in a climate of mutual respect and support. It is better to omit the disabled entirely from children's books than to present them as objects of suspicion, fear, derision, repulsion, charity, or pity. Any acceptable presentation of them will be justified by the development of an 'artistic whole' in which they play natural and contributing parts.

BIBLIOGRAPHY

Baskin, Barbara H. and Karen H. Harris. **Notes From A Different Drummer: A Guide to Juvenile Fiction Portraying the Handicapped**. New York: R.R. Bouker, 1977.

Bikler, Douglas and Robert Bagdan. "Media Portrayal of Disabled People: A Study of Stereotypes." **Bulletin. Interracial Books for Children**, 1977, 8, 4-9.

Frank, Josette. **Your Child's Reading Today**. Rev. ed. Garden City, New York: Doubleday, 1969.

Groff, Patrick. "Children's Fiction and the Psychology of Deafness." **School Librarian**, 1976, 24, 196-202.

Haynes, John. "No Child is an Island: Three Books That Focus on Handicapped Children." **Children's Literature in Education**, 1974, 15, 3-18.

Marshall, Alan. **I Can Jump Puddles**. F.W. Cheshire, 1973.

Southall, Ivan. **Let the Balloon Go**. Methuen, 1978.

Tucker, Nicholas. "How Children Respond to Fiction." **Children's Literature in Education**, 1972, 9, 48-56.

Wrightson, Patricia. **I Own the Race-course**. Hartcourt Brace Jovanovich, 1968.

CHILDREN'S LITERATURE AND THE DEVELOPMENT OF IMAGINATION

Lloyd Brown
Curriculum and instruction

Literature and reading in the elementary school have, for some time, been linked unhappily together. During the nineteenth century, Nila Banton Smith (1967) tells us, the emphasis was on the use of reading for literary appreciation. However, gradually utilitarian reading supplanted the development of literary appreciation. At present, although many of the reading texts are largely literary - that is to say, their selections are mainly poems and stories -the primary focus is still on reading skills, the practical aspects of reading. Many guidebook writers and teachers, once they have dealt with phonics, word analyses, and vocabulary development, seem to have difficulty developing questions and activities appropriate for teaching literary works. I was forcefully reminded of this recently when observing a student teacher. She introduced a story set in Norway to a Grade 4 class. After introducing the new words and asking some factual questions about the story, she seemed stymied. Out of what seemed to me to be desperation, she divided the class into groups and asked them, on the basis of the story, to compare Norway and Canada. One child, wise beyond his years, said to me that he didn't think it was a very good thing to do because, as he put it, "the story isn't true". Though we may question the completeness of this child's meaning of "true", his point is important. An author does not write stories to teach us historical or geographical facts. He is not concerned with propositional knowledge but with feeling knowledge; not with facts but imagination. The point to be made here is that this was an inappropriate activity, nonliterary.

If a teacher is to know the appropriate questions and activities to be assigned in teaching the reading of literature, he must know something about the nature and purpose of literature. In this way the teaching of the reading of it will reflect its essential qualities. Literature, unlike history or science, is not concerned with facts or information. It is a product of the human imagination and its primary contribution is to the development of the imagination. This discussion of what I will call "the literary imagination" will, I hope, serve two purposes: one to show that literature is not just an embellishment, a frill, and the other to distinguish what I consider to be the essential characteristics of literature.

Imagination has often come under severe criticism. Theseus's speech in A Midsummer Night's Dream crystallizes most of the misguided views on it:

> The lunatic, the lover and the poet Are of imagination all compact. The poet's eye, in fine frenzy rolling, Doth glance from heaven to earth, from earth to heaven; And, as imagination bodies forth The forms of things unknown, the poet's pen Turns them to shapes, and gives to airy nothing A local habitation and a name. (V. 1)

Here imagination is equated with the irrational, delusion, lunacy. It cuts people off from reality. This is not what I understand by literary imagination. What, then, do I understand by it? What are its components?

Literary Imagination Creates

Literary imagination does not describe, it creates. This is true for both poetry and prose narrative, though it may seem to be more obviously so in the latter. First, poetry. The Concise Oxford Dictionary defines black as "opposite to white, colourless from the absence ... of all light". Compare this with Mary O'Neill's (1961) poem "What is Black?":

> The sound of black is "Boom! Boom! Boom!" Echoing in an empty room. Black is kind It covers up The run-down street, The broken cup.
>
> Black is a feeling Hard to explain Like suffering but Without the pain. Black is beauty.
>
> Think of what starlight And lamplight would lack Diamonds and fireflies If they couldn't lean against Black. (pp. 19-21)

What are the differences? The first tells us about, is general, is not concerned with feeling. The second calls for personal response, is concerned with feeling, is particular, creates the multiple qualities of blackness, gives us black, as it were, from the inside.

Prose narrative, fictional or real, seems to me to be even more successful than lyric poetry in giving us this perspective on things from the inside. It creates a complete world with its door always open and the welcome sign out inviting us into participate, as spectators, in the action; to meet the people, to feel the physical and moral struggles, to laugh and cry, to love and hate, to feel joy and loneliness with the inhabitants. This is really different from history or journalism. Consider this extract from the Halifax Chronicle, May 11, 1914, included in Cassie Brown's (1974) Death on the Ice:

> Charlottetown, May 10- On Sunday morning a lobster fisherman employed at S.C. Clarke's factory at Bloomington Point, on the north side of the island, found the body of a man frozen fast in a floating ice cake about a half mile from the land. Having nothing in his boat with which to cut the body loose from the ice, the fisherman had to abandon it....The dead man was evidently a sailor or fisherman, judging by his clothing, and it is thought to be one of the Newfoundland sealers. (XIII)

This is mere telling about, without feeling, at a distance, and is not meant to engage the feelings and emotions of the reader. Death on the Ice, however, is not about the disaster; it is a recreation of it. It does not describe a body "thought to be one of the Newfoundland sealers". Cassie Brown recreates the texture of the experience; we feel, in reading the book, the tension, the uncertainty, the danger. We share the faith, the sense of the mystery of life, the fear, the hope, and the strength and courage of these men. This knowledge is experiential, a feeling knowledge. Consider this example and compare it with the piece from the Halifax Chronicle:

> Suddenly there appeared before them out of the drifting snow the form of a man crawling on his hands and knees. Slowly, painfully, he came and Cecil recognized him. "It's Ezra Melendy!"
>
> ..."What are ye doin' on yer hands and knees, Uncle Ezra?" he asked.

> The older man sat back on his heels, holding up two frozen hands. "I lost me mitts an" me hands is wonderful cold", he murmured.
>
> "I'll find 'em, sir", Cecil told him, and, following Melendy's trail through the snow, found the mitts, as stiff and frozen as the man's hands. "Heretheyare, Uncle Ezra", Cecil said.
>
> Still kneeling, because his legs were frozen also, Ezra held out his frozen hands, but the stiff, icy mitts could not be forced over them.
>
> ...Cecil took his sculping knife, slit the mitts along the side and fitted them over the frozen hands. Ezra nodded. "That's better".
>
> Then he crawled off slowly and painfully into the drifts to die. Soon after, Cecil saw his frozen body on the very edge of the pan. Slush, tossed up by the sea, was covering Uncle Ezra gradually in solid ice. (p.165)

This is not just "a body"; it is the body of a man we know, who a short while ago was a living soul. We don't just learn about an incident, we learn what sorrow is by experiencing another man's. This is the strength of literature; it allows us to know the world feelingly, to put ourselves in another's shoes. This is especially important for young children. It is difficult to discuss with them, cr to tell them about retardation, individual rights, old age, or death in the family. Literature allows them to experience these vicariously. Consider Robert Peck's (1972) A Day No Pigs Would Die, the story of a boy growing up on a Vermont farm, living without frills, accepting, without quarrel, birth, death, and hard work. But life is not easy; there are testing struggles before he becomes a man. One comes with the killing of his pig Pinky, something he cannot do, though he helps, and his father doesn't want to do but must. When it is all over he says:

> I started thinking about Pinky. My... Pinky who followed me all over. She was the only thing I ever really owned. But now there was no Pinky. So I cried. "Oh, papa. My heart's broke'".
>
> "So is mine", said papa. "But I'm thankful you're a man". "That's what being a man is all about, boy. It's just doing what's got to be done".
>
> (pp. 138-139)

It is just a foreshowing of what is to come. The next spring his father dies and he faces the supreme test. After the funeral and his farm chores are done, he walks out again toward his father's grave, just, as he says, to

> "...give a goodnight to papa, and to be along with him ... Somewhere down under all that Vermont clay lay my father, Haven Peck. Buried deep in the land he sweated so hard on and longed to own so much. And now it owned him.
>
> "Goodnight, papa", I said. That was all I could say, so I just turned and walked away from a patch of grassless land. (p. 150)

The child who reads this experiences vicariously what is every man's experiences; he is confronted with, without preaching, without abstract discussion, human mortality. And

he hears the universal farewell - we have heard it from our friends, our relations - "Goodnight".

One also thinks about Betsy Byar's (1970) The Summer of the Swans. Sarah, the heroine, has a poor opinion of herself, is filled with self-pity. Her feet are too large, her hair is "ridiculous". and, worst, she has no boyfriend. But one night her retarded brother Charlie disappears and her own small miseries are forgotten. She finds him down into a ravine, and this brief scene reveals her joy and deep love:

> He was standing in his torn pyjamas, face turned upward, hands raised, shouting with all his might. His eyes were shut tight. His face was streaked with dirt and tears.
>
> He opened his eyes and as he saw Sarah a strange expression came over his face, an expression of wonder and joy...And Sarah knew that if she lived to be a hundred no one would ever look at her quite that way again.
>
> She ... went down the bank and took him in her arms."Oh, Charlie".
>
> His arms gripped her like steel. (p.126)

Literary Imagination Is Stylistic

In no other subject is the stylistic imagination at work to the degree that it is in literature, creating beauty and enjoyment. It is playful, experiments with language, explores its limits. To be concerned with this aspect of imagination is to make pupils aware of the concern and the excitement the literary artist has for language, and to show that an author's use of language is an important part of his writing.

Some of the stylistic devices used are rhyme, rhythm, repetition of sounds, words, and lines for special effect, onomatopoeia, appropriate vocabulary, unusual (often made-up) vocabulary, and metaphor. These are used to create a mood, describe a new experience, create humour, -establish a pattern, create emphasis.

It isn't easy to find three-syllable words that rhyme, so David McCord (in Fenwick, 1967) creates his own:

> Meet Ladybug
> Her little sister Sadibug,
> Her mother Mrs. Gradybug,
> Her aunt, that nice old-maidy bug
> And Baby ... she's a fraidy bug. (p. 64)

These unusual and forced rhymes allow the author to create a lighthearted mood and a playful attitude.

The repetition of words and lines also emphasizes the mood of a poem and determines its musical quality. It also suggests choral reading or singing for maximum effect. Notice these and other techniques used in "The Highway Man":

> The wind was a torrent of darkness among the gusty trees
> The moon was a ghostly galleon tossed upon cloudy seas
> The road was a ribbon of moonlight over the purple moor.
> And the highway man came riding-riding-riding
> And the highway man came riding, up to the old inn door.
> (Noyes, in Untermeyer, 1959, p. 130)

It is the repetition that creates the breathlessness, the speed, the sense of urgency, and the galloping rhythm that are so important to the poem.

In order for pupils to grasp the idea of the effectiveness and precision of literary language, they should be made aware of the appropriateness of vocabulary and word order. Notice the combination of darkness, wind and moonlight to create the mysterious, haunting, threatening atmosphere. Notice, in particular, the first line with its vigorous "torrent" and "gusty"; the very darkness is agitated. Supposing the poet had written "The wind blew through the gusty trees", the basic information would have remained but the atmosphere, the feeling would have been altered.

Onomatopoeia creates the sound of an experience directly. The words do not so much describe the experience as they imitate it. It sometimes suggests movement as well as sound. Consider this poem by Mary O'Neill (in Painter, 1970):

> The sound of water is
>
> Rain,
> Lap,
> Fold,
> Slap,
> Gurgle,
> Splash,
> Churn,
> Crash. (p. 63)

Consider also the interesting use of rhyme to create humour in this stanza (Cole, 1955):

> In a family drinking well Willie pushed his sister Nell. She's there yet because it kilt her; Now we have to buy a filter. (p. 28)

Notice how important the arrangement of words and rhyme is to create nonsense in this little poem by Spike Milligan (in Cole, 1972):

> Said a tiny ant
> To the elephant
> "Mind how you tread in this clearing."
>
> But alas! Cruel fate!
> She was crushed by the weight
> Of an elephant hard of hearing. (p. 25)

Imagine if the poet had written: "A tiny ant told an elephant to watch where he was walking, but the elephant did not hear him and stepped on him on his way through the

clearing." It seems fairly obvious that there is more than content to this little poem; that, in part at least, the humour is derived from the arrangement of the language on the page.

The point is that, if you want to introduce children to the liveliest, the most creative language there is, you will go to poetry where it is tested to the limit and made to do so many interesting things, where there is often a playful attitude towards language, a certain "verbal recklessness".

Literary Imagination Expresses a Sense of Wonder

The literary artist is concerned with the mystery and wonder of the world. He sees more than most of us, and, having developed a greater power in the use of language, he expresses (if he is good) fresh visions of reality. He shows us what has been before our eyes, unnoticed. He shows us the commonplace from a unique point of view, reveals a new perspective. A child who reads this poem by Dorothy Aldis (1952) sees trees in a new way, and, to some extent, has his concept of trees changed:

> On stormy days
> When the wind is high
> Tall trees are brooms
> Sweeping the sky.
>
> They swish their branches
> In buckets of rain,
> And swish and sweep it
> Blue again. (p. 102)

Consider also the surprise in this haiku by Hearn (in McInnis, 1970):

> The short pine tree was
> wearing a hat until the
> black crow flew away. (p. 34)

Notice the interesting twist in this poem by David McCord (1970):

> Melvin Martin Riley Smith
> Made do without what we do with.
> For instance, did he have a kite?
> He didn't, but he had the right
> Amount of string to make one fly,
> And lots and lots and lots of sky. (p. 7)

Have you thought of rain in this way?

> The rain is driving silver nails
> Into the shingles overhead.
> A little girl is playing scales;
> She plays them as if something ails
> Her. Otherwise, it's as I said:
> The rain is driving silver nails
> Into the shingles overhead. (McCord, 1970, p. 13).

These poems are concerned with the quality of things, with sound and the way things look. They appeal to the senses. The writer of them is a photographer in words, zooming in on and crystallizing a small part of reality.

There is also the wonderment and enchantment created by fantasy, whose authors create unusual settings (a hole in the ground, a glass hill, a strange planet) and a variety of strange characters (elves, witches, magicians and talking animals). There are also sudden transformations, and the suspension of natural laws - a frog becomes a prince, a ring brings invisibility, a fox talks to a prince, a spider weaves letters into a web. But, it may be argued, this is escapism; this has nothing to do with reality. C.S. Lewis (in Egoff, 1969) says that fantasy "stirs and troubles him (the reader) ...with the dim sense of something beyond his reach, and far from dulling ... the actual world, gives it a new dimension of depth. He does not despise real woods because he has read of enchanted woods: the reading makes all real woods a little enchanted." (p. 215) The following two examples call attention to this truth. In Charlotte's Web (White, 1969), Charlotte, the spider, promises Wilbur, the pig, that she will save him from the butcher's axe. To do this she weaves into her web the words "some pig". People come from miles around to see this miracle pig (not, by the way, the miracle spider), whose life is now saved. Mrs. Arable, the lady in the family who first owned the pig, visited a doctor. She raised the subject of the spider's web:

> "Have you heard about the words that appeared in the spider's web?" asked Mrs. Arable nervously.
>
> "Yes", replied the doctor.
>
> "Well, do you understand it?" asked Mrs. Arable
> "Understand what?"
>
> "Do you understand how there could be any writing in a spider's web?"
>
> "Oh, no", said Dr. Dorian. "I don't understand it. But, for that matter, I don't understand how a spider learned to spin a web in the first place. When the words appeared, everyone said they were a miracle. But nobody pointed out that the web itself is a miracle".
>
> "What's miraculous about a spider's web?" asked Mrs. Arable... "It's just a web".
>
> "Ever try to spin one?" asked Dr. Dorian. (pp. 108-109)

We will probably never see a spider's web in the same way again.

Consider, too, Kenneth Grahame's (1969) Wind in the Willows. Mole and Ratty have lost their friend Otter, and in their search for him they come to an enchanted place:

> Then suddenly Mole felt a great awe fall upon him, an awe that turned his muscle to water, bowed his head, and rooted his feet to the ground ... and ... he knew it could only mean that some August Presence was very, very near.
>
> "Rat!" he found breath to whisper, shaking. "Are you afraid?"

> "Afraid?" murmured the rat..."Afraid of HIM?- "Oh, never, never! And yet-and yet-oh Mole, I am afraid!"
>
> Then the two animals, crouching to the earth, bowed their heads and did worship. (p. 135)

And the reader comes back to the real world more aware of its inexplicable beauty and mystery.

Literary Imagination Is Moral

Every literary work has a moral dimension, not because it presents an explicit lesson but because it communicates a certain attitude towards reality, a certain feeling about people and events. It has a moral dimension also in that it forces us to make moral choices. It confronts us with the basic human qualities: humour, love, hate, sorrow, pain, joy, and challenges us to consider them - their meaning and their effects on people. It must be emphasized, however, that teaching the reading of literature is not to be concerned with extracting and teaching moral lessons. It does, however, suggest exploration of and thinking about the attitudes, feelings, and points of view expressed in the work being read.

This is the natural thing to do with most stories. For example, the world of Sounder (Armstrong, 1972) is a moral one. It is a world where moral decisions have to be made, where the nature of right and wrong has to be defined, where questions are raised about what people are, and what their relationship is to one another and to God. It is almost impossible to read the book without considering these. This is the story of a black sharecropper who stole a ham to feed his starving family. He is sent to jail and later is taken on a chain gang. The man's son decides to go on a journey in search of his father. Everyone, the boy says, is on a journey:

> "Abraham goes on a long journey. Jacob goes into a strange land where his uncle lives but finds him easy. Joseph goes on the longest journey of all. ..but the Lord watches over him. And in the Bible-story journeys, ain"t no journey hopeless. Everybody finds what they suppose to find." (p. 77)

This is a moral position, emphasizing individual responsibility, and stressing faith in the ultimate goodness of life.

The guard at one of the prison camps also takes a moral position. One day when he sees the boy peering through the wire fence, looking for his father, he crashes a piece of iron against his fingers. But the boy's suffering does not arouse pity in the guard; he merely sways "back and forth with laughter." (p. 86)

However, a teacher shows sympathy and kindness. He takes the boy in, reads to him and teaches him how to read. The boy says: "You've been a powerful good friend...my fingers don't hurt no more." (p. 97)

"Tuktu" (Hyde in McInnes, 1970) also deals with a moral problem. Tuktu is old and cannot hunt, and asks "What use is a man if he cannot hunt?" He later answers, "It is better that a man die rather than ... be a burden, an extra mouth to fee." (p. 73). So the

story confronts us with this question: Is a man who cannot work of any value? Our answer reflects what we think man is for, and what the purpose of life is.

Literary Imagination is an Ordering Power

One sees this ordering power at work in literature in its creation of recurring motifs, images, patterns. Consider, for example, the journey motif. Literature, including children's literature, is filled with examples of man's search for identity, for a new home. In particular, one thinks of the quests of the heroes and heroines of myth and folklore - Perseus, Jason, Theseus, Cinderella, Hansel and Gretel. These all go through adventures, endure hardship, overcome obstacles, achieve success. Cinderella finds a new home; Hansel and Gretel, after conquering evil in the dark forest, return to their old home (a new home without the wicked stepmother) to live happily ever after.

Modern children's stories also make use of the journey motif. For example, it is central in Armstrong's Sounder, Sperry's Call it Courage, and Houston's Akavak. The journeys in these books are not just adventures; they also represent the heroes' search for wisdom, for self-knowledge, for identity.

Mafatu, in Call It Courage, lives in fear of the sea. He is a disappointment to his father, and is scorned by his friends as a coward. To escape these taunts he sets out on a dangerous journey in a canoe. A storm wrecks his boat on a reef and he becomes stranded on an island. There he, like his predecessor Robinson Crusoe, prepares carefully for survival. He constructs a shelter, builds another boat, and fashions weapons. He slaughters a wild boar, fights a shark, and kills an octopus, gaining confidence and courage with each task. Finally, with cannibals pursuing him, he sets out to sea again in his new boat and escapes. It seems, at times, that the sea will destroy him, but he is no longer afraid. "I am not afraid of you", (p. 113) is his triumphant cry to the sea. He has finally conquered his fear and found his identity. He arrives home a new creature, no longer "the boy who was afraid" but "Stout Heart", a hero.

A hero like Mafatu is not just a particular character in a particular story; he is conventional, archetypal, linked to such well known heroes as Robinson Crusoe, Bunyan's Pilgrim, and Odysseus. Shane, the hero of Schaefer's novel Shane, is also a mythic figure. Like many mythic heroes, his identity and origins are a mystery. He rides into the Wyoming Valley from no one knows where, gifted with almost supernatural powers, which he uses to redeem the lives of the Starretts by destroying the evil in their lives, the evil as personified in the unscrupulous landowner Fletcher. In destroying Fletcher's power, he brings new life and vibrancy to the Starretts. Bob, the young boy, sums it up this way: "And morning was in father's face, shining in his eyes, giving new color and hope and understanding." (p. 120) Having brought peace and promise to the land, he rides away into the unknown, leaving the memory of his deeds which become part of the legend of the valley: "The folks in town and the kids at school liked to talk about Shane, to spin tales...about him." (p. 122)

The ordering power of imagination is also seen in the imagery of literature. For example, many authors use the images of the cycles of nature, with fall and winter representing death, old age, and decay, and spring and summer being associated with rebirth, hope, and joy. For instance, in E.B. White's Charlotte's Web the crickets, at summer's end, sing a song of death, and Charlotte dies a few days later. However, when

spring comes, the snow melts, the streams bubble and chatter, and new life begins. New spiders are born to replace Charlotte as Wilbur's friends, and Wilbur trembles with joy.

Similarly, Akavak suffers great hardship and loneliness during winter when the earth is frozen and barren. But he arrives at his destination, his great-uncle's home, and realizes that his journey in the mountains with his grandfather has made him a man just as spring is breaking: "Everywhere around him were the soft signs of spring...To Akavak it seemed as if the whole world was being born again." (p. 78)

These archetypal motifs, images, and patterns give unity to what might be regarded as separate and fragmentary. For example, Akavak, Call It Courage, and Sounder are not just individual works; they are, in spite of their differences, related, and part of a larger literary universe. They have in common the journey, suffering and the search for identity. To be aware of these is to have developed a feeling of the universal, is to have achieved some understanding, -if only intuitively, of the fundamental unity of the human mind.

Summary

The primary purpose of this paper has been to discuss what I consider to be the essential purpose of literature, the development of imagination. In order to elucidate this idea, five components of literary imagination have been discussed: literary imagination creates, literary imagination is stylistic, literary imagination expresses a sense of wonder, literary imagination is moral, and literary imagination is an ordering power.

BIBLIOGRAPHY

Aldis, D. **All Together**. New York: G.P. Putnam's Sons, 1952.

Armstrong, W. **Sounder**. New York: Harper and Row, 1972.

Brown, C. **Death on the Ice**. Toronto, Doubleday Canada Ltd., 1972.

Byars, B. **The Summer of the Swans**. New York, The Viking Press, 1970.

Cole, William. **Humorous Poetry For Children**. New York: The World Publishing Co., 1955.

Grahame, K. **The Wind in the Willows**. New York: Grosset and Dunlap., 1969.

Hearn, E. "Haiku". In J. McInnes and E. Hearn (Eds.), **Driftwood and Dandelions**. Toronto: Thomas Nelson and Sons, 1970, p. 34.

Houston, J. **Akavak**. New York: Harcourt, Brace and World, 1968.

Hyde, L. "Tuktu." In J. McInnes and E. Hearn (Eds.), **Driftwood and Dandelions**. Toronto: Thomas Nelson and Sons, 1970, pp. 72-74.

Lewis, C.S. **"On Three Ways of Writing for Children."** In S. Egoff, et al, Only Connect. Toronto: Oxford University Press, 1969, pp. 207-220.

McCord, D. "Poetry for Children." In S.J. Fenwick (Eds.), **A Critical Approach to Children's Literature**. Chicago: The University of Chicago Press, 1967, pp. 53-66.

McCord, D. **For Me to Say**. Toronto: Little, Brown and Co., 1970.

Milligan, S. "Ant and Eleph - Ant." In W. Cole (Ed.), **Oh, That's Ridiculous**. New York: The Viking Press, 1972, p. 25.

Noyes, A. "The Highway Man." In L.

Untermeyer (Ed.), **The Golden Treasury of Poetry**. New York: Golden Press, 1968, pp. 131-133.

O'Neill, M. **Hailstones and Halibut Bones**. New York, Doubleday and Co., 1961.

O'Neill, M. "Sound of Water." In H.W. Painter, Poetry and Children. Newark: International Reading Association, 1970, p. 63.

Peck, R. A Day No Pigs Would Die. New York, Alfred A. Knopf, 1972.

Schaefer, J. Shane, Toronto: Thomas Nelson and Sons, 1964.

Smith, N.B. American Reading Instruction. Newark: International Reading Association, 1967.

Sperry, A. Call It Courage. New York: Collier Books, 1973.

White, E.B. Charlotte's Web. New York: Dell Publishing Co., 1969.

THE LANGUAGE METAMORPHOSIS OF THE PRESCHOOL CHILD

Marc S. Glassman
Curriculum and Instruction

Children in a preschool environment, during their many instances when utilizing language, represent "strangers in a strange land." Such children do not lack a language, or the ability to utilize a language. Rather, they are at a developmental stage in the use of language in a preacademic learning environment, a "strange land" to many of them. Language is a social instrument, and for many preschool children, ranging in age from three to five years of age, a preschool environment is one of the initial entry points for preacademic or formalized language transactions. It is here where the sharing and acceptance of meanings, as expressed via spoken and body language, take place. This sharing and acceptance of conceptual meanings and concrete objects is the essence of communication, a forward thrust into a realm that makes us truly human. However, this forward thrust is but potential in the life of each individual. Language, for the preschooler especially, is a social tool, and he or she must master it in some measure if he/she is to participate in our complex culture.

In careful observation of the preschooler in the social situation of a preschool environment, one begins to see the ways each child utilizes language in relationship with other children. During role-playing situations, children's language is task related, in that it adapts to the social situation. Their actions mimic adult behaviors, as if to express their understanding of the context of their socio-drama. Their imagination serves to make the absent present, and it is this ability which leads them to the stage of the hypothesis in their acts of thought. In this sense, an hypothesis is a step into the unknown; and, while it arises in relationship to experience, it always goes beyond experience. It is here that a child experiences not only just how to use language, but why language is vital for his/her total self.

Contrary to an often-held belief, preschool children do not learn their language through parrot-like imitation. Instead, such children possess certain innate capacities for developing a language, and must be given the opportunity to interact with other language-users in such a way as to foster this ability. In this sense, communicating is overcoming a differential, an imbalance in the way we perceive our environment. Thus, a child finding himself or herself in a stimulating preschool environment seeks to bring balance into his or her background of experiences. It is in such a situation that a child may begin to make conceptual responses, in that the individual child may respond to an object as suggested, rather than to a thing as directly presented. Simple reaction patterns, such as crying or laughing, may be elicited from the preschooler at the mention of a dog, even when no dog is present. In a case such as this, certain children are responding to their perception of what a dog implies for them, a personal definition of meaning.

A child discovers early on in his/her life that what it later calls "mother" means attention, comfort, warmth, play, satisfaction of hunger, and the like - all at a level as yet unnamed. As language is developed, meanings may be detached from the natural home situations in which they first arose, and are attached to other signs. The teacher of preschool children, especially female teachers, must understand and appreciate this idea. Their temporary role is also that of provider, like the mother, of attention, comfort, play, and the like. Thus, "teacher" also takes its place along with other meanings in a child's cluster of experiences. Any object or person may function as a sign and thus have

meaning for the preschooler, in that he/she knows various ways to respond to the term designating the sign. No object has a meaning inherent within it that all may equally grasp and respond to in a uniform manner, in that our perceptions are uniquely individual. However, there are artificial signs, or symbols, which are language tools for conveying meaning outside of one's own frame of reference. Everything that happens must be structurally represented as something, somewhere and at some time. To illustrate this point, a passage from Lewis Carrol's Beyond the Looking Glass seems appropriate at this juncture.

"...the patriotic Archbishop of Canterbury found it advisable..."
"Found what"? said the duck.
"Found it!" the mouse replied rather crossly.
"Of course you know what 'it' means." " I know what 'it' means well enough when I find a thing," said the duck, "and 'it' is generally a frog or worm."

For the preschooler, as with us all, there cannot be a precise answer to a vague question. The degree to which communication occurs depends upon the degree to which words represent the same thing for the listener as they do for the speaker. Language has the advantage of ordering knowledge in a form compatible with the rules of abstract thought. Knowledge about reality is twofold - information about the world and information about the activity used in gaining this knowledge. Words function contrastively, in that they differentiate alternatives by - excluding or limiting choice. Meaning lies not in the word, but rather in the person utilizing those words. Many words for the preschooler are rather opaque, due mainly to the fact that they cloud the finding of an internalized meaning for the word. The child that questions "why" and is given "because" as an answer is virtually left out in the fog, since this use of language deals mainly with words about words, rather than with abstractions. The relationship between language and reality, as perceived by the individual, is basically a structural relationship. In the confines of effective social organization, the structure of our language must correspond essentially to the structure of reality. The structure of reality, for the preschooler at a preacademic stage (in a formalized sense) of his development, displays an infinite degree of differentiation. There are more things to be experienced and spoken of than there are words to speak of them. On a verbal level, the level of description (as opposed to the experiential level of abstraction), the preschool child finds himself or herself in a situation where he/she is forced to leave out certain details when communicating his/her experiences. Time, as an example of higher-order abstraction, and a preschooler's perception of it, can be used to illustrate this point. Four days from today is viewed as "four sleeps," a "sleep" being a distinct and isolated unit. Time words here express a pseudo-relationship between events in the present and future, rather than the actual continuity of time in reality. A label is put on a dimension much written about, and at times worried about, because time is a realm that, beyond the actual experience of it, further definition using words is somewhat meaningless for the preschooler. Einstein (1950), in his discourse on relativity in the physical world, spoke of the theory of "time binding." Relative to man's use of language, time binding is a means by which we, today, can benefit from the knowledge of others in the past. We can bind our time with the experiences of past generations, even though those experiences are as rivers which can only be stepped into once. As time binders, we cannot seek to emulate the world of past generations, in that it is not their world we must experience and adjust/adapt to. Wisdom comes with the understanding that what we know and what we know about are different, and that the universe, as known to us, is a joint phenomenon of the observer and the observed.

Analysis of the process of language development shows the preschool child actively engaged in discovering regular patterns, consistencies, and contrast relationships in word classes in the language environment. However, this is not to say language exists as an isolated entity, a form of matter unto itself. Order and structure, as perceived in the world of matter around us, are communicated in such a way as to express our "personal relationship" with that matter. To know beyond the sensorial level, and to be able to communicate that knowing, is the key to our intellectual process. Any attempt to isolate language, our communication of perceived relationships, from the intellectualizing process of thought, is pure folly. As Dinnan and Lodge (1976) correctly contend, "Language cannot be separated from thought but is thought, externalized thorough some sort of symbol, body, oral, or written (language)." They continue by stating:

> To isolate language as matter and study it in isolation from thought identifies language as matter having its own structure, matter separated from its source. This approach will not explain language as long as the notion persists that language and thought are separate entities. (p. 1)

The preschool child needs to see himself or herself as more than merely a "warehouse of information," unable to fully express any real awareness of their vital role in the "hierarchy of being." The totality of a preschooler's environment, as with our own, maybe limitless, in the sense of his/her/our interdependence with all other things. The preschool child experiences a particular entity in his or her environment at a specific moment and from a specific vantage point. This experience is unique for every person that ever was, or will ever be, due to the variations of time and space. From this moment of synthesis a perceived mental image may develop, to be contrasted with previous mental images and compared as to its similarity or difference. This living moment, that fleeting present, is the river into which we find our continually changing selves forever stepping. It is this process of language/thought that serves as the cornerstone of understanding. The involvement of the preschool child with full human experiences, via the process of the intellect, enables that child to perceive beyond mere sight or sound sensations. Language becomes a reflection of this process through communication. The object of any inquiry into the language of the preschool child should center on the source of that inquiry, the human intellect, and the relationship of the environment to each individual. Only then can we cease to be "strangers in a strange land."

REFERENCES

Bruner, J.S., Goodnow, J.J., and Austin, G.A. **A Study of Thinking** (New York: John Wiley and Sons, Inc., 1956).

Chomsky, Noam. **Language and Mind** (New York: Harcourt, Brace, and World, 1968).

Dewey, John. **How We Think** (Boston: D.C. Heath and Company, 1910, rev. ed., 1933).

Dinnan, James A, and Lodge, Robert. **A Meta Theory of Language** (Athens, Ga.: Jaddy Enterprises, 1976).

Einstein, Albert. **Out of My Later Years** (New York: Philosophical Library, 1950).

Gleason, Jean B. "Language Development in Early Childhood," in **Oral Language and Reading**, edited by James Walden (Champaign, III.: National Council of Teachers of English, 1969.)

Johnson, Wendell. **People in Quandaries** (New York: Harper & Brothers, 1946.)

Lenneberg, Eric H. **Biological Foundations of Language** (New York: Wiley, 1967).

Piaget, J. **The Psychology of Intelligence** (New York: Harcourt, Brace and Company, 1950).

Russell, David H. **Children's Thinking** (Boston: Ginn and Company, 1956.)

Vygotsky, Lev S. **Thought and Language** (Cambridge: MIT Press, 1962).

THE MATTER OF CHOICE

Frank Wolfe
Curriculum and Instruction

No longer privileged to work directly with a class of adolescents, I cannot direct their attention to a concern which becomes, I believe, increasingly important in our North American culture. To name the concern is to introduce the need for a meaningful definition - What is "responsible conduct"?

I wish every fifteen-year-old would memorize, if not accept, something Rene Dubos said, a decade ago:

> Man makes himself, individually and socially, through a continuous series of wilfrul acts that are governed by his value judgments and his anticipations of the future.
>
> (A GOD WITHIN, 1972)

How, though, can he and I grab hold of this notion? Certainly I cannot presume, yet I know that we must talk, at least, about freedom and responsibility and choice. Avery Weisman may have supplied an access point.

> The organic meaning of responsibility is more than freedom or culpability in any narrow theological or legalistic sense. It is that quality of reality sense which allows us to choose, control, and consummate our intended acts with a high level of self-esteem.
>
> (THE EXISTENTIAL CORE OF PSYCHOANALYSIS, 1965)

"A high level of self-esteem"? Just this I have seen demonstrated all too infrequently by my own undergraduates during the past six years. Perhaps they reflect their earlier schooling, and perhaps the youngster would reflect if we were to spin a story.

I choose - constantly. Why? Because I am alive. Living forces choosing. True, I did not choose to begin living. Like every other creature in the world, I am the product of an exercise in elemental passion, of a brief encounter which is itself the method by which my own species accomplishes sustaining-by-becoming. I could not choose to begin, and now that I am begun I have no choice but to continue.

Certain drives within me prompt me to respond; certain needs, emotional and physical, present themselves for fulfillment. All require me to choose how each shall be accommodated. These demands can be met temporarily, they can be controlled more or less satisfactorily, but they cannot be denied. And so, I am compelled to respond to myself. In this manner too, I am like every other living' creature.

I am a being, not by choice, inclosed in a body I didn't order, dumped into a world I didn't make, handed no set of instructions to be followed. Nevertheless, "Why was I born?" can't be anything more than a pointless wail. It is not a legitimate question, because I am not free to supply an answer. Life is mine. I can only get on with it.

Is this, then, the ground of my very own identity: that because I am material, therefore I matter? This isn't an argument, but a trick. This line of reasoning says I am a flux, a conglomerate of dumb stirrings, each occasionally prompting a response from

the whole, while the whole in turn is committed to the single function of shortening the odds for the survival of the entire population. If my life is just an inconsequential, statistical role in some mindless, endless process of selective adaptation, if I can claim only the right to live long enough to breed, where is freedom of choice? What enables me to insist that I am at all significant, that I am anything more than a predicable, responding mechanism, twitching now and again when prodded sufficiently by the inside and the outside of me? Having procreated, am I done? "Freedom of choice" must be an absurd abstraction. A lie.

It is a lie, if I permit it to be so. Certainly I am material, organism, animal. I can be made to respond to a particular cue, I can be conditioned to attend to certain appeals, I can be trained to return a consistent pattern of behavior. Of course I can be manipulated. The directing of my behavior is determined by the skill of the manipulator; that is, by his awareness of my structural limitations and his ability to reinforce any behavior he wants of me. I can be made dependent, anxious, fearful, cowering; I can be taught desire. I can be led to avoid or to approach, be repelled by or be attracted by, be turned off or turned on. All this is simply indicative of my animal nature. This is my share of the organismic world.

One thing, however, I do not share with anything. My life is mine. I-ness belongs to me alone.

I submit to you this First Principle: Only 1 am I. We humans have no other premise to buttress our freedom, nor do we need any other. Simply: I am. A Force I cannot know brought this particular am into being, and a Force (maybe the same force; maybe not) will cause me not to be. This much 1 know; but while it lasts, my being is mine. I will be free, because I will to be free.

Freedom to choose, it would seem, is already a matter of choice. It is not possible to deny one's animal nature: the question is whether one chooses to surrender to it or to try to control it - live completely within it or live while incorporating it. Immediately we must admit that we speak of an idealization rather than of a matter of fact, for "being" is a static identity, while "living" is a continuing process. One expresses one's being in living, and one lives in half a hundred real situations a day, each situation a distinctive (though not necessarily dissimilar) jockeying context. Yesterday's choice-in-a context may today be wrong. A person may be privileged to decide all over again, but acting out the decision can be accomplished only in today's world. Living time is not reversible.

In application: "I am" - outside, oblivious, aloof, uncommitted. Add any predicate term, and English declares me related to that term in the sense that my existence is become apparent in a particular setting.

"I am a child of God" is a subordination most venerable. "I am tired" suggests that the existence of I is to be found grouped with all those entities for whom "tired" is made applicable. The danger lies in that we are too easily led to believe that the whole "essence" of the subject term must by this means have been captured in one little context. The I am remains - until the subject permits the assignment of a predicate term.

A human can attend with his guts, or he can attend with his head. Given a perception through either receptor-source, he might attend. (What is to be done with the ancient, delightfully solemn ritual through which a decision is based on the inspection of the entrails of a properly slaughtered animal, I leave to you. Maybe the answer can be

found in Frazer, or in Lovejoy.) The gut-based response is animal, mindless, - but not necessarily valueless. The head-based response is abstract, minded, - but not necessarily valuable. There need not be a commitment of the "I am" in either case, for choice is conscious response. Choice is responsible. Choice is conscionable.

Response without commitment reduces living to mere behavior. Decision without commitment reduces living to a mere game. (It could be that deciding-without-committing is really the only procedure available to the politician who seeks optimum efficiency of operation. I don't know, and I don't know how we could find out. Surely no politician (or staff officer) would dare embrace Machiavelli publicly.) One kind of life is animal only. The other kind of life is abstraction only. Choice is the sine qua non of human life.

Decision is rational, methodical, calculated, attendant upon the requirements of structure, model, coherence, order, and finally, upon preciseness of measurement. It is never impulsive. Decision is an allegiance to rule.

Response is non-rational, impatient, occasional, impulsive, attendant upon possible sources of satisfaction. Response is an allegiance to appetite.

Response is unconscious; decision is self-conscious; choice is conscious - of the presence of both. To choose is to declare allegiance.

There seems to be no way of avoiding the point Parmenides made, twenty-five centuries ago. "You cannot cutoff what anywhere is from holding fast to what is anywhere... You cannot find thought without something that is, to which it is betrothed."

Language, we must not forget, is both public and private. To reduce the problem of the meaning of "allegiance", we need add only one factor to our discussion: the observer. Whatever it is that I am, whatever is my being, it can be approached by an observer only by means of an assigned identification. In our culture, I am because I can present a credit card. Without the card which attests that I exist, I am not - in the eyes of another.

To move in the other direction, (and the issue does apparently reduce to a matter of direction) whatever it is that 1 am, I can discover myself only by committing to something. Whatever is the "really real" (to borrow Tillich's phrase) of my being, I can hope to find it only by committing, by surrendering - however momentarily - my real. (Hegel kept insisting, over and over again, that "the State" can be the only prevailing predicate term.- I allege myself to an adjective or a noun, an attribute or a category, both of which can be predicate terms in a class inclusion. I am identified; therefore, I am.

Outside and beyond language, I just am. I am an animal that can abstract. There is in me something monstrous and something sublime, something brutish yet fanciful, peasant and poet. I can spit, and I can wonder. I can feel the need to strut, yet I can feel also the need to genuflect. Because I am conscious of historical time, 1 am capable of remorse; moreover, the glee accompanying a triumph never seems to sustain itself - there is always tomorrow. Just as time heals all wounds, so time asks also "What's next?", for while my being is a static identification of experienced pasts, my existence is a dynamic succession of possible futures. I am becoming.

Somewhere in this multidimensional creature which is the human, there seem to be two axes around which definitive elements cluster momentarily, each hosting a

coalescence of identities, yet each axis merging into, each somehow transacting with the other. But how? Until the glass clears, there is probably nothing more we can do but to attempt a metaphor and pass by.

Let us project the human as a traveler moving south along a mountain range running generally north and south. He cannot see where his journey will end; he can no longer quite see where it began. Periodically, he is faced with the choice of going right or going left, remembering at each choice point the value of keeping to the higher elevations. (The higher the vantage point, the more accurately the viewer can predict the consequences of each choice). His course is of necessity an erratic one, for experience has taught that any immediate foreground can deceive. What offered initially the promise of an easy trek might shortly become a tedious maze; what was at first a rocky gorge might open into a pleasant valley. Any apparent passageway might eventually terminate in a sheer cliff, whether rise or drop-off. He may pause anywhere for as long as he wishes; indeed, even occasional backtracking might be amusing, at least for a while. Only one thing has kept him from sitting down in his tracks and refusing to go on: curiosity.

He is not often alone. All about him there are other people: a single, a pair, a group - each person engaged, intent, worn. Experience has taught, too, that human appearance can be deceptive, so he has become wary. One person might quietly offer a helping hand, yet another might angrily shunt aside. Behavior varies. He sees one human scramble eagerly over the top of that distant ridge, while in the box canyon nearby another fixates somberly on his own navel. By listening to others, our traveler has learned much - including the phenomenon of contradiction.

And the maps are everywhere. Almost every traveler has one, though uses vary considerably from time to time and human to human. Map inspection is the great preoccupation: here is an individual poring over detail, there is a group sharing trail lore, over there a scuffle over route is going on - even an occasional riot occurs, during which rival factions of map-wavers attempt to eradicate each other. (Meanwhile, they manage to tear up the surrounding countryside.) Every rioter is apparently moved to fury by the strange notion that the presence of Map A must somehow negate the presence of Map B. Our pilgrim is painfully aware of the importance of a map - any map: he has often wished for something more comforting than a life-pattern determined by one's own volition and the feedback from today's walk, followed by no more than a twilight of studied triumph or chagrin. He knows the appeal of the self-possessed: he has witnessed more than one throng held enthralled by an augur who, clutching map to bosom, converting sign to omen, proclaims the unseen presence of a mysterious Mapmaker.

He has seen paths, people, and maps, and since he remains more inquisitive than scornful, he listens carefully to anyone who purports to offer information about all three. (Everyone offers advice. He looks instead for consistencies among observations). There are herd-conscious humans who have proceeded left (or right) to some distance and have then returned to report their findings. Among the bold walkers, the observers, the diggers, the measurers, the chroniclers - cartographers all, there is a general awareness of a continental divide, an ill-defined line, to the left of which all openings lead apparently to an Atlantic, and to the right of which (it is said) all passages bring one at last to a Pacific.

The observers declare that moving left indefinitely is accomplished through an addiction to individual appetite. The historians report a trace of a very early Dionysus,

and they speak of the life-style of several individuals and societies. (It seems a certain Marquis established a reputation as a dedicated oblique. He apparently travelled far, though not for long.) The psychologists ask that their god Freud be given due consideration. The historians grant the request. Then, pleading incomplete findings, the recorders ask leave to forego summarizing the immediate past.

The formalizers declare that to move to the right is to search for order; that as the world on the left side of the divide slopes toward the dissipation of effect(s), so the world on the right leads to first cause(s). Again, the left leads one to consider the flesh; the right moves one to try to identify the supporting skeleton. One is a preference for the contingent, while the other is a search for the necessary. The historians - admittedly prejudiced, for their own ancestors might well have been the first to find order (to record at all is first to arrange by some rule of recognition) - recall whole civilizations East and West. They cite the continuing influence of certain ancient Greeks and even older Hebrews, they introduce the term "science", they speak of clocks and models and laws and forces and fields, and then they join the nearest group of logicians and experimentalists to argue theories of theorizing. Our pilgrim no longer kibitzes on these affairs. Someday perhaps, but for now he isn't sure of the difference between the language of ordering and the ordering of language.

He knows that significant information can come from peculiar sources: that one might well attend to the rare person who stops traveling altogether in order to plant, so that the gardener might then examine closely the wondrous behavior of the peas he nurtures so carefully. He respects every human's right to live with a tribe of baboons, watch a bird, or stare at an egg, or the sky, or to listen and then to orchestrate. He knows that if one is to comprehend, one must grope. And amid all this persistent fumbling, who can deny that what is inclosed is not now what it was, but must already have conformed to the shape of the hand?

Pilgrim muses, open-mouthed, wondering the why. To be identified at all a peak must be measured by its slopes, and this necessity models the world as he knows it. Yet he knows too that the boundary which separates a figure from its background is viewed out of the function of perspective, so that seen from above and beyond, the world would not present the shape he sees. Nevertheless, he is dimly aware of a balance-in-the actual, and he has learned to convert this much knowledge into practice. Having bogged down on the right, he knows to go left. Having seen on the left, he goes up over the ridge to travel for a time on the right. It maybe that by this method he ties his own puny self to some purpose, for he remembers that for every arrogant Darius there has been an infinitely more powerful Darwin, that for every de Sade there is a de Chardin.

Hope and despair, curiosity and fear - these polarities seem to bracket the individual. A human may risk, and he can remember the consequences. Absurdity and congruence, statement and status - these may apply to the world as it is given and peopled. We all shuffle and murmur. Commitment to learning can supply only the possibility of growth; knowledge itself can promise only a vague potential for serendipity. There are few guarantees. There is no compulsion to study; there can only be the wanting to know. And in the end, there is nothing in human awareness which can secure even the definition of happiness, let alone the arrival at such a state of being. Socrates could see only two possibilities: either he must join in conversation with all who went before, or his life must culminate in an endless night of untroubled sleep.

Every human can anticipate or ignore, accept or refuse, become mobile or remain immobile. Whether to choose to know is the prerogative of the individual. This blunt truth revealed itself again in an episode related to me by a friend, a poultry pathologist on the staff of a school of agriculture. During the early 1950's, one of his assignments had been to function as a member of a team of specialists who conducted occasional seminars at locations throughout the region. Broiler growing was then still a young, thriving industry operated generally through partnerships between "owners" and "growers". The owner assumed the financial risk for one or a dozen operations, while each grower was responsible for the care and feeding of from three thousand to thirty thousand chicken. Chicks would arrive, time would pass, and given the right combination of anxiety, work, weather, absence of disease and an up market, the partners would share a profit some eleven or twelve weeks later. Fate had smiled for a number of years: ulcer-prone owners matured into benign patriarchs; growers, most of whom had never known that existence could be anything more than marginal, applauded the Good Life.

On this occasion, my friend found himself unable to persuade a certain grower to attend a forthcoming seminar to be held at the local school. For the third time he recited the benefits: there would be no charge, there would be the opportunity to gossip with fellow growers, all would enjoy a magnificent meal; and finally, the very latest techniques in broiler care would be explained, while every grower would be privileged to address specific questions to the experts. All this would be nicely consistent with that most self-evident of the principles of pragmatics: "The more you know about what you are doing, the better you are able to do it".

Having already wasted several hours, first in finding this man's farm and now in extending a ludicrous sales pitch, my Ph.D. friend finally expressed his exasperation. "Look, Jake. How on earth can you afford not to come? We're just trying to give you the latest information about your own business. You can't help but learn something valuable, so why won't you spend the day with us?"

The response of the unlettered (but prosperous) grower ended the interview. "Look, Doc. There ain't no use in me coming, 'cause I'm already doin' better than I know how."

At the last, wisdom must yield to intuition. Faust may have taken off in the wrong direction.

MODE AND GENRE - AGAIN

Frank Wolfe
Department of Curriculum and Instruction

Whatever be the particular entries included in any collection of literary items to be presented to secondary school students, it is essential that a reasonable approach to the literature curriculum be established. An organizational fix is called for. We will supply here a presumptive grid, rather than presumptuously to attempt an exhaustive rationale for the study of literature itself.

We begin with a working definition of literature: let us suggest "hypothetical constructions which describe the possible"'. By these terms, we hold that literature, like all human knowledge, is hypothetical, that its focus, unlike that of the physical sciences, is upon the possible rather than the actual; and that, unlike mathematics, literature exemplifies an interest in more than just the logical. Thus we share certain concerns, in the main, with the life sciences, while we insist that literature itself exceeds the bounds of any science.

The Werner-Kaplan "organismic-developmental" model of the origin of symbol is applicable here. According to these two men, all living things respond in a species-specific manner to a given life-span, such that simpler organisms are apparently capable of only one kind of response, while more advanced creatures can invoke additional contact means. Early on, there exists (1) tropistic-reflexive reaction to stimuli; and then (2) sensory-motor action upon signaled things; and finally (3) contemplative knowledge about objects. Reaction to, action upon, contemplation about constitute the development of organismic response to any life-space, wherein symbol appears for the first time at level three. Only the human (with the possible exception of the dolphin) has the capacity for contemplation!

"Contemplation", then, is apparently that organismic response out of which comes literature. Literature is thus a product whose trust is symbol. At this juncture, too, we can install concepts from the life sciences: "function" and "structure". Suppose we ask a Nobel laureate to speak to these concepts.

> Every action must have its underlying mechanism, and a system can only do what its structure allows it to do. A record player will never write a letter, a typewriter will never make music, and a cow will never be able to lay an egg, however hard she tries. But once the system is there it will be able to do what its structure allows it to do. So structure and function are, in a way, identical, and we may study either or, more correctly, must study both on all levels. They are one. Structure generates function, function generates structure.
>
> Nature develops its structures stepwise, adding to them and improving them gradually, never throwing away the foundation.
>
> Life supports life, function builds structure, and structure produces function.[2] *Albert Szent-Gyorgi*

For our purposes, function is to "mode" as structure is to "genre"'. Mode and genre can supply a two-dimensional grid - our organizational fix on the literature curriculum.

To return to the remaining third element of our definition, that being "description", it is almost too obvious that no description can offer itself as having exhausted the dimensions of its referent. (Even axiomatics has its "if and only if", while at least some epistemologists admit to the "as if" qualification.) Any referent "has" virtually an unlimited number of discriminable features, each of which can be an identity mark. Since no one can presume to describe utterly, the very act of describing involves necessarily the attending to certain features rather than to certain other features. To describe is to select. In describing what is there, one defines what is there to be seen. Selection bespeaks a "mode of awareness".

Still following Szent-Gyorgi's lead, we note that any literary structure, as enabling envelope, can accommodate more or less adequately one and another "mode". A vehicle will carry, more or less handily, one and another kind of load, to the extent that the cargo conforms to the configuration of the carrier. Rarely, a perfect fit presents itself. (Poe's "The Tell-Tale Heart" comes to mind.) Thus it would be more profitable to view the several categories within the canon of literature, however differentiated, not as form but as "formation" classes.

I suggest five modes: the tragic, the comic, the romantic, the fantastic, and the contemplative. Before glossing each in turn, suppose we consider further this notion of mode-of-awareness.

> The ever-present aim of physics (is) to provide quantitative explanations of natural phenomena.[3]
>
> *Daniel Greenberg*

> As the linden tree waited for me in order to become green, so did nature, the unperceived, x-nature, once wait for living beings to arise through whose meeting perception the green, the soft, the warm - all the qualities conditioned by the senses - should come into the world.[4]
>
> *Martin Buber*

> When we account for something we point to facts without which it would not be so. The something is shown to be the outcome of, to be dependent upon, these facts. A mere account of it is not trying to do that.[5]
>
> *I.A. Richards and Christine Gibson*

There are no explanations, no accountings for to be found in all of literature. Equally, the green of Buber's tree is not to be found in science but in the eye of a beholder. Should the beholder attempt an accounting of his perceiving - to say what he sees, "green" just might be rendered uniquely inter-subjective, but byway of the concepts available in language forms.

The Tragic Mode

Man is so terribly vulnerable to hurt. What is more, he is himself so very capable of hurting, inadvertently and by design. Further, there are almost certainly more things in heaven and earth than are dreamt of in his philosophy, still. Nevertheless, he will, sometimes, insist that choice overrides chance (Jacques Monod notwithstanding), and in so insisting he becomes doubly vulnerable. For in that insistence lies hubris, that peculiarly human pride which Aristotle taught us to recognize. Wherever, then, a

protagonist's intentional behaviour provokes into existence a causal chain whose end-product is unintended hurt, there is demonstrated the essence of tragedy. Causal factors can be welcomed or railed against; they cannot, however, be denied.

The Comic Mode

Man is not only the proud choice-maker; he is also the proud knowledge-bearer. He watches, and he listens, and gradually he learns about what is going on in the actual. Forgetting that all human knowledge is hypothetical, he comes to believe (in) the inviolability of his own learning. And so, in any life-context, he might well persist in following the dictates of his own belief, seemingly oblivious to a developing discrepancy between what is in fact the case and what he thinks is the case. He apparently believes his own behaviour is commensurate with the demands of the situation, but - to the onlooker - it is not. He persists in his belief, despite the mismatch, and therein lies the seedbed of the comic.

Hubris here, if such it is, is grounded not in arrogance but in the failure to recognize that a personal belief might in a given situation be proved a fiction, be even grotesquely out of touch.

The Romantic Mode

Quite simply, the romantic mode requires a commitment to the dignity of the particular. Not "anysuch", but this. Science, any science, is not so much concerned about any individual anything, any particular subject of discourse, but with any particular predicate. Given any description of any referent, immediately one is expected to have at "verification", "'validation'", and the like. (And "predictability", "replicability", and so on, all this to follow in the wake of a bow toward Sir Karl Popper.) Not at all do we dispute the efficacy of scientific pursuits; we do, though, wonder how it must be that a methodology seems never to have room for a thou rather than an it. Yet we have an answer, already. Science, we remember, is expected to generate explanation; literature can offer only an account of. Even so, such description of a particular just might include a new way of seeing (description might become definition, dimension becomes dimensionality).

In the end, the romantic is a bloody fool, because he disputes the smug linearity of the Law of Probability. (The odds, after all, favor the mean and not the individual.) Humans remain, we hope, incurably romantic. "The human will prevail" says the romantic, yet to know this as such he would have to be God.

The Fantastic Mode

We know now, thanks in part to Coleridge, that he was wrong - but only half wrong. He termed fancy "a mode of memory emancipated from the order of time and space", and in this he was right about time and space but wrong about mode. After all, he lived long before the digital computer brought us to realize that syntax in and of itself is quite capable of generating new possibilities. Too much addicted to Plato's mimesis, we suppose, he situated all possible projection in memory and imagination, unaware that

language itself has the (ultimate?) power to procreate after its own image. (Peano knew this all along, though he attended mostly to mathematics.)

The fantastic leads us to the nowhere-yet, for it leaps ahead of the constraints of time and place and even of contradiction. Friedrich Holderlin said it better:

> In seed grains he can measure the full-grown plant;/And flies, bold spirit, flies as the eagles do/Ahead of thunderstorms, preceding/Gods, his own gods, to announce their coming.[6]

We have only the right to ask that fantastic literature retain coherence enough to let us grab hold of at least some of the ideas coming at us. Beyond that - well, let us consider the beyond. In the end, presentation transcends the authority of representation, just as Coleridge himself demonstrated in his poetry if not in his essays.

The Contemplative Mode

Werner and Kaplan have already suggested that it is contemplation, the power of reflective awareness, which makes us human. To speak to the contemplative mode, then, may be instead to speak of the basis of all modes. Nonetheless, we should not shy away from the very keynote among those tones which comprise the scale of selectivity. It could be that the W-K "genetic principle of spirality" is our keyway:

> Whereas more primitive organisms - again both phylogenetically and ontogenetically - are directed predominantly toward the satisfaction of biological ends, in higher organisms, ends of a quite different order come into play; in man especially such novel, emergent functions are clearly manifested. Among the novel ends immanent in the nature of the developing human being, ..is that of knowing about his world. This end plays an intrinsic role in man's transformation of his milieus into objects to be cognized and conceptualize.[7]

Immediate awareness is principally a matter of sensing; reflective awareness is principally a matter of meaning. The former has to do with object-in-the-world; the latter has to do with object-in-the-language. Both work to "figure" a "presence"'. "in a Gestalt perception in the traditional sense of the term", says Viktor Frankl, "we are perceiving a figure against a background; in finding meaning, however, we are perceiving a possibility embedded in reality".[8]

Response-toward is from one's navel; that is, I, as perceiver, am led via a signal (i.e., my acknowledgment of the (apparent) presence of a particular) to assume an anticipatory inter-action posture. I ready myself, as it were, for impending contact with a presence. Suzanne Langer has described well this posture:

> To a clever dog, the name of a person is a signal that the person is present; you say the name, he picks up his ears and looks for its object. If you say "dinner", he becomes restive, expecting food. You cannot make any communication to him that is not taken as a signal of something directly forthcoming. His mind is a simple and direct transmitter of messages from the world to his motor center.[9]

Object-in-the-world announces itself by way of our several senses; object-in-the-language announces itself by way of the conceptual loadings available in any given language. "Presence" can be signaled either way: both involve the discerning of feature. That is to say, differentiating is an act involving signaled particularities - featured feature. Facility in identifying a presence in the world is dependent upon the acuity of one's perceptual apparatus, while presence-in-the-language becomes recognizable according to one's acumen in interpreting formalized feature clues. There is "keen"; there is "ken". Curiously, each keys on "image".

"Language", said Ernst Cassirer, "grants us our first entrance into the objective. It is, as it were, the key word that unlocks the door of understanding to the world of concepts'".[10] Thirty years later, Langer extended the point with these words: "A language fully possessed is a system of conception; its figures of speech are figures of thought".[11]

What, then, might be these "figures"?

It would appear that the system of concepts available in ordinary language involves the following: (1) naming (the subject of discourse), (2) situating (the subject) in time and/or space, (3) identifying the subject's appearance, (4) identifying the subject's behaviour. Thus, (1) "Snoopy" (2) "is in London today", (3) "is tired"; "is a dog" (4) "fantasizes readily"; "'provokes arguments". In English, we conceptualize by naming, locating, describing the appearance and describing the behaviour of a subject of discourse.

Percept and concept alike signal a presence, but with an essential difference: a conceptualized figure is the replicate of a perceived figure - it's the same tone, but an octave above. The key signature remains the same.

The simplest of the definitions of the verb "to contemplate" listed in Webster's Third is that which reads "to view mentally". Indeed.

Let "symbol" speak for itself.

- a conventional or nonnatural sign depending for its meaning on an interpretant
- an act, sound, or material object having cultural significance and the capacity to excite or objectify a response

(WT), 4a

> Art is an effort of our consciousness directed toward a specific goal - to know and make known, to give shape to the shapeless, structure to the discomposed, and to lend form to the amorphous origin of chaos.[12]
>
> Nahum Gabo

> We live in a world of emergent novelty.
>
> William Thorpe

> We can represent to ourselves the real or hypothetical course of events, past, present, and future, and the engagement of our hypothetical selves. Rehearsing possible futures on the stage of the mind, we can play out a dozen alternatives, based on different assumptions, including the assumption of different interventions by ourselves; and we can defer

> decision until their probable outcomes have been anticipated and compared. This procedure relieves trial and error of its usual costs and extends its use far beyond its normally narrow range. Having rehearsed some possible future where the curtain falls on disaster, we have only to dismiss the phantom actors and rewrite the script.[14]
>
> Geoffrey Vickers

> The poet's eye, in a fine frenzy rolling,/Doth glance from heaven to earth, from earth to heaven;/And as imagination bodies forth/The form of things unknown, the poet's pen/Turns them to shapes and gives to airy nothing/A local habitation and a name.
>
> *Theseus, in*
> *A Midsummer-Night's Dream*

NOTES

1. Heinz Werner and Bernard Kaplan, **Symbol Formation**, Wiley, 1963, p. 10.

2. Albert Szent-Gyorgi, **The Living State**, Academic Press, 1972, pp. 6, 31, 40.

3. Daniel Greenberg, "Extremal Principles," **Encyclopedia of Philosophy**, Vol. III, MacMillan, 1967, p. 164.

4. Martin Buber, **The Knowledge of Man**, Maurice Friedmand and Ronald Smith, trans., Harper & Row, 1966, p. 158.

5. I.A. Richards and Christine Gibson, **Techniques in Language Control**, Newbury House, 1974, p. 71.

6. Friedrich Holderlin, **Poems and Fragments**, Muchael Hamburger, trans., R & K Paul, 1966, p. 131.

7. Werner and Kaplan, op. cit.

8. Viktor Frankl, **The Unheard Cry for Meaning**, Simon and Schuster, 1978, p. 38.

9. Suzanne Langer, **Philosophy in a New Key**, 3rd Ed., Harvard, 1957, p. 30.

10. Ernst Cassirer, **Symbol, Myth, and Culture**, Donald Verene (Ed.), Yale, 1979, p. 153.

11. Langer, **Mind: An Essay on Human Feeling**, Vol. II, Johns Hopkins, 1972, p. 353.

12. Nahum Gabo, **Of Divers Arts**, Random House, 1962, p. 194.

13. William Thorpe, **Purpose in a World of Chance**, Oxford University, 1978, p. 101.

14. Geoffrey Vickers, **Freedom in a Rocking Boat**, Penguin, 1970, p. 96.

MORAL EDUCATION AND THE CURRICULUM

Don Cochrane
Division of Educational Foundations
University of British Columbia

Writing a series of articles on moral education and the curriculum is similar to charting new pathways for a trip no one intends to take. This cynical picture of the practical prospects for moral education in Canada, while not proven, is supported by our study (Cochrane and Williams, 1979) in which the policies of the provincial ministries of education for moral education in public schools were scrutinized. With few exceptions our officials prefer to stand still. In Canada the joys of cartography in this field must be in the activity itself for no one is likely to make use of the map.

In our study we examined provincial statutes, departmental policy statements, curriculum guides, criteria for textbook selection, and statements by ministers and high officials in departments of education. We found that all provinces save one have some published policy. Six provinces have a policy which applies broadly to the whole school system; in another grouping of six provinces, there are some guidelines in specific subject areas which should contribute to a student's moral education. Three provinces have a general policy only; two others have a policy only in one or two subjects. None of this is very encouraging.

Provisions in acts governing public schools bear the antiquated air of having been "put on the books" more than half a century ago. They often list virtues which were fashionable at that time. Lofty in sentiment, cryptically brief, they offer little or no clear direction. In one case, a deputy director of curriculum requested that his province not be recorded as having a policy in the area of moral education though one was spelled out by such a statute! It startled us to find that only one minister of education in recent Canadian history has thought it important enough to speak out clearly and forcefully on the issue. When we combed curriculum guides, we found that aims related to any component of moral education appeared sporadically and did not reflect any policy, much less a coherent one. On occasion we could not find any correspondence between the stated aims and the curriculum materials recommended.

For the most part, then, we have at the official level "paper policy" rather than "practical policy." Ministers are guarded against the accusation that there is an absence of policy of any kind. In the acts, responsibility is most often deflected onto teachers. Yet, in no province is training in moral education prescribed as part of the initial preparation for teachers nor is it readily available for those already in classrooms. Finally, no provincial assessment has ever been carried out to determine the extent to which the purported aims have been attained. Imagine a similar situation in other areas of learning which are considered important?

This neglect at the ministry level is politically prudent, if educationally disastrous: promoting moral education is liable to turn citizens (and an electorate!) into hornets, and politicians are sensitive to the prospect of being stung. Most people are content with a process of "values socialization" in which students are moulded or shaped to conform to some set of prevailing standards. Adults, it is claimed, know reliably in advance what is or will be right or wrong. This knowledge, usually codified into a set of rules, needs only to be instilled into the minds of children. Occasionally, there is serious disagreement among members of the adult population about what constitutes the details of the moral

life. This may be the situation in Newfoundland. Though several options are open in such a case, including moral education, one solution is to institutionalize the differences. In the name of "freedom", a sectarian - even public - school system is established; any interest on the part of the government in the values transmitted is regarded as an unwarranted invasion of fundamental rights.

What results, however, is not an alternative to "values socialization" but simply multi-track socialization: differing groups of adults inculcate "their" children with their definitive version of The Good. As for the students, no one pleads that they should be free from indoctrination from whatever source. By accident of birth, they find themselves the inheritors of one tradition; they are to reflect it, not appraise it. "Freedom" in such circumstances is a slogan which makes it legitimate for a variety of adult groups to socialize their children in distinctive ways. It certainly does not guarantee the rational liberation of the minds of the young.

The role of the teacher would be to support the home and church by reinforcing the values taught in those places. On issues where there is likely to be disparity the teacher would strive for some kind of neutrality. Such an approach provides an alternative to moral education (for the latter is conceptually connected to the development of rationality) and might rest on one of the following assumptions:

(1) There is no such thing as moral reasoning which is in any way independent of cultural groups and their commitments. Hence, there is no "methodology" to be transmitted. For different sorts of instrumental reasons inculcation is the best alternative.

(2) Moral reasoning does exist, but it is relatively unimportant for there is a higher source of values (the state, a religion, or a class ideology) which ought not to be seriously questioned. Hence, there is no premium on developing a student's capacity to reason morally, and to the extent that it is nurtured, its scope should be carefully confined.

(3) Moral reasoning does exist, but it is difficult to transmit. In any case, it is an ineffectual guide to action.

(4) Moral reasoning does exist, and it is all too effective. For though it may lead to moral autonomy, it also results in the breakdown of community and the rise of anarchy.

It is impossible here to respond to these positions though they present serious challenges to moral educators. Each position, if sustained, would undermine either the possibility or desirability of moral education and would buttress the position of those who wish to retain and even reinforce crude forms of inculcation.

If what I have sketched can be described as the opposition from the right, moral educators must also contend with attacks from the "soft liberal left." They, too, believe that moral reasoning does not exist, and as no one could even know what is right, there are no grounds for judging, advising, guiding or teaching another. Such influence would be an imposition of one's own values on another. Because the "laying on of trips" is abhorrent to them, teachers are counselled to limit their activity in this area to helping students clarify their values and develop a tolerance for the values of others.

It appears to me that little besides "values socialization" takes place in Canadian schools, and that this is particularly true in areas where the population is relatively homogeneous. Some ministries, several boards, and numerous teachers have experimented with values clarification approaches; this has occurred more frequently in places with mixed populations. Where values clarification has made inroads, there has often been controversy. Moral education, as I have alluded to it, exists almost nowhere.

But imagine what public outcry there would be if a similar situation existed in science or, possibly, in history. Imagine the reaction if a teacher were discovered doing any of the following:

(1) teaching astrology in place of science;

(2) leading his students through a series of exercises designed to help them clarify their views about the empirical world and concluding that he has satisfied the requirements of teaching science;

(3) teaching bright, high-school students "facts about the world" so simple that they could be understood by any grade three student and in a way that avoided "difficult cases" and explanatory theory;

(4) inculcating a partisan view of history in such a way that students are incapable of reconsidering their views later on.

Parents would be justified in their outrage. In the first case, the methods of inquiry which characterize science would have been misrepresented. In the second, the failure to be concerned with the correctness or falsity of students' views would be rightly deplored. In the third, we would recognize that something about science had been taught but that the students' capacity to do science had been grossly underrated. The students would never have had the opportunity to use the scientific method to test the alleged facts, would never have understood the role of theory in structuring our view of the world, nor would their capacity to handle complicated cases ever have been developed. In the final case we parents would cry out that our children's capacity to rationally understand our past- and so our present and future - would have been permanently stunted. All of these protests center around the justified belief that the purpose of education is at least to provide students with those methods and procedures for thinking rationally about the world and their place in it. When these methods and procedures are misrepresented, ignored, undersold, or opposed there are grounds for protest. Nothing less than the autonomy and dignity of our students is at stake.

It has been mooted that there is nothing so practical as good theory. In the same vein, I would add that there is nothing so important to the building of sound curriculum as clear and coherent aims. Phrases that encapsulate important but very general goals in education need to be dismantled into their constitutive parts so that these may be inspected, understood, and their interconnectedness appreciated. Various general goals have been advanced at different times and in different places: the Christian gentleman; the good citizen; the faithful Catholic, Moslem, or Sikh; a loyal Canadian, a solid Marxist; a living example of the free enterprise system, and so on.

By contrast, I have proposed (Cochrane, 1975) that a justifiable goal fora program of moral education would be to produce "morally autonomous agents." However, a clearer idea of the "morally autonomous agent" - the M.A.A. - is needed before

entertaining the serious problem of justifying this candidate against others or facing the challenge of implementation. Could the M.A.A. ever be regarded by the authorities of the time as a bad citizen, and, if so, how is this to be explained? Bertrand Russell, Mohandas Gandhi, Martin Luther King, and Alexander Solzhenitsyn provide interesting, internationally known test cases. Closer to home one thinks of Louis Joseph Papineau, William Lyon MacKenzie King, and Henri Bourassa. Could a Marxist be a good M.A.A.? If a capitalist were an M.A.A. would there be times when the pursuit of profits would have to be tempered, and, if so, on what grounds? Most difficult of all, we would have to decide whether the M.A.A. would have to be informed and moved by a religious point of view.

For a more precise picture of the M.A.A. to emerge, further questions would need to be pursued. Would it be possible to characterize the stance such a person would take toward authority figures or peer group pressures? Would it be possible for one to be an M.A.A. without the capacity to empathize, the disposition to consider the interests of others, the possession of a range of interpersonal skills (such as the ability to console, share another's joy, express gratitude, "read between the lines," and a host of other possibilities), and the psychological resources needed to sustain moral action? These are only a few of the questions which need to be fully addressed. What emerges from the discussion of such questions is a list of the components which the M.A.A. would need to possess. This task has yet to be undertaken thoroughly (for limited excursions see Cochrane, 1975, Coombs, 1979, and Wilson, 1973). It has never been undertaken by a ministry of education. From such a reckoning, curriculum planners could decide which fall within their jurisdiction and set about designing curriculum to promote these attainments.

These tasks of clarification and justification are essentially philosophical, though I would not want it inferred from this that only professional philosophers should engage in them. I would anticipate that attempts to ferret out what "pieces of equipment" the M.A.A. would require would reveal that such characteristics are numerous and of very different sorts. Thus the practical task is likely to be a complicated one.

Let me offer a series of speculations to open discussion with curriculum specialists. First as in other fields, students will not learn in abstraction what they do not work with in the concrete. The close study of the U.N.'s Universal Declaration of Human Rights is unlikely to have much impact if the students have no experience of rights in their own lives in school, family, and society. Admittedly, this concern is predicated upon the belief that moral agents are people who by virtue of seeing themselves and others as persons believe that they have rights and attendant responsibilities. Thus, I would recommend that a growing, immediate experience of rights and responsibilities be built into the curriculum. Our present practice seems to rest on the rather fanciful view that the acquisition of the concept of rights and the development of a deep commitment to it arrive on a date set by provincial legislatures. Thus, belief in social magic substitutes for learning theory.

Second, students will not become skilled in making impartial judgments about issues of justice unless they have practice. We cannot do students' moral thinking for them any more than we can do their mathematical or scientific thinking. Imagine cases in these subject areas where students were presented with problems and immediately referred to the answer sheets so that the correct response could be copied. It is difficult to imagine how independent thinking could ever begin. Looking up the answer is a check on one's thinking, not a substitute for it. Students, then, will have to be given

opportunities to succeed and to make mistakes in their moral reasoning. Demonstrating that there have been mistakes in moral thinking need not be a process far removed from what is considered good practice in mathematics and science classes now.

Third, if a curriculum is to contribute to students' moral education, then moral reasoning must have a central place. At the moment, most ministry curriculum guidelines - where they even hint at it at all - make moral reasoning an incidental, almost accidental matter. Piaget offers a useful parallel with this aphorism: "Logic is the morality of thought, and morality is the logic of action." Classes in logic may or may not be effective ways to teach students to reason better, but if they are not, it is still valid to demand logical thought in the tasks we set our students in all their other subjects. Just as there is more to scientific and historical thinking than reasoning logically, there is more to deciding what to do (at least on most occasions) then reasoning from the moral point of view. Nevertheless, the canons of logical and moral reasoning ought not to be broken if we are to be rational in thought and action. Logic and moral reasoning may be treated as separate subjects, but because of their special status, they cannot be confined to particular classes. We offer students a distorted picture of "epistemological reality" if we treat them as if they can be hived off from other human pursuits.

Fourth, subjects form the academic curriculum, and the life of the school comprises the social curriculum for the student. Both convey important lessons. The social curriculum has often been referred to as the "hidden curriculum," but to equate the meaning of the two would be a `mistake. The social, or structural curriculum may be hidden but it need not be. If we are seriously interested in moral education, we need to examine carefully the effects on students of different modes of social organization, select those which most foster moral education, and proclaim openly what we are doing. But whatever the details, there must be the practice and atmosphere of rational discourse about moral issues. Sometimes students' views on such issues will be unacceptable, but their right to put them forward in the social context of rational discussion must always be respected. As a corollary to this, the decisions of teachers and pronouncements of administrators should be subject in principle to the appraisal of all members of the school community and, by definition, this includes the students. This follows logically from the nature of the enterprise; what we are trying to teach about rational discourse is that a - proposition is true or a moral imperative justified not by virtue of who said it, but because the reasons given are convincing. Scheffler's (1965, 11-12) general remarks are challenging and pointed when applied to our specific concerns:

> The person engaged in teaching does not merely want to bring about belief, but to bring it about through the exercise of free rational judgment by the student. This is what distinguishes teaching from propaganda or debating, for example. In teaching, the teacher is revealing his reasons for the beliefs he wants to transmit and is thus, in effect, submitting his own judgment to the critical scrutiny and evaluation of the student; he is fully engaged in the dialogue by which he hopes to teach, and thus risking his own beliefs, in lesser or greater degrees, as he teaches.

Far from being alarmed, not to say threatened, should students begin to question life in the school, teachers and administrators ought to be prepared to encourage such a development and celebrate it when it happens. Indignation is not by definition insubordination just because it is directed anus. To fail I n this. respect is to add confirmation to· Kozol's (1975) view that schools exist to contain youth by domesticating its ethical capacity. He would claim that the horror of My Lai was not an aberration in our

social system but a perfect flowering of it. We are trained to cast our ethical gaze on remote situations but not to scrutinize and, where necessary, challenge moral problems in our immediate environment. We feel free to criticize Cal ley for not objecting to Medina's orders for what took place faraway from us. But would we have acted differently had we been there? We may have been exhorted in our classrooms to stand up for principles, but were we given much practice, especially with respect to the authority figures in our schools? Were we trained in our homes and schools to resist the pressures of peer groups and encouraged not to obey blindly the orders of our "superiors"? The social curriculum inmost Canadian schools needs radical revision.

Fifth, it has been inferred from the work of R.S. Peters that to educate students takes care of their moral education. After all, to educate necessarily is to promote states of mind thought to be intrinsically worthwhile. I think that this is to make too much out of a rather porous conceptual point. However, to educate does require a commitment to the pursuit of truth. To teach within the restrictions of this process in the social studies, arts, sciences, and so on does require one to exhibit and secure adherence to conceptual consistency, public procedures for testing knowledge claims, and so on. Clearly there are moral elements. Further, educating is a moral enterprise in that one of its purposes is to liberate students from ignorance and superstition and so make an indispensable contribution to the students' autonomy. Thus, to educate by initiating students into the disciplines is to contribute to students' moral education. However, there is more to the notion of moral education than education simpliciter.

There are further considerations for the curriculum planner. Even if it is granted that history contributes to someone's being educated, the planner must then decide whether students should study Canadian or Byzantium history; if the former, whether they should study the French or English versions, or both; and whatever decision is made on these issues, whether, for example, they should be initiated into Marxist or traditional approaches to that history. At each stage, the planner is engaged in decisions which contain value elements. The consequences for the student are considerable; each decision will result in the selection of a special range of facts which will reflect the underlying theory or point of view and will present to the student a "picture of reality." This, in turn, will shape what the student is likely to see as relevant from the moral point of view.

Sixth, it is common knowledge that our students are heavily influenced in their thinking by sources outside the curriculum, and indeed, outside the school and family altogether. They are innundated with advertisements daily that convey, among other things, ideals of human relationships, attitudes towards large corporations (invariably we are led to the comforting belief that they are working primarily for us and our interests), and the desirability of certain life-styles (necessarily, it seems, involving a high level of consumption). They are likely to have formed attitudes towards war from watching films like The Green Berets, not The Battle of Algiers, The Cranes Are Flying or All Is Quiet on the Western Front. They will have seen Rene Simard and Glenn Campbell but are less likely to have been exposed to Buffy St. Marie and Pete Seeger. From the general conduits of Canadian culture they are likely to have the impression that the record of the Canadian government, army, and police in defence of the civil liberties of its citizens is unblemished. Hence, there is little need to be vigilant, much less suspicious. Students are unlikely to be intimately familiar with or, in any case, not disturbed by events in The Winnipeg General Strike of 1919 or the strike at Asbestos in 1949, the plight of Japanese-Canadians at the outbreak of World War 11, and any of the unofficial versions of the October Crisis of 1970. They come to school having developed deep and

pervasive attitudes towards native Americans, women, children (themselves and their peers), and a variety of minority groups. If recent studies are valid, many will come to school with considerable prejudice towards such groups. A student is unlikely to be a moral tabula rasa.

Kaufman (1973, 53-4) captures the situation succinctly:

> . . early processes of socialization tend, in the overwhelming majority of cases, to promote unreflective identification with the prevailing culture. Pervasive, deep, and tenacious, this process of acculturation tends to be reinforced by traditional ways of discipline...
>
> The best way to educate for autonomy lies, then, not in rejecting traditional works but, at least in part, by carefully selecting from among them those works most likely to help a student win through to autonomy; that is, selecting those that pose the most thoughtfully radical challenge to prevailing modes of thought, feeling, and judgment.

His analysis and cure are not attacks on conservatism, only pre-reflective conservatism.

> If the student is autonomously reconfirmed in his originally conservative viewpoint, so be it. His conservatism now has a basis in reasoning it previously lacked.

Kaufman's challenge to the curriculum planner committed to the aim of autonomy in moral education is clear. He must examine the prevailing culture which will be acquired unreflectively by most students and offset the imbalance through the careful selection of materials. His job is not simply to present the "balanced view," much less to confirm the prevailing culture.

Finally, how should moral education enter the curriculum? Should it appear (1) as a discrete item on the timetable, (2) as the special responsibility of certain subjects such as religious education, literature, and social studies, or (3) as an objective to all courses? To suggest that "not all of the evidence is in" is to imply that some of it is. I know of no study that makes the comparison needed to help us decide this question. (And note that the question is an empirical one.) We do not want to know what motions we need to go through in order to satisfy ourselves that we have taken a "shot" at it; rather, we want to know what is effective in promoting the moral education of our students. A second point needs to be made on this question: debate on the three options ought not to be conducted as if the categories were mutually exclusive. It is quite consistent to maintain that certain objectives - say, developing a strong commitment to pursuing what is true and making students more sensitive to the moral dimensions of a wide array of situations - should be the aim of all subjects; others - say, developing of the capacity to see the other's point of view and to empathize, overcoming racial and other forms of prejudice and developing a range of interpersonal skills - should be the special province of subjects like drama, social studies and counselling; and still others - say, improving a student's ability to reason morally and learning to "see" the moral dimensions of their lives in their classroom, school and society generally - might be the special responsibility of a class called "Moral Education" which has its own place in the timetable.

Essentially this proposal acknowledges that moral education is the responsibility of the whole school but assigns some of the tasks to certain subject areas for special

attention. The first advantage of this approach is that there is a greater likelihood of teachers taking the job seriously; a responsibility that is everyone's is often one that is undertaken by no one. Second, these institutional arrangements highlight the varied components of locating them in areas of the curriculum where they might be best promoted; in particular, it recognizes the distinctiveness of moral reasoning and provides it with the same opportunities for being taught and learned as other forms or reasoning. Finally, a place in the curriculum increases the chances that budget and other resources will be adequately allocated.

This essay began on a pessimistic note and should end there. There are no strong grounds for believing that in the near future our schools will take moral education seriously. The reasons are many and well known (see for example Cochrane and Williams, 1978, 10-13). John Wilson counsels patience: we are in moral education where science was in the era of Galileo. We need more time to clarify and gain acceptance of our subject matter and its methodology. But do we have the time?

REFERENCES

Cochrane, D. Moral education -a prolegomenon. **Theory Into Practice**, 1975, 14(4), 236-46.

Cochrane, D. and Williams, D. The stances of provincial ministries of education towards values/moral education in public schools. **Canadian Journal of Education**, 1978, 3(4), 1-14.

Coombs, J. Attainments of the morally educated person. In D. Cochrane, C. Hammand, A. Kazepides (Eds.), **The Domain of Moral Education**. New York: Paulist Press, 1979.

Kaufman, A.S. Comments on Frankena's 'The concept of education today'. In J.F. Doyle (Ed.), **Educational Judgements**. London: Routledge and Kegan Paul, 1973.

Kozol, J. **The Night Is Dark and I Am Far From Home**. Toronto: Bantam Books, 1975.

Scheffler, I. **Conditions of Knowledge**. Chicago: Scott, Foresman and Company, 1965.

Wilson, J. **The Assessment of Morality**. Slough, U.K.: National Foundations of Educational Research, 1973.

MORAL EDUCATION AND THE CURRICULUM: A DISCUSSION OF THE RECOMMENDATIONS

J.R. Covert
Department of Educational Foundations, M.U.N.

In this paper Professor Cochrane has presented a persuasive argument relating to the prior question of whether moral education should or should not be included in the curriculum. He claims that schools have no choice but to deal with values because all children come to school with a set of values that they have learned from their out-of-school experiences. This automatically shifts the emphasis from questions about whether or not to teach values, to a discussion of how to influence most effectively the existing value stances of students. It is interesting to note that Professor Cochrane has rejected values socialization and value clarification as most appropriate methods and has substituted a program of moral reasoning and logic, leading to the development of a Morally Autonomous Agent. While he does not enumerate the personal characteristics of a Morally Autonomous Agent in this paper he cites as examples Bertrand Russell, Martin Luther King, and Alexander Solzhenitsyn, who seem to represent desirable outcomes for any school program.

While philosophers are typically cast as ivory tower theoreticians, it is clear that Professor Cochrane has broken out of this mold and is willing to enter into the thick of the battle by making seven recommendations about how moral education can best be applied through curriculum to schooling. Philosophers are critical persons by training and so it is not surprising that Professor Cochrane makes several disparaging comments about the state of moral education in Canada. What is surprising is the empirical basis that he has amassed for making these claims. It is indeed rare that we find a philosopher having conducted a national survey in order to obtain support for his claims. This then cannot be the work of a person closeted in an ivory tower. Apparently we now have the opportunity to examine the recommendations of a philosopher who has empirical evidence to support these recommendations. Unfortunately there is not space in his brief article to provide the results of the survey.

What can be examined as a result of the careful reading of this paper is Professor Cochrane's recommendations for the process of developing a Morally Autonomous Agent. Quite clearly we are not to consider the aim of this program as much as the process required to attain the Morally Autonomous Agent. Let us therefore attend to the recommendations made in the latter portion of the paper and consider their implications for practice. Three of the recommendations seem to refer to the climate of the school and its influence on moral education, and three seem to have a more direct implication for the classroom situation. The seventh, referring to the appropriate way to include moral education in the curriculum, follows closely from the previous six and I believe, as a result of reading the evidence presented, requires that moral education become an integrated part of the entire curriculum.

Let us examine Professor Cochrane's claims about the current conditions of schooling and their impact on moral education. I take these to be embodied in recommendations IV, V and VI alluding to the overall school environment. If we examine these in reverse order we can discover some of the reasons that have led Professor Cochrane to make such a strong case for moral education in the schools, and his particular concern for the development of a Morally Autonomous Agent.

VI. Professor Cochrane argues that students come to school with fully established value stances and continue to have these positions reinforced by out-of-school influences as they progress through the grades. Teachers are well aware of this fact and students attending their classes do reflect the cultural or subcultural norms of the groups with which they associate most closely. Professor Cochrane recommends that in order to counteract these pervasive cultural norms teachers ought to present a carefully selected, professionally biased view of the culture.

> "His job is not simply to present the "balanced view", much less to confirm the prevailing culture."

This unbalancing of the pervasive culture norms will help to develop a Morally Autonomous Agent. The position is commendable, but the attendant difficulties may be of concern to those more familiar with the multiplicity of teachers that exist in the school system. It quite clearly requires that the teacher be a Morally Autonomous Agent armed with methods and techniques for getting across these moral points of view, and raising points for discussion without seeming to indoctrinate.

V. The second school climate factor that concerns moral education is one involving the selection of any curriculum. Professor Cochrane reminds us of two very important points about curriculum construction. First is the notion that all things chosen for inclusion in the school curriculum are largely value choices. The inclusion and exclusion of courses influences the very nature of the school all the way from vocational to academic. Even more importantly for teachers, the choices they make within their own disciplines also involve an element of value, and ought to be made carefully because the way the teacher selects the "facts" to be presented may dramatically influence how the student will shape his own reality. And finally Professor Cochrane reminds us that to initiate students into the information contained in the various disciplines is to liberate them from ignorance and therefore is inherently a moral activity.

IV. This recommendation refers to the social environment of Canadian schools and suggests that it is important for schools to establish an atmosphere that is conducive to rational discourse both inside and outside of the classroom. Professor Cochrane is arguing here that students need to have practice in defending their moral principles if they are ever to become responsible for their own choices. The encouragement of rational discourse in administrative matters as well as in courses, will engender in the students the notion that the answers to moral questions are determined by rational judgment not by fiat from an authority figure. It is important for students to understand that moral precepts are true because of the good reasons given and not because of tradition, peer group pressure, or other nonrational sources of evidence.

These three rather general considerations focus on the school environment and suggest that schools can be organized socially and academically in such a way as to promote moral education. This would require not the addition of a course or any discrete item to the timetable, but rather a pervasive atmosphere in the schools that encourages the development of a Morally Autonomous Agent through rational discourse at all levels.

The second set of recommendations, number I, II, and III, also refers to the process rather than the product, but these three focus more precisely on the classroom environment involving teacher and student interaction. In these three recommendations Professor Cochrane is concerned with outlining the process to be used to encourage the

development of the Morally Autonomous Agent. Again if we take them in reverse order we may proceed from the more general to the most specific.

III. In recommendation Three Professor Cochrane explains moral education in terms of concepts of logic and moral reasoning. He argues that moral education can occur only when moral reasoning has a central place in the curriculum. He goes on to say that

> " . . .the canons of logical and moral reasoning ought not to be broken if we are to be rational in thought and action. Logic and moral reasoning may be treated as separate subjects, but because of their special status, they cannot be confined to particular classes."

Here we see the call for an atmosphere of rational discourse so essential to the development of a moral education program. While we might like to have more precise details about what constitutes his view of moral reasoning and how it is distinctive and differs from logic, we can capture the rational spirit of this transitional statement and see how it serves to unite the six recommendations by moving the rational discourse from the individual classroom to the school as a whole. In all instances the giving of good reasons is the essence of Professor Cochrane's rational position. Therefore in this recommendation, too, it appears as though a moral education must pervade the entire curriculum in order to be effective.

II. Recommendations Two and One emphasize the element of action in Professor Cochrane's view of moral education. Students become Morally Autonomous Agents by practising moral judgments and taking the responsibility for their actions. In recommendation Two he speaks specifically about how the student, practising moral judgments, must be encouraged to develop these skills for making moral commitments.

> "Students will not become skilled in making impartial judgments about issues of justice unless they have practice.... Students, then, will have to be given opportunities to succeed and to make mistakes in their moral reasoning."

In providing clues as to how this activity might proceed he suggests that the process for making moral decisions is not far removed from the process involved in making decisions about answers to math and science problems. He even implies that there can be an answer sheet for moral problems, which may be carrying this analogy a bit too far. But the primary point Professor Cochrane seems to be emphasizing is that making moral decisions is not some mysterious process that can be engaged in only by philosophers or clergymen. Students and teachers make moral judgments daily, and these are important decisions that need to have a firm basis derived from a rational thought process.

1. Recommendation One continues the action orientation of his moral education process. Professor Cochrane states,

> "Thus I would recommend that a growing, immediate experience of rights and responsibilities be built into the curriculum".

He is arguing that students will learn to make responsible choices only when they are given the responsibility for their actions. He suggests that they need to stand up for their

rights and be made to accept the resultant responsibility for their action. There are many questions that could be raised about the appropriate level of moral activity for the appropriate age, but the concept is quite clear and quite sound. In order for students to engage in moral education they must gain a respect for persons which results from an appreciation of a person's rights and their attendant responsibility.

It is easy to see what Professor Cochrane has not done with these six recommendations. He has not provided us with a specific program for teaching moral education with prescribed details for establishing behavioural objectives and selecting textbooks. I am sure that this was not his intent, nor is it within the purview of an educational philosopher. What he has done is provide us with a framework for making decisions. He has suggested that the process of moral education is primarily a rational activity that requires practice by those involved, which means more than merely reading about moral dilemmas. Schooling values rationality in all of its functions and moral education maybe a prime example of acting rationally. The process of moral education does not differ in kind from that found in other academic disciplines. It requires more than information to make a moral decision, and that can come only through practising moral judgment at all levels of decision making.

The other major contribution made by Professor Cochrane in this paper is getting us to realize that moral education is an all pervasive process that cannot be confined to one course or even the academic portion of the school. Everyone engaged in the schooling enterprise is involved in making moral decisions. The administrators' handling of student claims, the teachers' selection of curricular material, and the students performing acts for which they must assume responsibility are all examples of moral acts. Schooling is a moral activity and those engaged in the activity of liberating from ignorance should realize it and be educated to make good moral choices.

REACTION

Phillip McCann
Department of Educational Foundations

Don Cochrane puts his finger squarely on many of the important problems connected with morality and moral education and suggests an approach which has many attractive features. In fact he returns to a conception of morality very similar to that which grew out of the eighteenth century Enlightenment in Europe - the formation of rational, critical individuals; educated "according to nature", they would be, in Robert Owen's words, "full formed men and women, physically and mentally, who would always think and act consistently and rationally". This ideal of the autonomous, rational individual was however, from the early 19th century onwards, swamped by the moral attitudes enforced by the Protestant churches, particularly those of an evangelical persuasion, and transmitted through the schools as educational provision increased. Morality, in all English speaking countries during the past two centuries or so, has thus always had a religious or quasi-religious connotation and has taken the form of a series of (largely negative) precepts or commands, handed down from above by minister, parent and teacher. As these moral attitudes brooked no argument and had about them an aura of rightness, if not of infallibility, those not subscribing to them or opposing them were considered wrong, wicked or, in extreme cases, sinful, rather than autonomous individuals with interesting (if different) ideas.

Cochrane points to some of the attitudes which, he implies, traditional morality has engendered, or at least not successfully opposed or undermined: a tendency uncritically to accept judgments handed down from above; ignorance of certain areas of life and thought; a narrow and biased attitude towards minority groups and a too-ready acceptance of the status quo, particularly images of the Establishment put out by the media. The guardians of morality, particularly those in schools, have by and large not even recognized these as areas of moral concern, but have devoted their energies to exhorting young people to become more "moral" in the relatively narrow area of sexual and social relationships.

Cochrane's alternative is attractive: the creation of "morally autonomous agents", who by the exercise of rational, critical thought, not only in the abstract but also in practical situations, would be able to subject society, its institutions and its ideologies to searching investigation and to arrive at well formulated and soundly-based moral positions of their own. The implication is that many institutions and ideologies in present-day society would not survive this process unscathed, i.e., that many aspects of society rest on irrational foundations. (Cochrane recognises, however, that there would be exceptions). In other words, the creation of large numbers of morally autonomous agents would result in a mare enlightened and just society, for we find it difficult to envisage a society containing a majority of rational, enlightened, justice-loving individuals which would in itself be structured on injustice, irrationality, obscuratism and reaction.

Or do we? The question brings us close to consideration of the sources of power in society and the mechanisms of social change. Recent events in Latin America and the Middle East have shown how small ruling classes, if sufficiently in control of the sources of economic and military power and sufficiently ruthless in their deployment, can control and exploit for long periods a population almost wholly rational and just in their aspirations. The eventual solution is almost always one involving political force (though not necessarily violence) rather than moral persuasion. A shah will flee because of the

united opposition of his people, not because he is intellectually and morally convinced of the justice of their cause.

If we accept this view, are we throwing overboard the validity of rational, critical thinking, the effectiveness of moral education, the desirability of promoting autonomous moral individuals by means of changes in the schools and, in particular, in the curriculum? Not necessarily; as Cochrane points out, the likelihood that all cannot be achieved is no reason for abandoning the attempt to achieve something. The role of the school as an agent in changing social attitudes comes under scrutiny at this point. Educators at various times and places in the last century (most notably in the U.S.A. in the 1930s) have believed that the school could become the prime agent of social change. Even if this cannot be substantiated, schools can, however, do far more than they are doing, or have ever done, to produce thinking pupils who can claim to have been morally educated.

The greatest stumbling block to the introduction of moral education in the schools - whether, as Cochrane suggests, by means of promotion of a special subject, drawing it out of certain existing subject or by making it the objective of all courses, or by a combination of all three - is likely to be the pupils' image of the school rather than bureaucratic opposition. Schools are, by and large, unattractive places for young people, and for this, of course traditional morality and moralisers must take their share of the blame. Any attempt to introduce an exciting new subject into the curriculum is likely to be hampered by the distaste of indifference which pupils display towards the curriculum in general. This suggests that moral education may best be introduced as part of a general reform which would aim at making schools more relevant, interesting and exciting places for young people. This cannot be done from above but requires the cooperation of the pupils themselves and their parents, and this in itself presupposes a minor social revolution. So we return again to the relationship between school reform and social reform and the problem of making a beginning in the modification of the curriculum. But once again we can say that some, even minor, changes in schools in the direction of humanity, rationality and more creative living are better than none at all; teachers and educators who are willing to battle away to achieve even small changes are likely to engender and help forward other, more fundamental, movements which will create conditions under which moral education may thrive. The danger is to look at the problem in isolation. This is, perhaps, the one weakness of Cochrane's paper. Apart from this, its merits have been made clear.

WHAT MORAL EDUCATION IN NEWFOUNDLAND SCHOOLS?

Romulo F. Magsino
Department of Educational Foundations, M.U.N.

I. Introduction

Outside observers could easily conclude that moral education is non-existent in Newfoundland schools. Thus, Professors Don Cochrane and David Williams at Simon Fraser University seem to suggest such a conclusion in their report on a survey of the stances of Canadian ministries of education towards values/moral education.' By implication, they seem to think that the deference of the Newfoundland ministry to the denominational educational committees results in the implementation of religious, not moral, education in the province.

The conclusion could easily arouse disbelief and criticism in a number of Newfoundland educators. The conclusion, they would allege, reveals an unfortunate misunderstanding of the educational arrangements in the province. For to the contrary, extensive moral education goes on in Newfoundland schools. Presumably it is not only incorporated in denominational religious education; it is also actually practiced in the daily conduct of students and teachers, given the religious atmosphere within the educational institutions of this province.

It is only fair to note, however, that the conclusion reached by Professors Cochrane and Williams does not follow from their misunderstanding of the Newfoundland situation. In fact their report indicates a grasp of the educational realities in this province. Rather, their conclusion traces back to something philosophically fundamental - that is, to an issue on which our provincial educators and Professors Cochrane/ Williams do have diametrically divergent positions. These divergent positions pertain to the nature of moral education, which involves views about what serves as appropriate foundations for morality and what moral education in practice might be like.

In this article, I shall try to explore the dimensions of the disagreement between Professors Cochrane/Williams and their Newfoundland critics. It will become apparent that I sympathize with the latter in their insistence that moral education[2] does go on in this province, albeit of an inevitably religious orientation. Nevertheless, I shall attempt to show that religious moral education alone does not suffice. In this regard, I join hands with Professors Cochrane/Williams in calling for an extensive program leading to an adequate moral education in Newfoundland schools.

II. Morality and Education: Two Views

Morality, if we might refer to the traditional conception of the term, is the conduct of life according to principles and standards of right and wrong. By this definition, to be moral is to adhere to rules of conduct and to perform those acts that conform to justifiable principles and standards; to be immoral is to adhere to rules of conduct and to commit those acts that violate such principles and standards. Clearly there are two crucial aspects in this definition. The first is the (I) substantive aspect, which involves the statement of the principles and standards of conduct and of the acts that conform to them. The second is the (ii) procedural aspect, involving the process of (a) determining whether an act conforms or not to principles and standards and (b) determining whether

the principles and standards are justifiable or not. Needless to say, these aspects are inevitably interdependent and are distinguished here mainly for the sake of analysis.

The disagreement noted earlier may now be examined fruitfully. It is thought to pit two mutually exclusive systems of morality, each of which presumably differs from the other in relation to the substantive and procedural aspects of morality. These two are the secular and the religious systems.

(I) The systems and substantive morality. For the religious system of morality, particularly that which belongs to the Judaeo-Christian tradition, moral principles and standards come from the will of a supreme deity. Whether the principles or standards were simply revealed and witnessed with a holy book(s), or additionally reinforced by religious tradition, this system insists that the will of the deity has been expressed for all men to follow in the conduct of their lives. The Ten Commandments, or the Sermon on the Mount, for example, embodies the standards required of moral life.

It is clear that for this system, no strict dividing line can be drawn between religion and morality. Religion, as a set of beliefs, includes beliefs about how human conduct ought to be guided. In the Jadaeo Christian tradition, particularly, to be religious is not only to believe in God but also to obey His will or commandments; to be moral is to live according to principles and standards drawn from the accepted religious tenets. In brief, within this system, to be religious is to be moral, and vice-versa.

The ramification of this viewpoint for moral education is fairly obvious. Within the system, there cannot be any moral education distinct and apart from religious education. Because right and wrong, good and bad, cannot be determined independently of the will of the supreme deity, any process that seeks to promote allegiance to appropriate standards of conduct - that is, any moral education - will of necessity be religious in nature. On the other hand, to provide for religious education is to provide for moral education. Adhering to these viewpoints, therefore, Newfoundland educators who oversee religious education could dismiss any claim that moral education is virtually non-existent in this province.

The secular system opposes all this. The secularist might agree that certain religious principles coincide with those of the secular humanists, for example. Thus for the religious as for the secularist, one ought not to kill. Yet for the latter, one is obliged to refrain from killing not because some god or religious commandment says so, but because human reason demonstrates to us good grounds for not doing so. For the secularist, such principles as respect for persons, justice, consideration of others' interests, and freedom are not godgiven. Rather, they are discoverable and justifiable. The use of reason is, so to say, the demarcation line between the moral and the religious. Principles and rules of conduct derived from them are religious if they are drawn from religious creed; they are moral only if they are demonstrated or demonstrable by reason.

This hard-line distinction between the religious and the moral underlies the conclusion that virtually no moral education takes place in Newfoundland. For the secularist, moral education has a separate identity and should be treated accordingly in any educational program - something which presumably the provincial educational systems fail to do. The secularist therefore is apt to recommend strongly a distinctively moral education program. Such a program, far from instilling unquestioning commitment

to static dogma and inflexible principles, would foster critical understanding, deliberation, and independent judgment.

(ii) The systems and procedural morality. The stress on understanding underscores secular morality's commitment to rationality. Secular morality is confident that reason is capable of determining not only the general principles guiding human conduct, but also the courses of action in specific situations. It insists that judgments should be rendered only following a serious consideration of relevant and adequate evidence, of the consequences of alternative courses of action, and of certain presuppositions underlying moral conduct, such as universalizability and impartiality. From this perspective, no rule of conduct, standard, or principle is sacrosanct. Any authority supporting moral judgments, whether divine or human, is subject to critical inquiry.

The secularist is so convinced about requiring the use of reason that he regards religious morality to be no morality at all. He is inclined to think that because religious morality eventually rests on faith in undemonstrable supernatural beings and unverifiable doctrines, it automatically fails the test of reason. Furthermore, he is worried that religious morality reduces the status of men as autonomous, willful, rational beings to that of submissive, passive, unthinking subjects. His fear is that insofar as individuals become psychologically conditioned to principles accepted on faith, they could lose responsibility and agency for their actions.

III. Religious Morality as Genuine Morality

If morality involved merely a substantive aspect, the possibility of a genuine religious morality would not really be debatable. This is because morality, defined as the conduct of We according to principles and standards of right and wrong, is substantively neutral. That is, it does not specify what the principles and standards are supposed to be. Consequently, it does not rule out any particular set of principles, whatever origin they might have had, merely by definition. Thus the moralities of thieves, of saintly monks, and of secular humanists - each of these has a valid claim to being called a morality. Indeed, from the substantive aspect, the issue is not whether religious morality is a true morality, because definitely it is. The secularist (or the religious, for that matter) who claims that a particular moral system is not a system of morality at all is in effect stipulating or restricting what a system of morality ought to be substantively. But because the very notion of morality is neutral in this regard, what right does he have to arbitrarily stipulate?

Actually, the issue is that of superiority and preferability. Given that there are two or more competing moral systems, which one is superior and thus preferable? It is at this point that the secularist regards himself especially to be well-grounded. He is confident that his emphasis on the use of reason is consistent with a conceptual requirement in the very idea of morality. Presumably built into this idea is rationality or reason. For how is one to ascertain whether an action in a particular situation violates or follows a principle or standard if one did not use one's reason?

The secularist assumption of superiority based on his use of reason should be treated with caution, however. For in one respect, the conceptual necessity of reasoning satisfied in secular morality is satisfied no less in religious morality. Just like the secularist, the religious who wishes to be moral does, can, and should use reasoning to

determine in particular situations the right from the wrong according to religious standards. The secularist strategy is thus to proceed one step further. He could claim that the notion of morality conceptually requires reasoning not only in that it is presupposed in determining what actions follow from principles and standards. Presumably, reasoning is also presupposed in determining what principles and standards are to be adopted to guide human conduct. Allegedly, in this respect, secular morality is superior because unlike religious morality which depends on faith, it anchors itself on reason.

The strategy is flawed, however. While morality entails some set of standards to serve as criteria for right or wrong conduct, the notion does not specify or require that the set should be arrived at by reasoning at all. To suggest that the notion of morality implies a rational process in the formulation of principles and standards is to reveal one's secularist orientation.

Nonetheless, it is still possible to show that a moral system using rationality to determine its principles is preferable to one that does not. The strategy, it seems to me, is not to appeal to the meaning but rather to the point of any morality; to refer back not to what morality is, but to why it is there - what it is for, what its purpose is. Obviously so, morality is there as an appeal to man's reason and will so that he will conduct himself in a way that secures his own and his fellows' welfare. If this is so, what better way is there to attain morality's end than to have man's will guided by his reason? If he is to secure individual and collective welfare, could he arrive at appropriate principles and standards any more effectively than by the use of his rational powers?

There is little doubt that secularist morality appears attractive because of its emphasis on rationality. This forces itself on us when historical evidence points to disasters that have befallen mankind due to blind faith. Less dramatically, take the morality of a religious denomination that, in the name of faith and uncritical reading of the bible, refuses any blood transfusion for its members even when such a transfusion is evidently needed to save their lives. Some people might argue that if a religious morality can be so insensitive and irrational as to countenance avoidable, unnecessary deaths of human beings, surely any other morality which refuses to do so must look immensely commendable!

This should not be taken as a sweeping condemnation of religious morality, however. Its reliance on faith does not rule out reason, nor does it make this morality irrational or unreasonable automatically. Philosophers have shown that certain fundamental religious beliefs cannot be rightly regarded as unreasonable or irrational. If so, moral principles and standards derived from them may not be irrational or unreasonable either. Moreover, it must be admitted that within the Judeo-Christian tradition alone, attitudes towards reason vary. They range from contemptuous rejection through mistrust to a deliberate and systematic attempt to fuse faith and reason together as exhibited by Thomism within the Roman Catholic Church. Neothomism still attempts what St. Thomas Aquinas tried to do: to show that unaided human reason merely confirms the truths of revelation. Thus the verdict that religion is all faith and no reason cannot be taken at its face value.

This being granted, it must still be insisted that in the final analysis, religious truths and doctrines rest on faith, since the verdicts of human reason are singularly incapable of demonstrating or disproving certain fundamental religious claims. Consequently, religion-inspired moral principles and standards are compelling only to the degree that

faith is compelling. From the religious perspective, the validity of moral principles stands or falls with the validity of religious truths;[3] commitment to the former is maintained only insofar as commitment to the latter remains. When the need to prop up allegiance to moral principles arises and when it becomes necessary to justify them with the use of reason because faith has failed, the enterprise becomes philosophical and leaves the religious realm.

IV. Why Non-Religious Moral Education?

Given that Newfoundland history and present realities affirm this society's moorings in religion, the demand for appropriate religiousmoral education in schools can hardly be denied. This is not to say, however, that such a religious-moral education is enough.

While deeply religious, Newfoundland is also a democratic society. Although it allows religious denominations to perpetuate their creed through publicly-supported school systems, the democratic ideal does not favor any attempt to disable individual capacity to think for himself. Neither does it allow the unreasonable imposition of religious creed on dissenting individuals, even when their capacity to reason is just starting to mature. Because democracy recognizes the desirability of individual judgment and the right of anyone to differ, it seeks to establish alternatives for free choice.

One serious problem with an exclusively religious-moral education is the likelihood of its going against democratic precepts. Without detracting from the frequently unnoticed riches offered by this type of moral education, it must be realized that such an education could easily slip from a sensitive, intelligent process to an indoctrinative one - one which hampers the development of individual capacity for open-minded, rigorous, and critical thinking. Because it is based on faith, it could easily muffle the voice of probing inquisitiveness and substitute for it a complacent, unquestioning mind. Particularly when such an education is successful, the growth of a truly democratic individual is likely to be stunted.

The problem is grave, but not insuperable. Just the same it would require the greatest of efforts, and would take intelligent, sensitive teachers as well as administrators, and also a suitable school atmosphere, in order to develop the religious and democratic individual. But if this problem can be overcome, another one, perhaps even more serious, presents itself. The problem is that this type of moral education might well be a counter-productive process.

To say that religious-moral education can be unsuccessful is unarguably an understatement. While large numbers of believers remain deeply entrenched in religion, quite a substantial number drift not only into the fringes of faith but also into irreligion. For these people, a negative reaction against religion could easily be accompanied by a rejection of the principles and standards which it entails. What is left, for them, is a moral vacuum.

This problem is especially disturbing in a society such as ours characterized not only by rapid change but also by the presence of conflicting values and beguiling influences. Individuals alienated from their values, beliefs, and institutional moorings, and at the same time lacking inability to inquire and deliberate effectively for themselves could easily be confounded and lost morally. As sociologists have long pointed out,

alienation from traditional values and beliefs could result in dire consequences for individuals and for society as a whole.

The loss of faith would be unfortunate enough. But doubly unfortunate it would be should this loss of faith be accompanied by an avoidable loss for morality. Thus what we need is a program of moral education that enables people to cope with moral perplexities even when religious fervor has deserted them. But even a "rationalized" religious-moral education is not likely to be the answer. In the same way that enlisting unaided human reason to examine religious beliefs could end up in its being either an apology for or an enemy of religion, so could rational inquiry in the area of religious-moral education. Indeed, it must be granted that faith and reason are not natural allies. Although it is true that certain religious beliefs are not irrational or unreasonable, the use of reason to demonstrate the truths of religion has remained a questionable endeavor.

Thus a separate program of nonreligious moral education - call it secular moral education if you will -commends itself. Such a program need not displace existing religiousmoral education programs. It need not upset whatever balance the Newfoundland curricula already have. And certainly, its details could be worked out suitably by administrators, curriculum developers, and teachers. The required preparation, in terms of teacher preparedness, curricular materials, and others, could be undertaken.

The time to start is now. Complacency about moral education in the province should be recognized for what it is - a subtly insidious attitude that drags us farther and farther away from the democratic and moral aspirations of the Newfoundland society.

FOOTNOTES

1. The conclusion could be gleaned from the authors' report, **The Stances of Provincial Ministries of Education towards Values/Moral Education in Public Schools**, Canadian Journal of Education, 3:4 (1978), pp. 1-14.

2. One might use the expression "moral education" in a stipulative manner, referring to it as a process that enables an individual wittingly to understand and appreciate a preferred system of morality, e.g., one that emphasizes the use of reason. It seems, however, that a nonstipulative definition is preferable. This definition conceives "moral education" as a process that enables individuals wittingly to understand and appreciate any system of morality. The reason for this preference will be clarified in the text.

3. This point is made with the full realization that nevertheless, outside of the religious perspective, moral principles maybe valid or justifiable depending on the reasons that support them.

VALUES INSTRUCTION IN THE SOCIAL STUDIES

F. Geoffrey Jones
Department of Curriculum and Instruction, M.U.N.

Values education is inextricably tied to the Social Studies program. Arising from the implementation of inquiry and discovery methods and strategies, there have been lengthy searches and emphasis placed upon 'processes of learning' that could be used as tools to answer searching social questions. In turn, students in social studies classes have been exhorted to seek solutions to perceived social problems. To assist them in this task courses have been organized that have been given various titles, such as 'Current Concerns', 'Social Problems', 'Controversial Issues'. In Newfoundland, the Grade Ten program focuses upon a series called Man and Society.

Each course in its own way begirts a value component and involves students in forming value positions. However, unique among Canadian social studies programs, and perhaps North American, is the Alberta Social Studies (K-12) program (1971), which professes as a major objective that, "Man's relationship to his social and physical environment can be improved; but only when people's behavior is guided by values that are clear, consistent, and defensible in terms of the life goals of each member of society (p. 5)."

This program, thus, was organized around experiences which allowed students to clarify personal values and to understand the values of others. The valuing process, imbedded in the Alberta program, involved the development of three basic skills. They were:

Choosing -

1. Identifying all known alternatives.
2. Considering all known consequences of each alternative.
3. Choosing freely from among alternatives.

Prizing -

4. Being happy with the choice.
5. Affirming the choice, willingly and in public if necessary.

Acting -

6. Acting upon the choice.
7. Repeating the action consistently in some pattern of life. (Raths, 1966).

To accommodate acquisition of these skills students were encouraged to examine their own behavior relative to such value considerations as dignity of man, freedom, equality, justice, empathy, and loyalty by choosing, prizing, and acting consistently and effectively through:

- (being) aware of values, willing to take notice of values, and giving controlled or selected attention to values.

- responding to values with openness, willingness, and satisfaction.

- accepting values, preferring values and committing themselves to values.

- conceptualizing their own values and organizing a value system.

- becoming characterized by a value or value complex (Krathwohl, 1964).

Supposedly, through the process of clarification, students would accept, prefer, and commit themselves to certain of these values, while rejecting others, by confronting real problems that involved conflicting values.

Herein, lies a major problem of the Alberta program. The process, as it was represented to and implemented by teachers, failed to differentiate between values clarification (the intended process) and valuing. Clarification is predominantly a cognitive process employing objective procedures to arrive at a solution. Valuing involves the actual teaching of values, and, if pursued, may result in the teaching and learning of preferred values (typically the teacher's perception). The process of valuing was further reinforced by the teacher's efforts to fulfill the affective objectives of the program. Within the context of a weak cognitive base, dogmatic and unsubstantiated outcomes often resulted. How, then, might values instruction take place in social studies? An alternative approach is now presented.

This approach is based on the assumption that the process involved in values clarification is a cognitive mental process which employs a scientific methodology to arrive at a satisfactory personal or group decision. The major difference between this approach and the one exemplified by the Alberta Social Studies program is that the major objectives are stated as behaviors expressed in cognitive terms. As such, the process becomes an intellectual task which should produce an intellectually derived solution. However, there are differing levels of intellectual activity which require that an hierarchy, that identifies these levels, be used. The Cognitive Taxonomy (Bloom et al, 1956) provides one such example. Students should be encouraged to develop cognitive skills of recall, comprehension, application, analysis, synthesis, and evaluation. However, these cannot and should not be developed in a vacuum.

The basic component of this approach is the identification and utilization of concepts, generalizations, theories; the uncovering and utilizing of an array of materials that will assist students to understand the scope of the problem.

The following example may help clarify the procedure:

Will Newfoundland Survive an Oil Boom?

Rationale. The major purpose of this topic is to allow students to consider the effects of technology on people and their environment. The main ideas around which this topic revolves are causality, change, and culture. Emphasis will also be placed upon other concepts from geography and sociology.

Objectives

Knowledge

Students will use specific data to formulate generalizations concerning the main ideas:

1) Technology is applied where resources are located; people often are required to relocate in order to develop the resource.

2) Co-operation and conflict can affect the successful development of a resource.

3) Where change is inevitable, people are faced with alternatives. Change affects culture.

4) Change causes and affects further change.

5) Technological change results in new products, newer production methods, and creates new demands.

6) Technological change changes the physical environment and people's life patterns; however, not all change is positive.

Skills,

Students will:

1) Apply mental-process skills to reach a decision such as, clarification of the problem, hypothesizing, analyzing, synthesizing, and evaluating.

2) Apply data-processing skills such as, collecting representative samples of information, using maps and globes, reading pictures, charts, graphs, and tables, classifying data.

Values

Students will determine:

1) How the quality of life and culture may be affected by the discovery of oil.

2) How individual identities of people may be affected by technological advances.

3) If the Newfoundlander will be treated equitably when oil flows into the Province.

Content

1. Collect newspaper articles, journal articles, trade papers, government publications, Statistics Canada information concerning the discovery of oil in Newfoundland. Survey them to determine:

What are the prospects of oil off the coastline of the Province? How will oil affect employment, i.e. types of jobs, material for the industry, etc?

What trained personnel will be needed in the Province? Where will they come from? (probable locations)

What effects might they have on the way Newfoundlanders live? Categorize them into desirable and undesirable.

Where will the technology come from? Where will it be used? What are some of the potential dangers? How might these affect the sea? People?

2. Class debate on the topic,

   Will we still be Newfoundlanders after the Oil Rush?

   Two teams will present arguments for and against, and the class will participate during a question period during the latter part of the course.

3. A representative of government, an environmentalist, and an oil company representative will be invited to speak to the class about considerations that would arise from questions under No. 1.

4. Distribute a value sheet that will contain the following questions concerning the topic, "Will Newfoundland survive an oil boom?' Students will write their responses.

   1) What are the major considerations that you made when reaching your decision? List examples.

   2) Are you clear how you feel about this statement?

   3) Would you react the same way if you were,

      a) a person working in the industry
      b) an unskilled labourer with little education
      c) an indigenous Canadian
      d) a local businessman

Evaluation

1) Construct a values inventory that will focus on the statements of objectives listed at the beginning. A Likert scale or Semantic Differential scale might be used. Administer before and after instruction.

2) Prepare a map and locate the oil sites off Newfoundland's coast.

3) Prepare an hypothesis that predicts the future of oil in Newfoundland.

4) In an essay, outline the probable effects of oil on the people of Newfoundland, industry, Newfoundland as a province of Canada.

Bibliography

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H., Krathwohl, D.R. **Taxonomy of Educational Objectives. Handbook 1: Cognitive Domain**. David McKay Co. Ltd.: New York, 1956.

Experiences in Decision Making: Elementary Social Studies Handbook. Province of Alberta, Department of Education, January, 1971.

Krathwohl, D.R., Bloom, B.S., Masia, B.B. **Taxonomy of Educational Objectives. Handbook II: Affective Domain**. David McKay Co. Ltd.: New York, 1956.

Raths, L.E., Hermin, M., Simon, S.B. **Values and Teaching: Working With Values in the Classroom**. C.E. Merrill Books, Columbus, Ohio, 1966.

FROM THEORY INTO PRACTICE

Michael Jackson
Department of Educational Foundations, M.U.N.

Professor Cochrane has provided for us a general view of the field of moral education, its problems and Canadian practices. My task is to develop his comments by exploring the relation between theory and practice in education. Typically there are three different ways in which this relation can be understood.

The simplest view suggests the use of principles from which we might infer educational practice. Theory, then, is a guide to practice. But this is not the only way of relating theory to practice, and in the case of moral education, as Cochrane implies, such an approach would be premature. If the object of the exercise is to explain or understand practice rather than guide it, then we might talk of theory as arising from practice as a result of reflecting on it. The object of the exercise, in this case, would be to discern patterns or trends which enable us to make sense of our observations. Cochrane's article suggests that there is need for theory in this second sense.

There is a third, less obvious and more pervasive sense, however, in which theory may be related to practice. And, for Cochrane, this is perhaps the most important of the three. We might talk of a relationship between theory and practice such that theory provided a general overview, a context for the interpretation of practice. In this case, the relationship is properly described as interpretive, for theory provides a way of identifying those aspects which are significant and of expressing their significance. It tells us, for example, about objectives, the legitimacy of procedures, or a child's level of development. Thus, we find Cochrane devoting an apparently surprising amount of time to a survey of sorts of things that people are doing (or not doing) elsewhere. In order to have an informed understanding of our own practice in moral education, it is useful to know what are the practices and the legal provisions elsewhere.

But enough of generalities. What are Cochrane's basic principles, and what are their implications for educational practice? I believe that we can identify six basic principles, each of which would bear on the practical side of moral education.

First, Cochrane believes that education must be a worthwhile experience, designed for the betterment of the student through the development of his mind. This is why he talks of the aim of moral education in terms of the development of a rational, autonomous individual capable of thinking critically for himself. Mere socialization or the transmission of accepted norms is not enough.

Second, he seeks a characterization of moral education which is reasonably precise - precise in the sense that it can be distinguished from the generality of a liberal education and from the specific concerns of other domains, such as religion. Hence, he sees moral education as a subject in its own right. It would have a specific content expressed in terms of distinctive concepts (such as justice, fairness or integrity) and its own distinctive way of thinking. Thus, mere values clarification or the presentation of alternative views of "the good life" would be inadequate, just as they would in any other subject.

Third, he sees education as a deliberate enterprise, and school as a distinctive institution. This is his reason for devoting so much attention to a study of policies of

ministries of education, provincial guidelines and statements of aims. The purpose of such a view of education is to distinguish the legitimate role of the school from those of other agencies of the state, parents or the church. The legitimate functioning of the school, for Cochrane, would not be a duplication of some other institution, and his reason would be the belief that schools exist for the special purpose of educating.

Fourth, Cochrane takes seriously the connection between teaching and learning. The intention of teaching is to bring about learning. But this immediately poses the question of the content to be presented, to be "learned" or even "imposed". For to teach is to choose to present certain things, and to present them in selected ways. We do not, in education, attempt to duplicate the transmission of values undertaken in advertising nor simply to reinforce our folk wisdom.

Fifth, Cochrane sees the content of the curriculum as reflecting certain value decisions - decisions about the content chosen for presentation, and the importance of its being presented in a way that brings children to respect evidence and reasons. Hence, he inclines, towards the end of his paper, to a view of moral education which would provide for its being taught as a distinctive subject, though many values questions might also arise in other subjects. This fifth principle draws attention to two important elements in the area of ethics: the ability to show that some values are superior to others, and the ability to show that some reasons and arguments make more sense than others.

Finally, Cochrane's sixth principle is his observation that the atmosphere in a classroom, quite apart from deliberate instruction, may serve to communicate values. More generally, so does the spirit of a school. Some classrooms have a repressive air about them while others seem more open, free and inquiring settings. Because moral education is concerned with teaching values and teaching the ways in which value decisions are to be made, this atmosphere takes on a double significance. In fact, in light of this principle, our practices in moral education might readily undermine our objectives.

In summary, Cochrane has given us a theory of moral education which emphasizes the transmission of values and ways of assessing value judgments, the importance of understanding as an educational objective, and the role of the school as a distinctive social institution.

He also draws our attention to a paradox implicit in the thinking of curriculum planners in moral education. Where standards are agreed and commonly held in the community, then there is little stimulus to the debate about values questions thought to be central to moral development and understanding. But where there is dispute about fundamental values questions, then what can we all agree should be taught? His statement of the problems of moral education in these theoretical terms makes any answer about the practice of moral education one which must be expressed in terms of a public, demonstrable discipline.

VALUES AND SCIENCE EDUCATION

Glen Clarke
Department of Curriculum and Instruction, M.U.N.

Values education and education in science will appear to many people to be unrelated areas. In this paper I will first discuss some indications that science is a value-laden enterprise. Second, I will attempt to outline what some of these values are. Finally, I will indicate, by use of an example, how this view of values can influence teaching.

Scientists are sometimes presumed to be interested only in producing the best possible description of natural phenomena and nothing more. The scientist brings no preconceived ideas to this enterprise, but instead relies on observation and experiment as sources for facts, and produces laws and theories from these facts. The laws and theories thus produced are then used to explain nature in an objective manner.

Almost any reading of the history of science produces numerous examples pointing out flaws in this picture of scientists and their work. Early astronomers labored long to show how the movement of the sun, planets, and moon around the earth could be explained in terms of movement on perfect circles. Nineteenth-century geologists spent years trying to explain rock formations in terms of the great flood. Both of these ways of attempting explanation have since been abandoned.

Instead of being impartial observers, then, scientists -like the rest of us - approach what they do with assumptions about what they will find. These assumptions influence the kind of questions asked or not asked, methods used in answering them, and the meaning of results.

With this small amount of background, the question shifts from being whether or not science is or is not value-free, to one of what values can be shown to exist in the enterprise of science. Two methods can be used for obtaining this information. One is to ask the scientists themselves. The second is to observe what scientists do and to try and infer their values from these actions.

Scientists themselves emphasize those things which tend to make their work more objective. These include controlling variables, producing testable hypotheses, depending on empirical testing, statistical reasoning, etc. Together these are often lumped together in books and referred to as "scientific method."

While there exists no doubt that scientific methods constitute part of the value system of science, there are at least two other factors that need consideration. The first of these is seen in the strong tendency of scientists to attempt to answer new questions with old methods. Scientists do not give up their theories easily, even in the light of strong, contrary evidence. As an example of this, what appears now to be compelling evidence for slate tectonics - the idea that the earth is made up of a set of crustal slates that "float" about on an underlying core-existed over fifty years ago, but this idea has only been generally accepted in the last ten years.

From this it emerges clearly that scientists desire a special kind of question. Specifically, questions that can be answered. Old theories normally provide sets of questions of this type. However, any theory useful to scientists, beside meeting other

criteria, must be able to provide scientists with both (1) sets of unanswered questions and (2) assurance that those questions are answerable.

An excellent example of a theory accepted by scientists for these reasons is Darwin's theory of evolution. When it was first proposed, this theory was strongly opposed by scientists and others on the grounds that an acceptable theory explaining life forms already existed. The previous creation account, however, was quickly abandoned within the biological community when the evolutionary account proved capable of allowing answerable questions to be asked. Today one would be hard-pressed to find a working biologist for whom evolution is not "true". By accepting this "truth" the scientist is not saying that other acceptable views do not exist, but that the evolutionary view is most productive for scientists.

Beyond the areas of values within science there exists an application to society, as a whole, of values apparently derived from science. The most apparent of these is direct application of ideas from science to societies, such as social Darwinism - survival of the fittest being used to justify cutthroat competition in the last century. More subtle and interesting effects, however, for example, using "science" as justification in advertising or the implication by some that to be of value at all something must be scientific, also exist.

The question for the science teacher is "where, if at all, teaching of these values belongs in a high school curriculum?" The traditional answer has been to include some scientific method, usually taught at the beginning of courses in a formal manner, and nothing else. More modern courses, in particular Physics: A Human Endeavour, attempt to continually portray values at work guiding scientists at work.

Despite the pervasive influence of science values in our society in more general ways, however, I know no curriculum which attempts to deal with this area. Certainly a science teacher should not want a student leaving class believing that science provides all, or even most, of the answers for human life any more than a music or literature teacher should want students believing totally in those areas. Teachers need to provide students with a view of which problems can be attacked by science and which cannot.

LITERATURE AND THE TEACHING OF MORAL VALUES

Lloyd Brown
Department of Curriculum & Instruction, M.U.N.

This paper is based on the assumption that literary works have a moral dimension; not, however, because they preach or because they present an explicit moral lesson, but because literary authors in their choice of subjects, in their selection of details, in their choice of form, communicate a moral attitude towards the world. They have a moral dimension also in that they force us to make moral choices. They confront us with the basic human qualities: greed, love, hate, sorrow, pain, joy, and challenge us to consider them, to think of their meaning and their effects on people.

For example, the world of Sounder is a moral one. It is a world where moral decisions have to be made, where the nature of right and wrong has to be defined, where questions are raised about what people are, and what their relationship is to one another and to God. It is almost impossible to read the book without considering these. This is the story of a black sharecropper who stole a ham to feed his starving family. He is sent to jail and later is taken on a chain gang. The man's son decides to go on a journey in search of his father. Everyone, his mother tells him, is on a journey:

> Abraham goes on a long journey, Jacob goes into a strange land where his uncle lives but finds him easy. Joseph goes on the longest journey of all... but the Lord watches over him. And in the Bible-story journeys, ain't no journey hopeless. Everybody finds what they suppose to find.'

This is a moral position, emphasizing individual responsibility, and stressing faith in the ultimate goodness of life.

The guard at one of the prison camps also takes a moral position: One day when he sees the boy peering through the wire fence, looking for his father, he crashes a piece of iron against his fingers. But the boy's suffering does not arouse pity in the guard; he merely sways "back and forth with laughter".[2]

However, a teacher shows sympathy and kindness. He takes the boy in, reads to him and teaches him how to read. The boy responds: "You've been a powerful good friend. . .My fingers don't hurt no more."[3] This ability to read was to serve him well later. After his father died he remembered what he had read:

> "Only the unwise think that what has changed is dead." He had asked the teacher what it meant, and the teacher had said that if a flower blooms once, it goes on blooming somewhere forever. It blooms on for whoever has seen it blooming.[4]

The teacher had not only helped the boy to read but he had also helped him to use literature to make some important discoveries about the nature of life and his place in it.

"Tuktu", a story from Driftwood and Dandelions, also focuses our attention on a moral issue. Tuktu is an old man who cannot hunt, and asks, "What use is a man if he cannot hunt?" He later answers, "it is better that a man die rather than. . .be a burden, an extra mouth to feed."[5] So the story confronts us with this question: Is a man who

cannot work of any value? Our answer reflects what we think man is for, and it determines our moral stance, influences the way we act toward each other.

Sue Hinton's novel for teenagers, That was Then, This is Now, reflects the moral turpitude of the 1960's, and is the dramatization of certain moral questions: What is the nature of right and wrong? What is responsibility? Is it better to tell the truth and risk losing your friend?

Poetry also reveals a moral stance, often reflecting the moral concerns of the times. Rock poetry, for instance, emphasizes emotion not reason, sound not content, chaos not order, the present not the past. These are all moral positions. Notice the stress on self and the present, so typical of the 1960's, in Peter Townshend's "My Generation":

> People try to put us down Just because we get around Things they do look awful cold Hope I die before I get old.
>
> This is my generation, baby.
>
> Why don't you all f-f-f-fade away Don't try and dig what we all say I'm not trying to cause a big sensation I'm just talking above my generation.
>
> This is my generation, baby, My generations

To consider in one's teaching the moral aspects of literature, then, is the natural thing to do, because the moral dimension is an integral part of the work. That is not to say that the teaching of literature should be concerned with extracting moral lessons. It should not. Instead it should be concerned with exploring and thinking about the attitudes, feelings, points of views, and kinds of behaviour that are expressed in the work being read. It should help pupils develop an appreciation for the various positions taken by characters and their effects on others; help them appraise the ways in which an author communicates his moral stance; help them estimate the implications of holding such a moral position.

The following are a few suggestions, not fully developed and in no particular order, for teaching the moral dimension of a literary work:

1. General Objective: Sensitivity to moral issues.

   Content: Treatment of the boy in Sounder by the guard and the teacher.

   Activity: Have students compare the value judgments reflected in the actions of each.

   Discuss with students these questions:

   (a) What do the actions of each say about their view of people?
   (b) What are the implications of the action of each?
   (c) Do you consider either of these actions right or wrong?
   (d) Why do you say so?

2. General Objective: Consideration of alternatives.

Content: The episode near the end of Sue Hinton's novel That was Then, This is Now, in which Byron reports his friend, Mark, to the police because he is selling drugs.

Activity: Discuss these questions with students:

(a) Why do you think Byron chose this alternative?
(b) What else may he have done?
(c) What may have been the consequences?
(d) What do you think you would do in a similar situation?
(e) Why?

Have students imagine they are Byron and write a defense of their actions.

3. General Objective: Consideration of the way literature reflects the value of the times.

Content: Selected Rock poems.

Activity: For full effect play some recordings of the poems. Considering their form, emphasis on sound, choice of words, mood, tone, choice of subject, discuss the moral values they communicate. Further consider the degree to which these values are held by certain segments of society. Discuss also the implications of holding such values.

4. General Objective: Consideration of the consequences of actions.

Content: Chapter I of Steinbeck's The Pearl in which the doctor refuses to see Kino's sick child, Coyotito, because Kino has no money.

Activity: Discuss these questions with students:

(a) Why do you think the doctor acted the way he did?
(b) What effect did his action have?
(c) What other alternatives were open to him?
(d) Would the consequences have been different?
(e) How so?

Have students imagine they are the doctor and have them explain how they would have acted and why.

FOOTNOTES

1. Armstrong, William. **Sounder**. New York: Harper and Row, 1972, p. 77.

2. **Ibid**. p. 86.

3. **Ibid**. p. 97.

4. **Ibid**. p. 114.

5. Hyde, Laurence. "Tuktu" in **Driftwood and Dandelions**, J. McInnes and E. Hearn (Eds.). Toronto: Thomas Nelson and Sons, 1970, p. 73.

6. Goldstein, Richard (Ed.). **The Poetry of Rock**. Toronto: Bantam Books, 1972, p. 44.

COMMUNICATING VALUES IN RELIGIOUS EDUCATION

Noel B. Shuell
Department of Curriculum and Instruction, M.U.N.

In a recent week, Roy Bonisteel's television program, "Man Alive", considered the subject of "sin". The program developed the theme that "sin" names a persistent feature of human experience, regardless of one's judgment about the usefulness of the word itself. Something similar is true of the term "values". It names our experience of measuring the relative worth of life's ingredients. It names a process that precedes almost all our actions, namely, choosing among alternatives. The ancient Socratic dictum, "The unexamined life is not worth living," proposes that humans ought to discern not only the meaning of their ideas but also the nature of their values.

Values and Religion

Learning about religion necessarily involves learning about values. It also involves learning about people, the rituals in which they engage, the beliefs they hold about the structure of the universe, the ways in which they form communities, and their methods for coping with the problems and mysteries of living. In short, all religions have an ethical dimension because religious stories, rites, doctrines, and organizations all have practical implications in day-to-day human relationships. Furthermore, every religious tradition expresses preferences; that is, some salvation stories, some rites, some ways of describing the universe, some ethical judgments, and some patterns of human relationships are preferred to others. Thus, religions regularly choose and communicate values, not only about how to act in a natural and social environment, but also about how to think and how to worship. No one can be religious without espousing values. No one can learn about religion without learning about values.

Values and the Aims of R.E.

A basic question in religious education, therefore, is, How is one to teach students values? - that is, to promote the learning of values by students? The first way of putting the question emphasizes the maxim that the act of "teaching" refers both to subject matter (values) and to persons (students). Other ways of putting the question emphasize the difficulty of such teaching: How is one to teach values so that no one mistakes them for groundless opinions, unimportant options, irrelevant behaviors, easily disregarded preferences, or matters simply of taste? and, How is one to teach students sc that their development as persons and members of society is fostered and enhanced?

Answers to such questions cover the spectrum of aims for R.E. that different groups and teachers propose. The R.E. program whose aim is to stimulate and satisfy a student's curiosity about religion must provide opportunities for students to learn about various religious traditions and their preferences, as well as about the seriousness and power and logic with which such preferences are held within each religion. The R.E. program that, in addition, aims to assist students in constructing their own value systems must provide opportunities for them to openly debate and discuss the merits of diverse values, as well as to formulate their own tentative conclusions about what is true or false, good or evil, right or wrong. Required of the teacher in such R.E. programs is an

extensive knowledge and appreciation of religions and of the processes of formulating and choosing values.

Another kind of R.E. program may aim to foster a positive relationship between the student and a particular religious tradition, perhaps even a deliberate commitment to it. ("Particular" here should be understood either broadly - for example, Christianity, Judaism - or denominationally - for example, Roman Catholic Christianity, Orthodox Judaism). Such R.E. programs must provide opportunities for students to develop detailed knowledge of the stories, rituals, doctrines, ethics, and social structure of the particular religion, and to develop also an awareness that all of these dimensions of the religious tradition represent preferences and value choices. Furthermore, the psychological structure of the student requires that the communication of such values be carried on in a classroom, school, and community environment that acknowledges and tolerates the personal doubts and difficulties of students about appreciating or accepting such values. Not to include such tolerance in the overall strategy that aims to promote students' commitments to a particular religious tradition and its values will result in the ultimate failure of the R.E. program whose aim is adult, life-long commitment.

How is one to teach students values? Regardless of its aims, each R.E. program must do justice to two realities - values and students. To the extent that one of these realities is neglected, the R.E. program itself can be accused of communicating values inadequately and therefore destructively.

Values and Classroom Education

Perhaps the major difficulty in effectively communicating religion based or religion-related values in a classroom arises from the disparity between the nature of such values and the nature of modern educational processes. The values espoused by almost every religion (including Judaism, Christianity, and Islam, expressed, for example, in the doctrine of Creation) are either absolute themselves or related to absolute values. Modern classroom education, on the other hand, is characterized by pragmatism and relativism, the chief constants being a triad made up of student, subject matter, and learning process - the understanding of which shifts regularly. Hence the difficulty - to communicate what is taken to be absolute, by strategies, methods, and techniques designed to promote ongoing questioning and, at best, temporary commitments.

Recognizing this difficulty, one may avoid it by replacing R.E. with a reason-based moral education program. Or, one may at least lessen the difficulty by formulating aims that restrict the R.E. program to "knowledge about religion" and to the development of attitudes and skills that make it possible for students to acquire such knowledge. School systems that propose more ambitious aims for R.E., for example, to help students develop a personal lifestyle that embodies the values of a particular religious tradition, will always feel the tension that arises from trying to communicate absolute values by relativizing procedures.

Values-Education in R.E.

Regardless of the aims of a specific R.E. program, the following processes need to be accounted for in it. Some of these processes occur inevitably, while others have to be deliberately provided for. The R.E. program, and those who teach in it, need to be

held accountable for what happens in each process. To do justice to values and to students in an educational program, all of these processes need to be included.

Values Socialization: Students experience life being lived, for better or for worse, according to particular value-choices.

Values Transmission: Students learn, both concretely (through stories, rituals, and social relationships) and abstractly (through doctrines and ethical principles and codes), about particular values adhered to by different groups for different reasons.

Values Clarification: Students learn to name the values that are involved in concrete decisions and situations.

Values Classification: Students learn to distinguish different kinds of values (for examples, absolute and relative; religion-based and reason based; ethical, economic, environmental, aesthetic, intellectual; and so on).

Values Evaluation: Students learn to judge, using relevant considerations, whether the particular values involved in concrete decisions and situations are really adequate. Values Development: Students learn (in step with their development as human persons) to discover, formulate, and choose more adequate values to deal with life situations that confront them.

The R.E. program that makes provision for these processes, in keeping with the students' psychological and social development, is contributing what it can to their education. One that ignores some of these processes is probably hindering not only their educational progress but also their moral and religious development.

EDITORIAL

It has been a pleasure to edit this issue for several reasons. As some readers may recall, several years ago I edited a science newsletter by the name of *Interaction.* It seemed to be well received, but did not generate much interaction. Hence, after several dire warnings, it was dropped. At that time, it also seemed I couldn't trust my best friends. Everyone had given his final draft to his typist, but somehow it seldom reached me. In putting together the present issue, I had no such complaints. My fictitious first deadline was almost met by several contributors. My real deadline was met by almost all. My emergency deadline was hardly needed. Only one author, writing on Science, Society and the Newfoundland Curriculum, needed it. He shall be nameless!

In the first article David Kirby examines the nature and status of integrated science. Other than a pilot project developed by Dr. Kirby and Dr. Richard Reis several years ago, integrated science has not been pursued as a curriculum option in Newfoundland. In one respect this is difficult to understand. A double credit academic integrated science course would seem to be a viable method to overcome the paucity of facilities in small high schools. It would also have the advantage of exposing students to a wider variety *of* scientific concepts than they get now when studying one or two of the separate sciences.

The second article, written by Alan Griffiths. focuses on the relationship between science education and society. It is argued that at present we largely ignore such issues, and that unless we take an active local-curriculum perspective on this issue we will soon be enveloped in a wave *of* curriculum materials which pay no attention to science as it relates to Newfoundland society.

The third and fourth articles, written by Phil Nagy and Steve Norris, respectively, focus attention in quite different ways on the relationship between philosophic views and science curriculum. Typically, teachers do not appear interested in the relationship between philosophic viewpoints and curriculum materials. However, textbooks typically exemplify one or more philosophic perspectives, implicitly if not explicitly. Hence, while teachers may legitimately not wish to pursue any philosophic mode!, they should not do this without due consideration.

The problem of different perspectives adopted by teachers versus curriculum developers is addressed by Bob Crocker, in a comparative report of the implementation of elementary curriculum materials in Newfoundland and Queensland. A further article, by Bruce Burton, also relates to the elementary level. In this article examples are given of useful long-term life science projects which can be done in the elementary classroom.

In the final article Colin Davies discusses the use of microcomputers in school science courses. This topic is of widespread international interest, and is of current interest in Newfoundland given the introduction of computer science studies into the high school curriculum.

Alan Griffiths.

INTEGRATED SCIENCE

David Kirby
Junior Studies

Within the area of Science Education, Integrated Science has held a somewhat contentious position, passing in and out of favour over the years. At the moment there is a renewed interest in it as an approach to teaching science. At the elementary level Integrated Science already holds an established position, most children having their first scientific experiences with a programme that is interdisciplinary. There is usually little argument with this. After all, a child's world is undifferentiated so why separate science into its component subjects? However, at the secondary and tertiary levels there has been more opposition to Integrated Science, although, judging from the number cf Integrated Science Curricula that have been developed in the past few years, this opposition appears to be lessening.

One of the problems with Integrated Science is that intuitively we feel it is "untidy". In fact Hayward (1973) coined the phrase "The Untidy Field" to describe it, and its untidiness. Integrated Science is reflected in the generally-accepted definition (of Integrated Science), proposed by D'Arbon (1972):

> "Integration", when applied to science courses means that the course is presented in such a way that the student gains the concept of the fundamental unity of science; the commonality of approach to problems of a scientific nature and is helped to gain an understanding of the role and functions of science in his everyday life, and the role in which he lives."

D'Arbon compiled this definition by synthesizing the responses to a questionnaire of a large number of well-known writers in the field of Integrated Science. Consequently, it tends to be all-embracing, and programmes of widely different styles and contents can coexist within this definition. Thus, Science A Process Approach, The Schools Council Integrated Science Project, The African Primary Science Programme, The MONA Project of the University of West Indies, and in a local context, Memorial University's Science 115 are all classed as Integrated Science programmes, and yet differ considerably in emphases and outcomes.

There has been some attempt, primarily by the Centre for Unified Science Education (1972), to distinguish between Integrated Science and Unified Science.

> Integrated Science: Programme which results from putting together two or more previously separate school subjects. e.g., Chemistry and Physics.
> Unified Science: Science viewed as a whole, organized around the big ideas that permeate all science, with subject matter selected from a broad range of specialized sciences.

According to this classification Integrated Science is simply an interdisciplinary programme lacking the holistic nature of Unified Science programmes. However, most courses which are described as Integrated Science attempt to emphasize unity, a wholeness which is more than simply a sum of their parts. This unity may be attempted through a variety of methods. Thus a programme may have as its integrating theme one of the major concepts of science, such as Energy or Interaction, or may focus on the

processes and methodology of science, or may be organized around a topic, such as a pond or an automobile.

Much of the literature associated with Integrated Science is devoted to establishing a rationale for it. The arguments for integration of the sciences are usually philosophical in nature and can be grouped into three or four different types. Brown (1977), in discussing the meaning of integration in science, considers four broad categories of meanings which themselves are usually given by other writers as rationales for Integrated Science programmes.

The first of these groups of arguments centers on the idea that all knowledge is unified. This is a view that has been expressed by philosophers and scientists from Aristotle to Einstein. However, as Rutherford and Gardner (1971) point out, it is "a matter of faith rather than a conclusion based on evidence". This unified nature of all knowledge appears to be supported by reductionist theory. Thus Comte's hierarchy of disciplines suggests that each discipline is based on a more fundamental one, and that eventually they can be reduced to Mathematics which is a form of natural logic. However, this reductionist view of knowledge has been criticized as being unexamined and lacking in a substantial theoretical base by writers such as Schwab (1964) and Popper (1972).

The second group of arguments for Integrated Science points to the unity of the conceptual structures of science. These arguments imply that science can be viewed as an area of knowledge clearly distinguishable from other areas. If this is indeed so, then a curriculum which is based on this fundamental unity of the sciences would be expected to identify and to illustrate the concepts and their inter-relationships, which make up the substantive structure of this unified discipline. Unfortunately, few Integrated Science programmes have attempted to manage or succeeded in managing this.

The supposedly unified process of scientific enquiry also serves as a rationale for Integrated Science. However this concentration on methodological issues rather than on epistemological ones is no more easily resolved. Schwab has argued that the different sciences have different syntactic structures-"The patterns of its procedures and methods, how it goes about using its conceptions to attain its goals (1962, p. 203)". On the other hand it maybe possible to identify very generalized procedures which a consensus of scientists would view as being fundamental to all sciences.

> "There is general agreement in the scientific community, sometimes indicated by reference to scientific method on such matters as the appropriate language for stating scientific problems, how one collects data and analyses it. the correct application of logic, the use of theories and models, and the need for verification and for critical appraisal by colleagues." (Rutherford and Gardner, 1971, p. 48)

Curriculum designers often imply that there are more specific procedures than these which are characteristic of all the sciences. Unfortunately, these processes are usually not carefully specified. Typical of this is the claim of the Scottish Integrated Science Course that it aims to "expose pupils to ... the work of scientists ... the experimental methods he uses, and the different processes of thought by which he arrives at his conclusions" (Scottish Education Department, 1969), and yet these procedures and methods are far from being explicitly described by the Curriculum.

A final group of arguments that are often used in favour of Integrated Science does not rest on epistemological or methodological considerations. These arguments suggest that science in real life addresses issues that are interdisciplinary and consequently this should be reflected in science education. It is this type of argument *which* gives rise to topic or theme centred curricula. These types of curricula place great demands on the skills of the teachers to integrate the different subject areas encompassed by the theme. Failure often leads to a programme which simply consists of "a juxtaposition of particular components which reflects the idiosyncratic thoughts of the teacher ....", (Pring, 1976)

Arguments against Integrated Science are not likely to be found in journals and papers devoted to the area. They tend in the main to be given by adherents to the concept of academic disciplines. Proponents of discipline, in the academic sense, believe that there are intellectual structures that are characteristic of certain areas of knowledge and *which* govern the modes of operation of their practitioners. Hirst (1967) distinguishes disciplines by (a) their use of concepts of a particular kind and (b) the distinctive types of tests that they use for their objective claims.

Without doubt there are logically distinct forms of knowledge. However, generally we are imprecise in our use of the word "discipline", usually using it as a synonym for subject. Even a brief consideration of one's own bookcase soon dispels the myth of such clearly-defined subject areas in the sciences. Yet much of the opposition levelled at Integrated Science at the secondary and tertiary levels is that it is non-disciplinary. This is no more or less a criticism than can be levelled at Biology or . Geology. A recent television course in Geology placed great emphasis on the fact that Geology was really an inter-disciplinary mixture of Chemistry, Physics and Biology.

In spite of the fact that the traditional subject areas of science are not isolated disciplines, it is still common to find advocates of certain subject areas who treat them as such. I remember recently listening to a gifted young Physics teacher, who expanded at some considerable length along the lines that all employers really preferred their employees to have studied Physics, as it *alone* of all subjects really trained minds. There is at least one Chemist 1 know, who is of the persuasion that all students should do a course in Organic Chemistry for much the same reason. The basis of these views seems to bean amalgam of the Spartan philosophy regarding the value of rigour - a kind of academic jogging - and that age-old educational chestnut, the transfer of training. 1 also suspect that there exists a considerable emotional attachment to one's own academic training, certainly one of the most potent agents of socialization experienced in a lifetime.

The cases for and against Integrated Science tend to be philosophical and somewhat obtuse. However, in practice the decision to include or exclude Integrated Science in the School Curriculum tends to be made on more pragmatic grounds. Brown (1977) has classified the arguments that are generally used for the implementation of an Integrated Science curriculum into six groups:

1. Outcomes demanded by society, e.g., provision of scientists, informed lay population, informed political leadership.

2. Resource constraints, e.g., accommodation, equipment, time, teachers.

3. Political constraints, e.g., common-core course for all pupils, national assessment system.

4. Conditions for effective learning, e.g., pupil security, motivation, interest.

5. Conditions for effective teaching, e.g., teachers' interests, competence.

6. Constraints imposed by the subject, e.g., unified nature of scientific enquiry.

Of these 2-6 clearly relate to the practical rather than the philosophical determinants of the curriculum}. Showalter (1975), in an analysis of a large number of Unified Science programmes developed at the local levels in the United States, indicates that implementation is determined largely by student needs, school facilities and the background of the science teachers.

In practice there are two main problems that face Integrated Science programmes. The first of these stems from the. attempt to integrate the sciences. Whatever the technique used to achieve integration, it is essential that the integral nature of the programme should be perceived by the student. It is not sufficient that a curriculum designer should construct a programme that appears integrated from his standpoint, if it is not viewed that way by the student - integration should be in the eye of the beholderl It is interesting to note that D'Arbon's definition is stated in terms of student outcomes: e.g., "The student gains the concept of the fundamental unity of science", and yet in reality very few evaluative studies of Integrated Science programmes have addressed this issue. The more sophisticated the integrating approach used by the programme, the less likely it is to be appreciated by the student. Certainly this is my own subjective impression, gained from observations of programmes designed around the processes of science, e.g., S.A.P.A., and S.C.I.S.P.

A second major problem with Integrated Science Programmes is the demands they make on the teacher. Few teachers, who undergo the normal academic preparation, are initially prepared to teach a course which may span several of the traditional subject areas of science. This often results in an Integrated Science programme being subdivided into its subject components - each taught by a specialist. I draw a careful distinction here between this practice and team teaching, which can be a highly successful approach to Integrated Science. The former practice was one of the contributing factors to the demise of the General Science movement in Great Britain. This programme, which eventually evolved into being taught as three distinct and separate science courses, was fully intended by its early proponents to be an integrated programme.

The Secondary School Examination Council (1941) stated that General Science should include subject matter - "Drawn from the whole field of natural science and treated as a coherent whole, so that the question of the traditional division into the separate sciences does not arise". The preparation of teachers, particularly at the secondary level, to teach Integrated Science is an area which is beginning to receive considerable attention. It involves more than just providing courses in subject areas in which the teacher is weak.

> The most basic 'teed is reorientating secondary specialists in the need to alter existing attitudes and educational philosophy. Subject matter or discipline oriented teachers need training that will enable them to change

> their basic philosophy so that they may view the teaching of science as a welding of all the separate disciplines into a whole. This will involve also providing content material in disciplines in which the specialist is weak or totally deficient. In some cases new methodology will be needed as well as new laboratory skills. (Report of Working Group, 1973)

This points to a substantial effort required by all the agencies involved in teacher preparation at all stages of the process, pre-service, intern, field service and in-service.

Integrated Science, until comparatively recently, has been the province mainly of elementary education. At the secondary level the major emphasis has been on the traditional subject areas. This is not surprising when the need to prepare students for post-secondary courses, which are themselves specialized, is considered. However, there is a growing interest in Integrated Science courses beyond the elementary level, especially for students who are unlikely to pursue any further studies in science. With weaker students, in such a situation, the course often offered is one of the correlational sciences such as Biology or Earth Science. At the lower levels these tend to be highly descriptive, and neglect the quantitative and predictive nature of science.

In the local context one integrated programme was used in several schools in the province during 1976-9. The Integrated Science for Newfoundland Project was a series of topic-based modules designed for the non-academic students in grades X and XI. Modules were produced on a variety of topics such as, The Sea, Ice Skating, The Automobile and Hair - seven modules in all. Each module was designed to last about 6-7 weeks and utilized inexpensive and easily available equipment and resources. Moderate success was achieved in terms of the criteria of the student's attitudes to science. However, this was enhanced by the large negative effect of the normal grade XI. programme used with the control groups. Because of the lack of financial and human resources, scant attention could be given to the in-service preparation of the teachers involved in the project, and this detracted considerably from the overall success of the programme.

At the tertiary level, Memorial University's Science 115 programme is an integrated programme whose content spans the traditional subject areas of Physics, Chemistry and Biology. The two-semester course consists of six modules whose contents are carefully specified by objectives. Integration is attempted by the specification of inter-modular objectives, which link the contents of the different modules, and by stressing themes such as Cycles and Energy, which are common to all areas of science.

As with many movements in Education, Integrated Science will continue to be one of the trends, continually moving in and out of fashion. Currently it is an area of renewed interest, particularly at the secondary and tertiary levels. Integrated Science must be viewed with some caution. It is no panacea and will not cure all educational warts. The implementation of Integrated Science programmes places considerable demands on teachers. These demands require special consideration by administrators and educational planners prior to the introduction of the curriculum. If this is done, however, then Integrated Science can be an interesting and motivating addition to the school curriculum.

Bibliography

Brown, S.A. (1977). "A Review of the Meanings of, and Arguments for Integrated Science". *Studies in Science Education, IV,* 31-63.

Center for Unified Science Education (1972). "Center Survey of Unified Science Programmes". *PRISM, II.*

D'Arbon, J.A. (1972). "The Impact of Integrated Science Courses". (Paper presented to the A.N.Z.A.A.S.).

Hayward, O.T. (1973). "The Untidy Field'", *The Science Teacher,* XL, 32-33.

Hirst, P. (1967). "The Curriculum" in *The Educational Implications of Social and Economic Change,* The Schools Council Working Paper No. 12, London: HMSO, 74-84.

Popper, K.R. (1972). "A Realistic View of Logic, Physics and History" in *Objective Knowledge,* Oxford: Clarenden Press, 285-318.

Pring, R. (1976). *Curriculum Organization,* Milton Keynes, Open University Press, 40-69. Report of Working Group wg (1973), "The Reorientation of Specialists for a Role in the Teaching of Integrated Science", in *New Trends in Integrated Science Teaching, Vol. III,* Paris: UNESCO, 32-45.

Rutherford, J. and Gardner. M. (1971). "Integrated Science Teaching" in *New Trends in Integrated Science Teaching,* Volume I, Paris: UNESCO, 47-55.

Schwab, J.J. (1962). "The Concept of the Structure of a Discipline", *Educational Record,* 43,197-205.

Schwab, J.J. (1964). "The Structure of the Disciplines" Meanings and Significances" in Ford, G.W. and Pugno, L. (eds.). *The Structure of Knowledge and the Curriculum,* Chicago: Rand McNally, 6-30.

Scottish Education Department (1969). Curriculum Paper 7: Science for General Education, Consultative Committee on the Curriculum, Edinburgh, HMCO.

Secondary Schools Examination Council (1941), Bulletin.

Showalter, V. (1975). "Rationale for Unbounded Science Curriculum", School *Science and Mathematics,* 75, 15-21.

SCIENCE, SOCIETY AND THE NEWFOUNDLAND CURRICULUM

Alan Griffiths
Curriculum and Instruction

An examination of the history of science education suggests that its focus changes in accordance with changes in the social milieu. Today, the impact of science and technology on our lives is greater than ever before. It is not surprising, then, that educators have recently focused their attention much more deliberately on the relationship between science and society. Hurd (1975), an. American science educator, urges, "The task we face is to align the teaching of science with social realities." Solomon (1981), a British science teacher, comments, "Our society and its science are now interacting at a citizen level as never before and our children's education cannot ignore this." Page (1979), working from the office of the Science Council of Canada, writes:

> If Canada is to deal effectively with its future, then a citizenry able to comprehend science issues is a necessity. This goal will be possible only if our present and future scientists are critically aware of the impact their research and teaching can have on Canadian society. and only if the general population understands the important relationship between science and society.

In this paper I shall illustrate what is implied by the above views and how they may be accommodated, with special reference to the Newfoundland situation.

How may the concern expressed above be translated into curriculum practice? First, we must be able to identify deficiencies in existing curriculum materials more precisely. A beginning may be found in the suggestion of O'Hearn (1974) that we consider science from two viewpoints - the 'within' of science and the 'without' of science. The former is concerned with the academic content of science and with its philosophic bases. The latter is concerned with how science affects us. The distinction is interesting when we consider the nature of the curriculum reform of the sixties. This reform, centred in the United States and Britain, was a response to moribund curricula and an alarming shortage of scientific and technological manpower. Perhaps unsurprisingly, these 'new' curricula focused primarily on the within of science. This was even more true for the American projects such as PSSC Physics, Chem Study, the Earth Science Curriculum Project, Harvard Project Physics and, in some of its versions, BSCS, than for their British 'Nuffield' counterparts. Directly or indirectly, these materials form the basis of Newfoundland's present high school science programme. *'Chemistry, Experiments and Principles,'* soon to be replaced by one or other of two texts with a basically similar orientation, is one of the minor modifications of the original Chem Study text. *'Investigating The Earth,'* introduced this year into grade ten, is the ESCP text. 'Physics A *Human Endeavour,'* which does focus on the development of our knowledge of important physics concepts, was basically derived from Harvard Project Physics. Our present biology text, *'Biology. Living Systems,'* although not directly related to BSCS, is similar in intent. Indeed, it is further from relating science to society than is the BSCS green version. Our present general science texts at the high school level and below also focus primarily on the within of science, although *'Searching For Structure,'* used in grades seven and eight this year and grade nine next, includes some activities relating to the without.

A similar characterization to O'Hearn's formed the starting point for a recent major curriculum project in Britain. The director of the project, John Lewis (1977), indicates that the reform of the sixties focused primarily upon 'science for the inquiring mind' which corresponds closely to O'Hearn's 'within'. Lewis suggests that these reforms avoided substantial treatment of the application of science to direct practical problems, described by Lewis as 'science for action.' For example, these 'new' curricula might be concerned with topics such as Newtonian analysis of circular motion (science for the enquiring mind), but would not attempt to answer the question of how much to bank a road going around a corner in a real situation. Lewis identifies a further component, 'science for citizens,' which deals with political, social, and economic decisions on issues which have a scientific content. It is with respect to this third component that current science curricula, including those in use in Newfoundland, appear to be most deficient.

Before considering specific changes in our curriculum or in our instructional techniques, we should consider the magnitude of the problem with which we are faced. Some issues, such as the testing of nuclear weapons, cry out for treatment. Some, such as the possible destruction of the ozone layer, transcend international boundaries. Some, such as mercury poisoning in a South American village, seem too far removed to concern us more than transiently. Others, such as the pollution of a favorite stream, affect us personally. Still others, such as a consideration of astrology or extrasensory perception, may hardly appear to relate to science at all, but they do. What should we consider for inclusion?

I suggest that it is important to develop individual awareness of the interaction of science and society by beginning with local issues of personal significance to the learner, and to gradually develop towards issues of wider concern. Let me illustrate my reasoning with a personal example: As a boy in a Welsh coal-mining valley, I would have been readily interested in how the local ecology might be changed. It would have been nice to grow up with green fields instead of black coal dust; clear streams instead of black, lifeless ones; and to have horizons of green trees instead of coal tips. By a seeming miracle of modern ecology, the metamorphosis has indeed occurred. Had 1 lived in Newfoundland at that time, I doubt that that particular example of the application of scientific principles would have interested me much. Later, as a beginning teacher, still in Wales, 1 found it not too difficult to interest my students in the dangers of atmospheric testing of nuclear weapons. The high incidence of strontium-ninety, a carcinogenic component of radioactive fall-out which readily found its way into the bones of young children in high rainfall areas such as Wales, was of direct concern to them. Had I taught in Newfoundland at that time, given a similar rainfall pattern, the issue would have been equally interesting. In fact, it was an area of research pursued by some members of Memorial's Physics Department. However, I doubt that the issue would be particularly interesting to today's school population either in Wales or Newfoundland, at least until the current agreement to limit testing of nuclear weapons in the atmosphere is broken by the superpowers.

To reiterate my argument, the content used in the development of awareness and of decision-making skills relating to the interaction of science and society should reflect current local issues likely to be of direct concern to the individuals involved. As attitudes and skills develop the range of issues can be broadened. This offers us an unique opportunity. Our curricula have often been criticized for their lack of Newfoundland content. As long as we are concerned with the within of science, or even science for action, this need not concern us unduly. After all, Newton's apple would have fallen downwards with the same acceleration in Newfoundland, Ontario, or England. Mass is

conserved just as readily in a chemical reaction in St. John's as it is in Adelaide. Even Newfoundland's indigenous species obey the same biological laws as other species elsewhere. Translation of these laws into the realm of science for action can certainly be made more meaningful in the context of local examples, especially in the life sciences, but again local content does not seem to be crucial. For each of these purposes we can continue to import our textual materials, without great loss. However, to the extent that imported texts of the eighties include a science and society emphasis, and this may be substantial, the examples will be nonNewfoundland. Paradoxically, science is designated as a heritage study in our new high school programme of studies, but it may be that the heritage represented will not include Newfoundland, unless we deliberately focus on this issue ourselves. What alternatives are there?

First, we should consider our objectives. It is not my intention to write a complete set of objectives for a course in science and society. However, it maybe useful to consider some examples of the kinds of objectives we might try to achieve. These objectives would be primarily affective. Certainly, cognitive gains would also be made, but the particular content could not be precisely specified in advance. To do so would endanger the spontaneity and topicality which, in my view, are essential. Appropriate development of affective objectives might parallel development through the major levels of Krathwohl's (1964) taxonomy. The following behaviours are illustrative:

Receiving: describes particular instances of ways in which science affects the quality of life for himself and his immediate community. For example, treatment of his drinking water.

Responding: participates readily in discussions relating science to his everyday life. For example, the merits of different methods of energy conservation in his life situation.

Valuing: assumes responsibility for leading a discussion, or takes a position about issues which may affect his life. For example, the siting of a new fish plant or a mining operation.

Organization: recognizes that other value systems may affect societal issues influenced by science. For example, with respect to desirability of the seal hunt or the exploitation of offshore oil in Newfoundland.

Characterization of a value complex: takes a personal position on science related issues, only after consideration of alternative positions. For example, on the question of whether aerial spraying should be used to combat the spruce budworm, after consideration of the economic, social and health factors of spraying or not spraying.

Eventually, once attitudes and skills have developed sufficiently, broader issues of national or international scale may be similarly considered. However, greater impact is likely to be achieved through an initial local emphasis. Additionally, it must be realized that, for most of our students, any direct influence they will ever have will be on local issues.

There is no doubt that individual teachers have been, and are interested in issues of the kind described. Oakley (1974) described the use of a research-team approach to learning, which included independent analysis of the purity of the water in a St. John's river by junior high students, and I know of another junior high class in Western Newfoundland which caused a furore a few years ago when they discovered that the

water supply of their community was unfit to drink, and went public with their findings. They learned a great deal about politics and politicians before they were finished! Some of the entries in Newfoundland's first major school science fair related to science and society, and many teachers consider issues which fall into this category. The onus for action certainly lies with the teacher rather than the textbook writer. However, a consistent and gradual development needs careful planning, good examples, and teachers who are aware of appropriate techniques. Useful guidance is given by Gennaro and Glenn (1979) in an article entitled 'Exploring Value Issues in Science Education.' This article is contained in the 1979 yearbook of the Association for the Education of Teachers of Science (Abraham and Fox, 1979), which is devoted to the relationship between science education and society, and which I recommend to the reader.

Gennaro and Glenn describe two models which may be useful, an 'affective clarification' model and an 'analytical decision-making' model. The affective clarification model, of which there are many variants, basically involves the following characteristics:

1. The teacher provides stimuli to elicit student responses which call for the student to state a value position.
2. The teacher accepts this position.
3. The teacher assists the student in clarifying his/her position.
4. The teacher gently nudges the student to think about his or her own values.
5. The teacher does not attempt an in-depth analysis.

The initial stimuli may be planned in advance by the teacher, and may arise naturally from the content being covered in class. Alternatively, they may arise spontaneously from particular student interests or current news items. While there are advantages to this, it is also clear that there is an inherent lack of control over the gradual development suggested earlier. The affective clarification model has the advantage that it can be readily integrated into class activities in a natural way, and without the expenditure of much time. The , analytical decision-making model, on the other hand, is more time consuming and must be deliberately set up by the teacher and/or curriculum developer, but allows much more control. The model incorporates the following steps:

1. A basic question is presented for clarification by the students.
2. Facts about the basic issues are assembled.
3. Factual assertions are assessed.
4. The relevance of the facts is examined.
5. A tentative decision about the problem is made by the student(s).
6. The acceptability of the solution is determined.

A model basically similar to this has been used in the 'Science and Decision Making' unit (Hall, 1973) of the British Schools Council Integrated Science Project. In this unit a series of case studies is presented. In each case, information is given about a problem related in some way to science and society. Throughout the text the reader is asked to make decisions about how he would have proceeded, given the information to that point. He is then told what decision was actually made, given further information, and asked again what he would have done, and so on ... In this way, he is led to realize that decisions are often complex and that they may depend upon the particular perspective of the decision maker.

In the last few years a number of my students have written decision making modules of this kind. The

quality has been variable, but some serve as excellent examples of the approach. Certainly, one would expect that, if student teachers can prepare useful materials of this kind, then practising teachers should be even more successful. It might reasonably be argued, however, that practising teachers do not have the time or, for some other reason, are unable to prepare similar materials. What are the alternatives.?

One alternative is to ignore the issue. Eventually, as new curriculum materials become adopted, an increasing emphasis upon science and society will be observed. Unfortunately, if my arguments in this paper are valid, this will not be particularly useful to us. The examples used are unlikely to be current or local, and may inhibit interest rather than engender it.

A second alternative is to generate locally prepared supplements to the texts in use, and to make teachers aware of specific techniques for their use and of their part in a gradual planned development of attitudes and skills. However, such 'Band-Aid' solutions are not the stuff of which good educational practice is made.

A third alternative is to plan for the systematic development of attitudes and skills, and to seriously incorporate appropriate objectives into the curriculum. The direction of these objectives may follow what I have suggested already, or may not. However, gradual development from awareness in the elementary grades towards effective skill development in the high school grades, seems a reasonable aim. Such an aim need not, and should not, be restricted to those students studying the separate sciences in the high school. Indeed, the separate science emphasis does not lend itself well to an examination of topics which are typically multidisciplinary. What is needed is the development of a course devoted to the study of science as it relates to the society in which our adolescents will become responsible adults. Such courses are under development or already exist in some other countries. There is no shortage of suitable topics for such a course in Newfoundland. As well as narrowly specific topics, topics such as the introduction and continued development of industries like the phosphorus plant at Long Harbour, the fluorspar mine on the Burin Peninsula, copper mining in Buchans, gold mining in Western Newfoundland, the mining of iron ore in Labrador City/Wabush, the ecology of the fishery, the seal fishery, the ecological and other consequences of the siting of fish plants and garbage dumps, the depletion of wildlife, the damming of rivers, the pollution and treatment of drinking water, the effect of pulp and paper mills on the surrounding environment, the effects of chemical spraying, the development of offshore oil, the generation and transmission of electrical power, and many other topics, cry out for treatment. Further, despite my plea for development from a local, provincial emphasis, a natural progression may be seen to Canadian, continental, and world-wide problems. However, for pedagogical reasons, at least, the order of development most likely to succeed is from local not towards local issues.

Today's world is more affected by science than ever. The pace of development in Newfoundland may well be particularly rapid in the near future. Jacob Bronowski once said, "For any man to remain ignorant of science, is to walk open-eyed towards slavery" (Bronowski, 1960). If we value the intellectual freedom of our future citizens in Newfoundland, we will do well to heed his warning.

REFERENCES

Bronowski, J. *The* common sense of science, Harmondsworth, U.K.: Penguin Books, 1960.

Gennaro, G. & Glenn, A.D. Exploring value issues in science teaching. In *Science education/society* (Abraham & Fox, Eds.): Columbus, Ohio: ERIC, 1978.

Hall, W.C. *Science and decision making,* London, U.K., Longmans, 1973.

Hurd, P. Science, technology and society, *Science Teacher,* 1975, 42, (Feb.) 27-30.

Krathwohl, D.R. *Taxonomy of educational objectives, affective* domain. New York: Daniel McKay Co. Inc., 1964.

Lewis, J. Stepping into the circle, Times *Educational Supplement,* June 3, 1977, 38.

Oakley, W. The research team approach to learning, *School World,* 1974, May-June, 1820.

Page, J. A *Canadian context for* science *education,* Ottawa: Science Council of Canada, 1979.

Solomon, J. Science and society studies in the school curriculum, *The School* Science *Review,* 1980, 62, 213-219.

SCIENCE CURRICULUM, MOTORCYCLES, AND THE TWO CULTURES

Philip Nagy
Institute for Educational Research and Development

> Other people talk about how to expand the destiny of mankind. I just want to talk about how to fix a motorcycle. I think that what I have to say has more lasting value.
>
> Robert M. Pirsig.

My purpose in writing this is to introduce one of the most significant books of the last decade to address issues of curriculum, especially science curriculum, in the schools: Pirsig's *Zen and the Art of Motorcycle Maintenance.* The book is not easy to summarize, or for that matter understand, but I must make an attempt before discussing the curriculum implications. Pirsig attacks head-on the problem of dislike of and alienation from science in the popular culture, not in the fashion of a "counterculturalist", but with the eye of an analytic philosopher and the background of a professor of literature, which he was. Pirsig's issue is that of C.P. Snow in his 1959 essay, "The Two Cultures". Snow treated the mutual antipathy of literary man and scientific man in a short address and a sequel, "A Second Look". Pirsig attacked the issue with a seriousness which drove him to the edge of madness and beyond. His personal story, for the book is autobiographical, is so rivetting that one is able to forgive a basic flaw, that he fails to understand the true nature of science. More of that later.

Zen and the Art of Motorcycle Maintenance is best interpreted as a series of four journeys on different levels, interwoven with each other. The first, the physical journey involves the author and his son Chris crossing the Northern U.S. on a motorcycle, accompanied part of the way by some friends, John and Sylvia, on another bike. The three other journeys take place within the mind of the author, with the other characters participating to varying degrees.

John and Sylvia are the starting point for the second, the "upward" journey. Their antagonism to motorcycle maintenance, which symbolized technology, is in contrast to the author's love of tinkering with his bike. Despite their complete dependence on the cycle for escape from their technology dominated world, they cannot bring themselves to maintain the source of their freedom. Pirsig contemplates the nature of the separation and mutual antagonism between the technological and nontechnological modes of thinking.

Pirsig's contemplation he describes as a "Chataugua", a nineteenth century American method of home education. Based in the county of the same name in New York State, travelling groups of lecturers would go through the countryside and' provide a form of education and entertainment in the days before electronic media. Central to Pirsig's Chatauqua are the definitions of two ways of thinking: the classical, which is operative in science, technology, and other rational activities; and the romantic, which is operative in the arts. It is pivotal to Pirsig's thinking that these modes of thought are two ways of looking at the *one* reality, rather than two different realities. The implications of this distinction become clear as his thoughts unfold. As he says, "the Godhead resides just as comfortably in the circuits of a digital computer ... (as in) the petals of a flower". The scorn of each type of thinker for the other is based upon a failure to realize that each type of thought springs from a common origin. Pirsig sets himself the task of explaining why this is the case.

Both types of thinking wrongly allow that technology works only with things rather than ideas, and is therefore divorced from the subjective mode. Not only does this produce hostility to technology from those who will have nothing to do with it, such as John and Sylvia, but also from those whose working lives are immersed in it, such as sloppy mechanics. Poor mechanics see technology as operating separately from thought, as acting upon the environment in a cold, impersonal way.

He argues that technology, far from being a mere manipulator of objects, is an extension of the mind, and that classical thought must be rooted in personal understanding rather than an "objective" reality.

A recurring symbol of classical thought in Pirsig's writing is the analytical knife, which carves the world up into discrete piles according to rational, systematic hierarchies. He evokes an image of the objective world as a pile of sand being divided by the knife, the knife's divisions making no value judgements and implying no personal involvement. The flaw in this picture which Pirsig claims leads to antagonism is the failure of the image to take into account the wielder of the knife, as the method of division of the pile of sand is of total interest. A satisfactory (a nd this is a key word) picture must include the separator and his motivation within the analytical scheme, not as a part of any particular pile of sand, but as the initiator, the one who gives the analysis meaning. Because a description of the carving process done entirely within the classical mode is only intelligible to someone already familiar with the analytical scheme (i.e., has access to how the knife works), the piles of sand of themselves can give no personal meaning to their separation, cannot be satisfying, for one who does not share in the source of the separation. Pirsig concludes that rationality as usually viewed of and by itself is irrelevant to human needs unless that rationality considers its own source, the wielder of the knife.

The book describes a third "inward" journey also. Pirsig has been (relatively recently) released from a mental hospital for treatment of schizophrenia. One half of his personality, called Phaedrus after the Greek Sophist, has been removed by electric shock treatment, leaving only fragmented memories. One of the side trips of the journey is a visit to the town and college where Phaedrus taught, to see old friends. The inward journey, a confrontation with the memory of Phaedrus, is embedded within the upward journey. Phaedrus was a brilliant but eccentric philosopher who saw the flaw in rationality just described which he felt made it irrelevant to human purpose. He pursued the flaw of rationality with intensity, abandoning the objectivity of the analytical logician for a romantically subjective, though intellectually powerful attack. The intensity of feeling with which he pursued his attack was his downfall into mental illness.' In the inward journey, Pirsig realizes that he cannot completely bury the ghost of Phaedrus, that he must once again confront the cause of his madness.

The fourth journey, interwoven among the first three, may be labelled the "interpersonal" journey. It concerns the author's inability to form a satisfactory relationship with his troubled son. Although interesting, it is the least pertinent to science education. All three of the spiritual journeys are resolved as the characters cross the continent.

John and Sylvia are alienated because they perceive, in their romantic vision, that rationality has not produced a better world. Phaedrus alone, however, sees the root cause of this. Although rationality was capable of solving problems of the nature of famine and disease, it is no longer capable of solving the problems of the "post-survival world. The scientific method is intended to find (in Pirsig's view) proven knowledge. (In

fact, most scientists doubt the possibility of proven knowledge. Their goal is most probable knowledge. This is an obvious point to miss but it does not damage the argument.) Pirsig feels that the principal result of hypothesis testing in science is not the production of knowledge, but the generation of more hypotheses. He looks closely at this phenomenon of hypothesis generation to argue that rational thought has its origins in irrationality. This is put forward as demonstrating the unity of Snow's "two cultures".

He ties technology to mind through the use of a priori concepts, which act as perceptual filters of observations. A mechanic, in fixing a motorcycle, does not have a romantic vision of a collection of bits of material, but the filtered perception of analytical thought. His main activity is in comparing the malfunctioning motorcycle to his a priori concept of "Motorcycle". He filters the actual motorcycle through his conception of a perfect motorcycle. In this sense, technology is an extension of the mind. Such a point is missed by the romantic perspective.

That which is missed in the analytical thinking mode is the subjective nature of both the process and product of technological thinking. Good motorcycle maintenance is rooted in internal peace of mind. The key to the mastery of technology is the realization that the target of maintenance is not within the machine, but within the mind of the mechanic. The confrontation of problems which are within the mind requires an inner peace. This inner peace is also the goal of good technology. Unless a machine gives peace of mind, it has not fulfilled its function. A malfunctioning piece of machinery destroys inner tranquility. The purpose of maintenance (technology) is the restoration of that inner tranquility. This purpose is lost by those who think in only one of the two modes.

The solution to technology " which has lost the sense of its own roots is not to turn away from rational thought to romantic thought, but to expand rational thought. To this end, Pirsig, and Phaedrus before him, introduces the concept of Quality. Returning to his analogy, Quality is the analytical knife which splits the world into the classical and romantic views. In a bit of intellectual legerdemain, Pirsig argues that, while the romantic can understand Quality without definition, the classical thinker requires definition for understanding. Since a classical definition is impossible, a classical thinker is forced out of his world view to perceive Quality through the romantic perspective. Quality belongs to neither the subjective nor objective worlds, but is the source of the subject-object division. Quality is pre-intellectual reality, the driving force which causes our conception of the world to take place. Although Quality cannot be identified as belonging to either the subjective or objective world, classical and romantic aspects of Quality can be identified: classical, the stimulus to produce analytical schemes; romantic, the stimulus towards phenomenological interpretation of events.

Pirsig probes to the depths of the cause of Phaedrus' insanity. His biased, passionate application of analytical thought to the trinitary nature of reality (mind, matter, and Quality), shows him that Quality is primary, and is the basis of a//reality. Phaedrus realized that the acceptance of such a world view defined him as mad. He was no longer able to accept the prevailing mythos of society. In retrospect, Pirsig is saved from returning to madness by the realization that rationality can be expanded to include those elements of man's phenomenological world which have been crying out for assimilation. Thus he is able to operate at the edge of, but within the bounds of, the mythos.

Pirsig pursues the relationship of the two types of thinking to each other, and their common origin in Quality. The formation of scientific hypotheses is pre-scientific. The

driving force of explanation is rooted in the classic sense of beauty, which is a striving for order and harmony in the universe. Classical thinking processes are guided, in the sense that particular hypotheses are brought forward to consciousness, by the drive for explanatory elegance. The problem of modern technology is that it has lost sight of the basis upon which it has grown. The absence of the recognition of Quality and a striving for order and harmony as a basis for technology is a root cause of both poor workmanship (in that caring is an internalized aspect of Quality) and of alienation from technology.

Pirsig introduces the analogy of a train to clarify the relationship between Quality, classical thinking, and romantic thinking. If a train is taken as a symbol of man's knowledge, then classical knowledge is symbolized by all the boxcars and engine of the train. Romantic knowledge appears to have no place in the scheme until it is realized that the train has "trainness" only in as much as it is moving. The forward cutting edge of the train represents romantic, pre-intellectual knowledge; Quality is the track, guiding the direction of motion, the progression of classical and romantic knowledge. It is not enough to overlay classical reasoning with romantic perceptions at a superficial level. The two forms of thought must be *united* at a deeper level, as the level of Quality. Each mode of thought is poorer for lack of the other. Such a realization implies removal of the antagonism between the two kinds of thought.

Pirsig cannot fully escape the ghost of Phaedrus. The realization that he is becoming increasingly aware of larger and larger fragments of Phaedrus' memory brings him to the edge of insanity once again. The inward and interpersonal journeys are resolved at the end of the book by the comprehension that his attempts to suppress the personality of Phaedrus are contributing to his renewed schizophrenia. Analytical contemplation of the classical-romantic interface without an acceptance of their unitary nature at the romantic personal level is schizophrenic thought. He becomes a new person, one who is able to unite the two facets of his personailty, just as he was able to unite the two facets of classical and romantic thought. The acceptance of this unity on a personal level destroys the schizophrenia. His relationship with Chris is changed dramatically by the realization that he has been suppressing the side of his personality which was best able to relate to Chris as a father.

All this operates as a fascinating novel, as well as a tour of some of the great minds of Western civilization. As curriculum theory, much needs to be brought to the page from the experience of the reader. The key to drawing curriculum implications is the notion of "satisfaction", that learning about and understanding of the physical universe should be motivated by a search for peace of mind. Central to a theory of education based on Pirsig's thought is that children should be led to see, at an appropriate level, that they learn ultimately for themselves, and not for another (teacher or parent). How far from classroom reality is the understanding that work is completed and learning attempted until the learner, not the teacher, is satisfied? Do we strive to show children that they must develop their own internal standards of what is good work? Do we emphasize that the child, and later the adult, is the most important judge of what is "good enough"? Or do we teach the child that education is a succession of meeting externally imposed standards? I am not suggesting that children should be led to believe that there are no external criteria, that, for example, society does not hold clear expectations of a brain surgeon's skills. Rather, the point is that for the bulk of what is taught in schools, everyday transmission of the culture without implication of vocational demands, a child needs to be taught to develop high, internal personal standards of what is Quality, what is satisfying, and what is not.

One goal of science education is understanding, access to the analytical knife, rooted in a personal need to know, which need must be encouraged in the classroom. Science must be shown for what it is, a powerful tool for bringing satisfaction, not merely for providing objective knowledge. Technology must be shown as a tool for living with and benefiting from the environment, for profitable integration with the physical world.

Students must be shown that the analytical knife represents only one face of Quality, that much understanding and mastery of the phenomenological world is beyond the sphere of scientific thought. *Translated into terms more appropriate for students, this suggests that students be shown the power and elegance of scientific explanation and technological control, but always in the context of the limitations of this one way thinking. A large part of instruction in the science classroom must be geared to showing the limitations of a purely analytical approach to understanding of phenomena. Students must be shown the societal/economic/ ethical dimensions of science related issues, and that full understanding of the world comes about only through the development of different ways of knowing about the world.*

In summary, my topic has concerned what science to teach to the "educated layman". Pirsig deals with two opposing views: one, that science and technology are irrelevant to real human problems; and, two, that science and technology can solve all human problems. He demonstrates that both these views are faulty, and unites the "two cultures" by showing that they are two ways of approaching the same reality, rather than ways to approach reality, rather than ways of approaching different realities. His *analysis suggests that science education should do three things. first, that it should paint science as a method of gaining personal satisfaction through personal understanding,- and second, that it plant the seed of a deep, personal "need to know", and third that it should treat the relationship of scientific thinking to other ways of thinking, and help lead students to an appreciation of the limits and potential of each.*

If you read Pirsig's book, you will either love it or hate it; it will not leave you indifferent. Few other books force the reader to confront his/her view of the world, science, and science teaching, at such a personal level. Few other books face the question squarely: "Sir, why do we have to study this?"

FOOTNOTE

'Many thanks to the reviewer who pointed out the dangers of taking philosophy too seriously.

REFERENCES

Pirsig, R.M. *Zen and the Art of Motorcycle Maintenance.* New York: Bantam Books, *1975.*

Snow, C.P. *The Two Cultures, and, A Second Look.* Cambridge, The University Press, *1959.*

SCEPTICISM AND APPROPRIATE SCEPTICISM

Stephen P. Norris
Institute for Educational Research and Development

Teachers' attitudes towards science can affect what their students learn. Some teachers might, for example, believe that the research which scientists propose to do ought to be done subject to the approval of society. Such teachers may, as much by the attitude they portray as by direct teaching, teach their students that the whole of society and not scientists alone ought to control the direction of scientific research. Teachers with a contrary belief or no belief at all on the issue might also exist. Respectively, these teachers might produce students who believe that scientists are the ones best suited to decide the direction of scientific research, or produce students who are indifferent on the issue. Having a majority of people in one of these groups would likely affect science and society differently from having a majority in the other group. These effects could then probably be traced to the attitudes towards science held by science teachers.

In this paper I examine the attitude of viewing scientific ideas sceptically. One of my purposes is to suggest an appropriate attitude which teachers might have in this regard. Philosophers of science have written a great deal on being sceptical towards scientific ideas. I will draw upon these ideas and present them in a manner which assumes as little philosophical training as possible. However, the ideas remain philosophical and require for their understanding a knowledge of some philosophy. I will present the relevant background material as I proceed. As a further consequence of this approach I hope to illustrate that work in the philosophy of science can have a bearing on how one ought to teach.

Ways of Being Sceptical

Not all sceptical attitudes towards scientific ideas are the same. One way of being sceptical toward scientific ideas is to believe that they can never help man to produce a better world. Being sceptical in this way is not to challenge the truth of scientific ideas. It is to challenge their *usefulness* in achieving or helping to achieve a better world. A sceptic of this sort might well believe in the truth of scientific ideas.

Another way of being sceptical toward scientific ideas is to believe that no scientific ideas are true, but are merely useful approximations to the truth. This view is based upon the belief that in principle truth is not attainable. Sometimes this view is tempered to allow the truth of some types of scientific ideas but to disallow the truth of others. For example, some people believe that scientific ideas which are contained in the reports of observations are true, but that the theories which are based upon inferences from these observation reports cannot be true. According to these people the reports of observations remain intact throughout time because of their truth, while the theories devised to explain those observations, which are at best approximations to the truth, continue to change.

A final version of scepticism does not challenge the possibility of scientific ideas being true, but, rather, challenges our ability to pick the true ones from the false ones. According to this view particular scientific ideas may be true but we can never know this. The challenge is not to our ability to *produce* true ideas but to our ability to *find out* whether we have done so. The best we can do is to get some idea of the likelihood of

those ideas being true. For example, we may be able to say that there is a 90% chance that a particular statement is true. A variation of this form of scepticism is that in some situations we are able to tell whether certain scientific ideas are *false* but that we can never know whether scientific ideas are *true.* This does not mean, according to this view, that ideas which have not been shown false are considered true. Rather it is assumed that they might be either true or false. They have not yet been shown false, and they will never be shown true.

This latter view of scepticism, particularly its variant form, and some of its consequences will be the focus of discussion in much of the rest of this paper. The view is generally "in the air" in the field of science education, 1 believe, but can lead to some misconceptions of scientific knowledge. The view, stated a different way, is that scientific ideas cannot be proved but can be disproved; our attempts to disprove can be more definitive, in principle, than our attempts to prove. I wish to urge the contrary view that there is no such asymmetry between proof and disproof in science, and to suggest a more appropriate sceptical attitude to take toward scientific ideas.

In the following I will indicate that some science textbooks contain the sceptical view I wish to criticize. 1 will then outline the reasoning upon which this view is based, and finally attempt to show that this reasoning, when applied to the testing of scientific ideas, is being applied inappropriately.

Expressions of Scepticism

One of the clearest expressions of the view of scepticism 1 wish to examine appears in the biology textbook *Biological Science: Molecule to Man,* the BSCS blue version (BSCS, 1963). In describing how a hypothesis is tested the authors express an asymmetrical view of the impact of favourable and unfavourable evidence on the hypothesis. They say:

> All observation must be for or against some view *if* it is to be *of* any service. *If* the new observations tend to support the "view", or hypothesis, the hypothesis is strengthened. On the other hand, *if* they tend to contradict it, then the hypothesis must be revised or even rejected and a new hypothesis formed. (p. 4)

Their view is that evidence can either *strengthen* or support a hypothesis or it can lead to its *rejection* or *disprove* it. Favourable evidence does not *prove* hypotheses, nor does unfavourable evidence merely *weaken* them.

A similar view of the impact of evidence on scientific hypotheses is expressed by the authors of *Exploring Biology (Sixth edition)* (Smith and Lawrence, 1966). The authors speak of unfavourable evidence as evidence that *contradicts the hypothesis under test, and of favourable evidence as evidence that supports* the hypothesis (pp. 597-598). Contradicting a hypothesis is more definitive than supporting it. To support a hypothesis is to offer something in favour of that hypothesis but it is not to say that the hypothesis is definitely true. To contradict a hypothesis is to say that it is definitely false.

Similar views can also be found in the junior high school science series *Searching for Structure.* In the unit *Solids, Liquids, and Gases* the author, J.D. Hoyes, has presented a stepwise scientific method which, he claims, most scientists would follow in

their research (1973, p. 3). The method is a procedure for experimentally testing hypotheses and includes a step at which the experimenter must decide what to do with the result of the experiment being carried out. The question the experimenter should ask at this step is, "Do the results agree with my idea (or hypothesis)?" If the answer is "No", the hypothesis must be *discarded* and a new hypothesis sought. That is, if the answer is negative, the hypothesis is disproved. If the answer is "'Yes", the hypothesis is *not,* however, *proved.* According to Hoyes' model the hypothesis must be tested again. Successive positive tests results will eventually lead to a theory which itself must be subjected to test. The lesson is that positive results have a less definitive impact than negative test results; negative results disprove, positive ones support. In fact, in this model one negative result can override the effect of many positive results.

Belief in the asymmetry of proof and disproof in science is based upon two principles of deductive logic. In the following section I explain these two principles and demonstrate the way in which some people believe the principles are involved in tests of scientific hypotheses.

Logical Parallels

Deductive logic is a field which is concerned, in part, with determining the forms of reasoning which constitute deductively valid inferences and deductively invalid inferences. To infer something is to reach a conclusion based upon reasons or premises, as reasons are sometimes called. A deductively *valid* inference is one in which it is self-contradictory to accept the reasons and to deny the conclusion. Here is an example of a deductively valid inference:

Premise A: If something is made of ice, then it is a glacier.
Premise B: This ice cube is made of ice.
Conclusion: It is a glacier.

In the example it would be self-contradictory to accept the truth of the reasons, premises A and B, but not to accept the truth of the conclusion. The conclusion is, in a manner of speaking, contained in the premises. To accept the premises constitutes accepting the conclusion.

As can be seen from the example a deductively valid inference does not necessarily result in a true conclusion. In the example the conclusion is false, although the inference is deductively valid. To say an inference is deductively valid is to say something about only its form. It is to say that *if* an inference of a certain form is based upon true premises then the conclusion must be true. It is to be silent on the truth or falsity of conclusions based upon some premises which are false. In the example premise A is false, but the example is still deductively valid. *If A* and B were true, the conclusion would have to be true.

A deductively invalid inference is one which is not deductively valid, that is, one in which accepting the premises and denying the conclusion does not lead to self-contradiction. Here is an example:

Premise C: If something is a glacier, then it is made of ice.
Premise D: The surface of Greenland is made of ice.
Conclusion: The surface of Greenland is a glacier.

In this example it would not be self-contradictory to accept the truth of the reasons but to deny the truth of the conclusion. However, saying the inference is deductively invalid does not mean that the conclusion is false. In the example the conclusion is true. Saying the inference is deductively invalid is to say something about the form of the reasoning. It is to say that in this form of reasoning true premises do not guarantee true conclusions, as they do in deductively valid inferences.

Many tests of scientific hypotheses are based on inferences patterned on this second, deductively invalid, form of inference. Here is an example of such a test in which the hypothesis is that glaciers once passed over a particular area.

> In testing the hypothesis 'a scientist might reason as follows: "If glaciers once passed over this area, then some of the exposed rocks are marked with parallel grooves."
>
> The scientist might then examine the exposed rock in the area, find some with parallel grooves, and state what he or she had observed: "Some of the exposed rocks are marked with parallel grooves."
>
> Finally, the scientists might conclude based on these two statements, "Therefore, glaciers once passed over this area."

In this example the conclusion need not be true even if the reasons are. It is possible, for example, that even if both reasons are true, that the grooves in the area were put there by some process other than glaciation. Therefore, the fact that there are grooves and the fact that they could have been made by a glacier only support the claim that glaciers once passed over the area, but do not prove it. It may be false that glaciers once passed over the area despite the evidence to the contrary. This form of reasoning is often used to model how ideas become accepted in science. They are accepted when they have support, not when they are proved. Let us call it "the support model" of scientific tests so that it can be referred to by name later.

Many other inferences in science are patterned on a deductively valid form of inference. In inferences of this form, as in the other form of deductively valid inference already discussed, if one accepts the two reasons, then one must accept the conclusion on pain of self-contradiction. Here is an example of this form of reasoning in which the same hypothesis as before, that glaciers once passed over a particular area, is under test.

> In testing the hypothesis the scientist begins his or her thinking in the same manner: "if glaciers once passed over this area, then some of the exposed rocks are marked with parallel grooves."
>
> Imagine in this example, however, that the scientists found no rocks with parallel grooves and stated this finding as follows: "it is not the case that some of the exposed rocks are marked with parallel grooves."
>
> The scientist concludes from these two statements, "Therefore, it is not the case that glaciers once passed over this area.

In this example, the inference form is deductively valid. One cannot accept the reasons and deny the conclusion. K the reasons are true it is not possible that a glacier once

passed over the area. The claim that glaciers once passed over the area suffers from more than lack of *support,* if the reasons are true, it has been *disproved. This* form of reasoning is often used to model how ideas get rejected in science. They are rejected when they are disproved, Let us call the reasoning "the rejection model" of scientific tests.

The belief that scientific ideas can be disproved but that they cannot be proved is based upon modelling scientific inference upon two forms of deductive inference, one a valid form and the other an invalid form. The invalid form is used when reasoning from positive test results to the truth of a hypothesis. However, since the form of reasoning is deductively invalid, we are not forced to accept the hypothesis if the evidence is favourable. The valid form is used when reasoning from negative test results to the falsity of a hypothesis. Since the form of reasoning is deductively valid, we are forced to reject the hypothesis if the evidence is unfavourable. In what follows I will discuss the appropriateness of these models.

Another Model of Scientific Tests

Some philosophers of science have suggested that the previously discussed models of testing scientific hypotheses are not faithful to the way in which scientists actually proceed. A famous French physicist and philosopher of science, Pierre Duhem, published a view in the early part of this century which denied the existence of the asymmetry between proof and disproof present in the view just discussed. According to Duhem a single hypothesis, such as the one in the examples, can no more be disproved than proved in an experimental test. He said this because he believed that scientists can never subject a single, isolated hypothesis to experimental test. Although the examples of the previous section imply that only one hypothesis is being tested at a time, Duhem would claim that in reality more than the single hypothesis was being tested. For example, in addition to the hypothesis that a glacier once passed over a particular area, a scientist's reasoning might be based upon the following additional ideas: that glaciers are able to produce grooves in rocks; that such grooves would not have disappeared through weathering; that any presently exposed rock was also exposed to the hypothesized glacier; that any rocks in which grooves had been produced had not been moved to some other location; and many more. In tests conducted in this manner, positive results provide the same indefinite information as was discussed in the previous section. However, negative results also provide indefinite information according to Duhem, since a negative result indicates only that something is wrong *somewhere,* but does not point to where the problem lies. The problem might be in the hypothesis, but it might also lie in one of the scientist's additional ideas, or in any combination of these. Here is a translation of Duhem's own words on this issue:

> In sum, the physicist can never subject an isolated hypothesis to experimental test, but only a whole group of hypotheses; when the experiment is in disagreement with his predictions, what he learns is that at least one of the hypotheses constituting this group is unacceptable and ought to be modified; but the experiment does not designate which one should be changed. (1954, p. 188)

Pointing a finger at which idea to change amounts to an educated guess on the scientist's part, according to Duhem, much like medical diagnoses are often educated guesses made by a physician. Thus, the rejection of a scientific idea requires as much

intuitive judgement and good sense on the part of scientists as the acceptance of a scientific idea. In the same way as there are no logical canons which dictate which scientific hypotheses are to be accepted, there are no logical canons which dictate which scientific ideas must be rejected. All such decisions, in addition to being based upon experimental evidence, are based upon good judgement, educated guesses, intuitive feelings, and the like.

Proof and Disproof in Science

If, then, scientific ideas can neither be proved nor disproved in the sense that one is never forced on pain of self-contradiction to either accept or reject scientific ideas, is there a sense in which scientific ideas can be said to be proved or disproved? There is. It is the sense in which things are proved in courts of law. In the courts it is called "proof beyond a reasonable doubt". To say that something is proved beyond a reasonable doubt is to say that it would be foolish not to believe that thing. This is not a definition, nor do the courts supply one, but it is helpful in understanding what is meant by the concept. Another possible way to think of proof (or disproof) beyond a reasonable doubt is as follows: to say something is proved (or disproved) beyond a reasonable doubt is to say that there is no conceivable better explanation of the evidence than that thing's being true (or false). For example, some scientists might accept as proved beyond a reasonable doubt that a glacier once passed over an area, if they are not able to conceive of a better explanation of the evidence they have gathered. Similarly, scientists might reject as disproved beyond reasonable doubt the hypothesis that a glacier once passed over an area, if thinking that a glacier did not pass over the area is the best conceivable explanation of the evidence.

Using the words "proof" and "disproof" in this sense when speaking of scientific ideas does not imply any asymmetry between the logic of proving and disproving. Both proofs and disproofs are judged by the same standard: whether they can be accepted beyond a reasonable doubt. What is beyond reasonable doubt, though, is not something which can be specified in advance nor is it something which can be determined by following a set of rules. The judgement of reasonableness must be made by those fully immersed in and intimately aware of the problem at issue.

Thinking of scientific ideas as proved or disproved in this sense does not imply that scientific ideas are not to be trusted. Inferences judged to be beyond reasonable doubt are depended upon in all walks of life. We trust them so much that we often risk our lives and the lives of others upon them. We also have, unfortunately some may believe, taken people's lives based on such beyond-reasonable-doubt inferences.

Appropriate Scepticism

The form of scepticism which has been under discussion is a lopsided scepticism. It is the view that we do not need to be sceptical about scientific disproofs, only about scientific proofs. For scientific ideas which have been disproved by the rejection model there is no recourse. To continue to hold such disproved ideas would be to indulge in selfcontradiction. On the other hand scientific ideas proved by the support model can still be reasonably questioned. In fact, in order to avoid confusion on this issue many advocates of this brand of scepticism would urge that the word 'proof' not be used when

discussing the acceptance of scientific ideas. All such acceptances are provisional. There is no such thing as a scientific idea which has been proved.

I am urging what I consider to be a more appropriate form of scepticism. I accept the view that scientific ideas cannot be proved in the sense that not accepting them but accepting the evidence in favour of them would be to contradict oneself. No scientific idea is ever proved in this sense. However, I wish to urge that no scientific idea is ever disproved in this sense. No scientific ideas are ever disproved in the sense that it would be self-contradictory to accept the evidence against the idea and to continue to accept the idea.

I wish to urge, first of all; that the notion of proof and disproof which allows no recourse, the notion that proofs and disproofs must be accepted in the face of selfcontradiction, is not an appropriate concept of proof and disproof for science. A more appropriate concept is that of proof and disproof beyond reasonable doubt as used in courts of law. According to this view scientific ideas can be either proved or disproved. However, this does not mean that one cannot also be sceptical of scientific ideas. One's scepticism, however, should be different from the view which has been criticized. It is a view which allows the logical possibility that ideas which have been proved beyond reasonable doubt may indeed be incorrect and ideas which have been disproved beyond reasonable doubt may indeed be correct. However, it is a view which does not allow a person to doubt such proofs and disproofs, for it would not make sense to do so. It is a view which affords a person just the right amount of flexibility to accept ideas which were once thought disproved or to reject ideas once thought proved beyond reasonable doubt. It is a view which affords a person at the same time the security of acting on ideas which he or she believes are correct or incorrect. It is also a view which is neither proof-chauvinistic nor disproof-chauvinistic. Both provide equal security and both are equally open to the logical possibility of error.

REFERENCES

Biological Sciences Curriculum Study, Biological *Science: Molecules to Man.* Houghton Mifflin, 1963.

Duhem, P.M. *The Aim and Structure of Physical Theory.* Translated by P.O. Wiener. Princeton, N.J.: Princeton University Press, 1954.

Hoyes, J.D. *Solids, Liquids, and Gases.* In D.H. Pike (Ed.), *Searching for Structure.* Toronto: Holt, Rinehart and Winston, 1973.

Smith, E.T. and Lawrence, T.G. *Exploring Biology. Sixth-Edition.* New York: Harcourt, Brace and World, 1966.

IMPLEMENTING CURRICULUM CHANGE: EXPERIENCE FROM TWO SCIENCE PROJECTS

Robert K. Crocker
Institute for Educational Research and Development

The problem of successfully responding to change is common to most major social organizations. The growth of knowledge, increased use of technology, political, economic, and demographic shifts, and evolving social priorities are all contributors to the need for change. Schools are no exception to this general problem. The school curriculum, in particular, seems to be in a continual state of flux as a result of attempts by curriculum developers to capture the latest demands of a rapidly evolving society. The school system is alternatively criticized for being highly resistant to change, or as being too quick to respond to the latest passing trends. In principle, of course, the school system is probably no more or less resistant to change than any other large organization. In practice, however, a number of structural features in the system, along with the characteristics of many educational innovations, do lead to major difficulties in the successful dissemination and use of innovations.

The purpose of this paper is to examine some of the characteristics of schools and teachers, and of educational innovation, that have implications for implementing curriculum innovations. The specific referents for the discussion will be two elementary science projects in which the author has played some part. An attempt will be made to advance the argument that the gap between curriculum innovation and school reality is a function of certain fundamental differences in perspective between teachers and curriculum developers, and that this gap is unlikely to be closed by in service programs, allowing for curriculum adaptation by teachers, or other such conventional approaches. Rather, the solution lies in the merging of the two perspectives and in the production of materials that make classroom life simpler rather than more complex, as is usually the case.

The Study of Curriculum Implementation

Many studies of curriculum implementation are engendered by the frequent failure of innovations to achieve their desired goals. Recent reviews (e.g., Leithwood, et al., 1976; Giaquinta, 1973; Fullan and Pomfret, 1977) have pointed to a number of factors that influence innovation success or failure. Among these are: 1) characteristics of the innovation itself, especially its clarity and complexity; 2) the implementation strategies used; 3) the characteristics of the adopting unit (e.g., the school or teacher); 4) the nature of organizational support available; 5) socio-political factors (e.g., reward system, controversy). A strong feature of the conventional wisdom on implementation is that the ultimate users (i.e., teachers) should be directly involved in the development of the innovation. A number of studies, however, have cast doubt on the participatory model (see Giaquinta, 1973). The practical problem in this model is, of course, that it is essentially impossible to ensure that all prospective users of an innovation take part in its development. Those who do participate in development are likely to be a highly select group. Thus, the level of implementation among those who take part in the innovation would be expected to be much higher than for users in general.

One of the most serious problems revealed by studies of implementation is that teachers seem often to be unaware of the essential features of the innovation they are

attempting to implement. Leithwood and his colleagues (1976), for example, have argued that teachers seem to have abrogated their responsibility to think about goals and objectives and, instead, confine themselves to thinking about the operational details of a program. This, of course, assumes that teachers have a responsibility to think about goals in the first place. Fullan and Pomfret (1977) argue that innovators have an obligation to make their goals more explicit and to convey these more expressly to teachers. However, the problem is not that simple, as is amply illustrated by Elliott's (1977)report of the differences among teachers, and between teachers and innovators, in the meanings attached to critical elements of an innovation.

The problem, essentially, is that teachers and innovators speak different languages when dealing with a concept, and that a particular idea may have many different meanings. Educational innovations are thus subject to many different interpretations, and for this reason, are difficult to operationalize. More important, it is difficult to defend educational innovations on the basis of recognized criteria such as economy, efficiency, or improved outcomes. On the contrary, many such innovations are more demanding of time and resources than the programs they are designed to replace. Furthermore, their impact on important outcomes of schooling is often difficult to measure. Finally, there is often little or no reward to the user for the additional effort involved. Under these circumstances, it is little wonder that many innovations are greeted with scepticism on the part of teachers.

These points can be illustrated by concrete examples from the two science projects already mentioned. The experience in these projects is also useful in shedding light on the precise nature of the differences between innovators and teachers, and on how teachers may reinterpret the intentions of developers, in order to create a system that can be operated within the perceived constraints of the classroom.

The Elementary Science Curriculum Study

As some readers may recall, this project was initiated in 1970, with the aim of developing an activity based science curriculum for use in the schools of Newfoundland. Aftera series of trials, extending over three school years, the program was put into operation in about half the schools in the Province in 1973. That is, the teaching guides and accompanying apparatus kits were purchased by the School Supplies Division of the Department of Education, and distributed to schools on request. At the same time, an extensive in service teacher education program was conducted, involving workshops in most school districts in the Province.

During the developmental phase of this program, the usual classroom trials were conducted, and feedback from teachers was used in preparing successive drafts of the materials. Problems with the project that became evident during this time were much more in the area of program content and the logistics of production than in classroom implementation and operation of the program. While several of the trial teachers experienced difficulties in using the apparatus, managing the classroom with fifteen sets of apparatus in use, and the like, others seemed to be able to manage well and were quite enthusiastic about the level of interest of the children, the departure from routine classroom work, and similar features of the program. Given the commitment of the development group, it was relatively easy to generalize from the experience of these teachers and thus conclude that the program was, indeed, teachable in the ordinary classroom.

The first signs that there might he a discrepancy between the concerns of the developers and those of teachers came only after the developmental phase had been completed and studies were initiated on classroom events occurring as the program was being taught. These studies were designed to explore the thought processes of children as they engaged in science activities and were thus not intended as assessments of the program itself. Some of the findings, however, bear directly on the problem of implementing such a program. Since these studies are reported in detail elsewhere (Crocker, et al., 1977, 1979; Oakley and Crocker, 1980), only a brief summary of the relevant findings are given here.

First, it became evident in the early exploratory studies, that teachers and children were concerned with things other than science processes. Teachers seemed primarily concerned with ensuring that their instructions were correct, in order to ensure that the lessons ran as smoothly as possible. In general, pupils were concerned with getting directions right, setting up the apparatus, and making observations. The teacher's view could often be captured by the statement "Here's what you have to do". Pupil perspectives could be embodied in the question "is this how we do it?". In both cases, there was evidence of emphasis on lesson content process (e.g., electricity, plants) rather than on (e.g., inferring, interpreting data) as was the intent of the program.

In observing the classroom in operation, and later in successive playbacks of videotapes of lessons, it was easy to see how preoccupation with management, with discerning and carrying out the teacher's wishes, and with content could override the main objective of the program. This point was made even more graphically in interviews with students, and in attempts to analyze in detail the nature of the teacher pupil interactions that occurred during the lesson.

Pupil interviews revealed a strong emphasis on content over process and a concern with making sure the activity was carried out in accordance with the teacher's wishes. Pupils were generally prepared to accept the notion that the teacher should be the primary determiner of what is done in the lesson. The pupil's role is to "get it done right". Specific teacher-pupil interactions also supported this emphasis. It had been hypothesized that the transition - from teacher class interaction to interaction between the teacher and a small group of pupils would result in significant changes in teacher-pupil relationships. Instead, it was found that the pattern of interaction in the teacher-group setting was almost identical to that in the teacher-class setting, and highly similar to that found in conventional classes. The teacher did more than half the talking, the pattern of discourse was the typical teacher solicit/pupil respond/teacher react sequence that characterizes conventional classrooms.

From these and similar results we were led to the conclusion that what had been accomplished in implementing this program was, indeed, a substantial change in the surface features of the classroom setting, but no change in the crucial underlying structure of the setting. In particular, it became clear that the process aims of the project were being accommodated to the demand for smooth classroom functioning, pupil subordination to the teacher, and the normal demands to learn subject matter. Before examining the implications of these results, however, we turn to a second study that allows a more detailed exploration of the thought of teachers on these problems.

The Queensland Primary Science Project

For our second example, the locality shifts to Queensland, Australia. Despite this geographical leap, however, the school systems, the nature of the specific curriculum being implemented, and the problems of the gulf between teachers and developers are strikingly similar. Unfortunately, a detailed description of the similarities and differences in the school systems is not within the scope of this paper. Suffice it to say that in both cases the science projects in question were developed locally, were being implemented under the sponsorship of the Department of Education, and had similar scientific and pedagogical aims. One important difference, however, was that the Queensland project was originally designed to encourage school based decision making. There were thus no prepackaged materials. Rather, a set of guidelines was issued, and schools were being assisted in developing or selecting a program compatible with these guidelines.

The role of the author in the Queensland project was that of external evaluator rather than developer. From this perspective, it was decided to pursue in detail the perceptions of teachers on the problem of implementing an activity based science program. This decision was based on the notion that, if the teacher is to be considered a major decision maker with respect to the curriculum, it is necessary to determine the degree of congruence between teacher perspectives and the curriculum guidelines.

Accordingly, a combined interview/observation technique was adopted. A total of 58 teachers and 28 principals in 30 different schools were interviewed. Observations were conducted in 20 classrooms. Again, only a few of the findings will be discussed here. A complete summary of the findings is available in the final report of the study (Crocker, 1979).

One of the main activities of the Queensland project was to conduct a series of week-long intensive seminars, involving selected teachers from a number of schools. The intent was that these teachers then become the leaders in curriculum change within their schools. The study revealed that about half the schools had engaged in more than a nominal follow-up of the seminars. The most frequent decision made was to adopt a commercial science program rather than develop a program. However, most of the programs chosen had only the most tenuous connection with the project guidelines. While, on the one hand, adherence to the guidelines was mandatory in the view of the Department of Education, the message that teachers seemed to be receiving was that any curriculum decision was acceptable as long as it was made and carried out at the school level.

The implementation model adopted by the project was clearly one in which selected teachers were intended to be trained as science curriculum leaders in their schools. The study showed, however, that these leaders had not, in general, diffused the seminar ideas throughout the staff. Typically, seminar teachers reported their experiences at a staff meeting. Beyond this, the main exercise seemed to be in attempting to persuade the school principal to adopt or initiate development of a program. It was clear that, in both perception and reality, the support of the principal was necessary for any action to take place. Such support, however, did little to ensure that the action was consistent with the project guidelines.

The most striking result of the study was that teachers expressed considerable opposition to process teaching, group work, pupil use of apparatus, discovery learning and similar points promoted during the seminars. In short, despite the intensive seminar

program, the views of teachers were in sharp contrast to the aims of the project. The reasons given by teachers for their opposition were quite clear. Management problems were predominant, along with arguments that many pupils are incapable of discovering, discovery is an inefficient way to teach, and similar points. Teacher concern with management was also evident from the classroom observations. The predominant type of lesson was recitation (usually called "discussion" by teachers) followed by seatwork. There was considerable emphasis on written work. However, the forma nd content of pupil notebooks typically revealed little congruence with the aims of the project.

Teachers in the study perceived themselves to be quite free to conduct their science teaching in any way they saw fit. There was, however, strong evidence that teachers and principals wished to see a high degree of prescription in the science program. In the case of principals, in particular, it was quite clear that they wanted the Department of Education to mandate a complete program rather than just a set of guidelines. Paradoxically, teachers did express a strong desire to be able to choose activities from a mandated program, and particularly, to opt out of teaching material with which they felt uncomfortable or unable to teach. It therefore appears that these teachers did not really wish to become involved in curriculum development, but wished to retain the option, within a mandated program of selecting material that they believed most suitable for their purposes. The reasons given for desire to opt out of activities usually centered around teachers' perceptions of the needs and abilities of their classes. In particular, teachers often cited limitations of student background as a reason for not being able to do certain things in the classroom.

In a supplementary study designed to assess the factors that might influence success of an innovation, teachers were presented with a set of implementation scenarios and were asked to estimate the probability of implementation under the conditions described in each scenario. Of the five possible factors included (program type, teaching style required, responsibility for cost, in service support, and staff attitude), only the staff attitude factor emerged as significant to implementation. That is, scenarios which described a high degree of staff support received significantly higher probabilities of implementation than those with low staff support. Varying the remaining factors seemed to make no difference to the probability of implementation.

Implications

It is tempting to draw from these examples a set of prescriptions about how to bring about successful implementation. For example, one could argue that success of an innovation requires that it be highly prescribed at the level of classroom activities, but that teachers should be able to select from the available material. Also, a program must be seen by teachers as being manageable in the classroom. Finally, success of a program seems to depend on being able to obtain teacher support for this program.

Unfortunately, such prescriptions are oversimplified, in that they fail to address important issues such as the differences in interpretation of the nature of an innovation between teachers and developers. Also, such prescriptions do not solve the problem of what happens when a fundamental difference of opinion exists between teachers and those responsible for the mandated curriculum, or when similar differences exist among teachers themselves.

Before reaching the conclusion that problems of implementation stem from the fact that curriculum developers are merely idealists or that teachers are basically obstructionists, it is necessary to examine more closely the perspectives from which each approaches the question of innovation. In the case of the science examples discussed, the perspective of the developers was essentially a scientific and psychological one. The emphasis on scientific processes, for example, was based on the notion that children can best learn about science as it "really is" by learning how to observe, interpret data, measure, and the like. Teachers, on the other hand, clearly approach the innovation from a classroom management perspective and from the point of view of perceived abilities of their particular students. While the latter is essentially a psychological viewpoint, it is quite different from that of the curriculum developer. The interview data would seem to suggest that teachers focus on the /imitations of student ability. Developers of process-based science curricula, on the other hand, tend to subscribe to theories of learning and child development which stress the importance of discovery, which emphasize the development of logical thinking through concrete examples, or which focus on the need to promote pupil independence. These views lead to the development of materials, and the advocacy of pedagogical practices that are contradictory to the teacher's common-sense ideas of how a classroom can operate and to structures that have been established within schools.

The latter point raises the question of the importance of structural features of the school setting in determining the success of innovations. While certain departures from conventional teaching practices (such as the use of a gymnasium for physical education) have, indeed, become accepted and allowed for in school design, scheduling, teacher assignment and the like, innovations which demand similar attention to structural features are often implemented without due consideration of these points. In the Queensland project, for example, no provision was made to ensure that materials were available to conduct pupil experimentation in the classroom. In the Newfoundland project, the program had to be integrated into already full timetables, for example, without any clear direction to teachers as to what it might replace. In neither project was much thought given to the fact that pupil experimentation represents a significant departure from conventional classroom practices and hence creates problems of management that cannot be solved using the teacher's regular repertoire of management techniques. For example, pupil-pupil talk is usually strongly discouraged in a regular classroom. In a gymnasium or laboratory, however, such behavior is considered normal. To encourage pupil-pupil talk in a science lesson held in the regular classroom, while discouraging such talk on other classroom occasions, creates a contradiction in behavior norms that is confusing for teachers and pupils. Similar problems exist in the use of apparatus rather than print materials, the emphasis on process rather than content, and other areas of contrast between science teaching and conventional classroom teaching. The recitation lesson has some distinct advantages from a management perspective. To expect major changes in this lesson form, without accompanying changes in class structures (such as use of specialist teachers or creation of laboratories in elementary schools) is perhaps unrealistic.

Before greater success in implementation of innovations can be achieved, it is therefore necessary to solve the problems of different perspectives and of structural components of the school setting. The latter is essentially an administrative matter. If science teaching were to be approached in the same manner as the teaching of physical education, for example, by appointing specialist teachers and designing special facilities, then this would be a signal that science is to be taken seriously as a part of the curriculum that requires unusual arrangements for successful teaching. The first point

seems to require a radically different approach to in service teacher education and perhaps to curriculum implementation itself. There is probably little point in trying to persuade teachers to accept the ideas of curriculum developers uncritically. Rather, a program is required which will yield some accommodation between what program developers demand and what teachers can actually carry out. In the absence of major structural changes, it seems inevitable that developers will have to accept something less than implementation of their ideal type of program. In the long term, working to create incremental changes in the system may be . as effective as attempts to bring about radical change.

REFERENCES

Crocker, R.K., Amaria, R.P., Banfield, H., Clark, G.W., Oakley, W.F., Rumbold, G., and Sheppard, D.G. *Teacher Control, Classroom Behaviors and Pupil Performance in Elementary Science Classes.* St. John's, Newfoundland: Institute for Educational Research and Development, Memorial University, 1977.

Crocker, R.K., Amaria, R.P., Banfield, H. and Sheppard, D. Treatment and ATI Effects for Pupil Achievement and Preference Under Two Experimental Conditions of Teacher Control in Sixth Grade Science Classes. *Journal of Research in Science Teaching, 16, 105-121,* 1979.

Crocker, R.K. *From Curriculum to Classroom. An Interview Study of Teacher Perspectives on Curriculum Change in Primary Science.* Brisbane: Queensland Department of Education, 1979.

Elliott, J. Developing Hypotheses about Classroom from Teachers' Practical Constructs: An Account of the Ford Teaching Project *Interchange,* 7, *2, 2-22,* 1977.

Fullan, M. and Pomfret, A. Research on Curriculum and Instruction Implementation. *Review of Educational Research,* 47,335-397, 1977.

Giaquinta, J. The Process of Organizational Change in Schools. In F.N. Kerlinger (Ed.), *Review of Research in Education.* Itasca, Illinois: F.E. Peacock, 1973.

Leithwood, K.K., Clipsham, J.S., Maynes, F. and Baxter, R.P. A Four Year Mathematics Project. *Curriculum Theory Network, 5,* 3, 319-343, 1977.

Oakley. W.F. and Crocker, R.K. An Exploratory Study of Teacher Interventions in Elementary Science Laboratory Groups. *Journal of Research in Science Teaching,* 17, 407-418, 1980.

SCIENCE PROJECTS FOR THE ELEMENTARY SCHOOL

Bruce Burton
Curriculum and Instruction

For a number of years an integral part of Education 2180 (a methods course for elementary science teachers) has been a long-term project. This project originated following a request from students to have more exposure to activities from the biological sciences. It has now evolved to a stage where students carry out a series of investigations, with either plants or animals, over a period of approximately ten weeks. At the end of the course the students share the results of these experiments with their classmates. The end result is that they leave with substantial knowledge about one particular project, and also have enough information to run a large number of projects suitable for primary or elementary classrooms.

Outcomes

These projects are intended to give teachers practical experience in many of the process skills that we feel should be passed on to young children. These skills include the basic processes: observing, classifying, quantifying, communicating, inferring, and predicting, as well as the complex processes: formulating hypotheses, forming operational definitions, controlling variables, interpreting data, experimenting, and formulating models. Many of these processes are involved in each of the projects used.

We have found these projects to be an excellent way to develop interest and skills in caring for living things. At the same time, students experience a real science inquiry and also gain practice in science-process skills.

Example

One of the projects commonly used is entitled *Micro gardening.* Here the students are primarily concerned with the growth of molds. They begin by establishing a mold garden. This requires a clear plastic container lined on the bottom with 2 or 3 cm of sand or soil. Students then place 5 or 6 pieces of food on top of this layer and cover the container with plastic. Usually within two or three days growth appears and at this stage students can make observations regarding the variety of molds present, as well as make comparisons among foods in terms of the time required for molds to appear.

The types of questions usually asked at this stage include: Where do molds come from? How fast do they grow? How can we prevent mold growth? These questions can lead to a variety of investigations involving setting up different conditions by varying water, light, and temperature. The process of controlling variables is particularly important here since students can make valid comparisons only if they change one condition at a time.

Most of the observations required are macroscopic (students note colour, size and number of colonies) but microscopic observations are also useful, particularly in identifying mold types. Some of the more common molds include the bread mold - *Rhizopus* and *Penicil*lium. The presence of *Penicillium* can lead to discussions regarding

the usefulness of molds. The antibiotic penicillin produced by a mold is one example; the presence of molds in certain types of cheeses is another.

In terms of scientific processes, almost all can be emphasized here: Observing - macroscopic and microscopic; classifying-sorting molds on the basis of the types of foods on which they appear; quantifying - number and size of colonies; communicating - tables, and graphs showing results; inferring - where do the spores come from; predicting - given results on mold growth at 10°C, 15°C, 20°C, predict the amount of growth at other temperatures; formulating hypotheses - how does light affect the growth of a mold?; forming operational definitions - the growth of a mold could be defined in terms of the change in diameter of that mold; controlling variables - changing only one condition while investigating environmental factors; interpreting data - what is the ideal humidity for mold growth?; experimenting - how can mold growth be prevented?

A second example is a project entitled *Rootings.* Here the students try a variety of methods which allow them to obtain new plants from old ones. These methods include stem cuttings, whole-leaf cuttings, leaf sections, vein cuttings, air layering and soil layering. Some of these methods allow for a variety of investigations. With stem cuttings, for example, a number of options are available: (1) compare a cutting with all leaves remaining attached with one that has all but two or three leaves removed, (2) compare cuttings rooted in the dark with those in the light, (3) try using a rooting hormone, (4) compare cuttings rooted in water with those started in soil.

The project can be expanded further by making comparisons not only among the different methods, but also by using a variety of different plants. It will be quite obvious that some of the methods are best for certain types of plants. Succulents, for example, generally have thick, fleshy leaves which can be easily rooted.

There are many advantages in running this particular project. It is relatively easy to find plants suitable for these activities. Very little equipment is necessary - in fact, a class could even make a profit by having a plant sale at the end of the project!

Additional projects:

Other projects undertaken by our students include:

1. Seed germination - compare different seeds, methods and conditions.

2. The effects of water, light and fertilizer on plants - using fast-growing plants such as beans or peas.

3. Yeast populations - finding optimum conditions for yeast growth.

4. Fish - use live-bearers such as guppies. Investigate growth and reproduction, food preferences, aggressive behaviour.

5. Daphnia - small fresh-water organism. Good for population studies and environmental effects on growth.

6. Brine shrimp - effects of temperature and salt concentration on hatching, growth and reproduction, and reaction to stimuli.

7. Hay infusion - involves extensive use of the microscope in studies on population and succession.

8. Mealworms - reactions to stimuli, food preferences, and insect life cycle.

9. Terraria - growing plants in a sealed container.

10. Hamsters or gerbils - feeding and general care of animals.

References

1. Orlans, F.B. Animal Care from Protozoa to Small Mammals. Addison-Wesley, Don Mills, Ontario, 1977.

2. Elementary Science Study, 1. Mealworms; 2. Brine Shrimp; 3. Starting from Seeds; 4. The Life of Beans and Peas; 5. Growing Seeds; 6. Teacher's Guide for Micro gardening. Webster Division, McGraw-Hill Bok Co., Toronto, 1968.

3. *A Child's Garden - A Guide* for Parents and *Teachers.* (Single copies free from: Chevron Chemical Co., Public Relations, P.O. Box 3744, San Francisco, California, 94119.)

MICROCOMPUTERS IN SCIENCE TEACHING

Colin S. Davies
Division of Learning Resources

In recent years, the word computer has become a household word. Computers, to many, are large and expensive pieces of equipment, used by large and impressive corporations in business and industry and programmed by an academic elite. To some degree, that view is still valid; "big" business often requires powerful and expensive computers with equally, if not more, sophisticated programs. On the other hand, the advent of the microcomputer has gone a long way to destroy the myth that computers are for a privileged few. Apart from being much smaller and compact than large, or mainframe, computers, microcomputers are much cheaper and easier to use, so much so that they are now within the magnitude of school budgets and their use in teaching is rapidly increasing.

Microcomputer use in schools has also played a significant part in dispelling the myth that computers could only be used in the teaching of mathematics, science, engineering, and the suchlike, and even then only to a limited extent. The worldwide use of microcomputers in teaching is in itself testimony to the fact that they can serve an important role in teaching, a role that is not bound by the subject or discipline. Having said that, it is important to establish that the computer lends itself to different subjects in different ways and, although there are many communalities between subjects and disciplines, each subject warrants a separate consideration.

In this paper, the use of microcomputers in science teaching is considered, science teaching being taken to include such subjects as physics, chemistry, and biology but not computer science itself. Even so, although the general utility of microcomputers for science teaching is discussed, with examples being drawn from various subjects, an examination of the utility for any specific subject is, by virtue of differences in the types and structure of learning between the subjects themselves, beyond the scope of the present paper.

The Microcomputer System

In essence, a microcomputer is just a very small and compact computer system. The microcomputer is currently represented in the marketplace by such models as the Radio Shack TRS-80, the Apple 11 Plus, Commodore Business Machines" PET and VIC-20, and the Atari 800, with starting prices ranging from approximately $500 to $2000. As a general rule, the more sophisticated the equipment, the higher the price.

As illustrated in Figure 1, the basic or minimal system consists of two communication devices: a *keyboard,* for entering information; and a *video display unit* (VDU) or TV, for displaying both the information you enter and the information produced by the computer program. In addition, the change agent for "input" to "output" is the *processor,* a component which does the arithmetic and makes decisions and is located in the keyboard unit of most component microcomputer systems. Finally, the keyboard unit also contains the *main memory* of the computer; this is used as a temporary storage area for the *program,* or instructions to direct the computer's operation, as well as a working space for the program itself, i.e., to store information that has been input as well as information awaiting output. The main or *random access memory* (RAM) facility is

(INSERT Figure 1. A microcomputer system)

volatile (i.e., erased or lost when the power supply is turned off), though, and the cheapest form of "permanent" or *mass memory is* provided by the recording capabilities of magnetic tape and a cassette recorder.

This basic system may be enhanced principally by increasing the output and mass memory facilities. For example, a system offering a VDU with color capabilities could be chosen over one in which only a monochrome (e.g., black and white) capability was available. A *printer* could also be added, an option which provides the user with a "hard copy" of programs and results. Finally, both the capacity and utility of the mass memory facility can be increased by adding one or more *disk* drives; each 5'/4" flexible and magnetically-coated disk offers not only much faster access to information but also information may be accessed in a random manner rather than in the sequential (and potentially less efficient) fashion required by cassette tape.

Apart from such peripheral equipment as printers and disk drives, a principal cost factor of any system is the main memory capacity; the greater the memory (K, or kilobytes), the higher the cost. Even so, the more austere the basic system one chooses, the greater the likelihood that at least a printer (and perhaps one disk drive) might be added without exceeding $2000. Currently, though, a 48K system with a high resolution color monitor, dual disk drives, and a dot-matrix printer will cost upwards of $5000.

Applications in Science Teaching

While in the past there has, unfortunately, been more than a grain of truth in the fact that protagonists of computer-based instruction have claimed the strategy to be little more than "electronic page-turning", it seems only fair to recognize that the state of any art is as much a function of the technology itself as its application. The simplicity of computer-based instruction in the 1960's and early 1970's was as much a function of the relatively unsophisticated languages and equipment of those times as he complexity of today's computer based instruction is dependent on the current microelectronics revolution. There seems little doubt that the microcomputer, with its graphic, sound, and interfacing capabilities, has engendered the innovative use which represents the current state of-the-art of computer-based instruction. For this reason, the microcomputer offers science teachers new avenues for learning and enquiry.

Calculator. One of the simplest uses of a microcomputer is as a calculator, by either students or teachers and especially in such mathematical and principle-oriented subjects as physics and chemistry. After the program has been loaded and the data has been entered, a large number of calculations may be done in a very short period of time. In the laboratory, for example, the teacher might use a microcomputer in this way to determine class statistics for experimental results - means, standard deviations, percentage errors; depending on the programming sophistication, the results of such calculations might be simply numerical output on the VDU or printer or more elaborately displayed as a histogram on the VDU. In the classroom, such a data processing facility may be used to establish relationships between variables: for example, in the calculation of equilibrium constants from experimental data over a range of temperatures. This permits the emphasis in the teaching strategy to be upon the principle without neglecting or compromising the empirical basis of science; it also permits the teacher to discuss or demonstrate in a quantitative way principles which hitherto may only have been considered on a qualitative basis, for example, Le Chatelier's Principle and perturbations of the equilibrium state.

In addition, use of the microcomputer as a calculator by *students* can reduce the amount of laboratory time required to do elaborate and involved calculations, the student being required only to enter the data as prompted by the computer, the computer then processing the data and calculating the final result. Although such use may permit more efficient use of laboratory time, it should not, of course, compromise or diminish the degree of proficiency expected of students with a given calculation and without the assistance of a computer; it would seem best only to permit students to use a computer after they fully understand how to do a calculation "by hand." And from an instructional standpoint, reducing the computational demands of a course or experiment allows teachers to consider the inclusion of more quantitative and sophisticated laboratory experiments.

Data Storage. In the preceding discussion of the use of the microcomputer as a calculator, it is assumed that the data are entered via the keyboard immediately prior to processing. This procedure takes time and can often be handled more efficiently by utilizing the data storage capabilities of the system itself, i.e., cassette tape or disk. Data for processing at a later time could therefore be entered and saved on tape or disk by either students during a laboratory period or by a teacher prior to the class itself. During the class period, then, the stored data can be quickly loaded and processed, a major portion of the time for keyboard data entry being saved. The utility of information stored on a mass memory medium is enhanced by its permanence; it can be used over and over again, thereby avoiding the need to re-enter data for each use. Also the data from different groups may be compared or cumulated; for example, in the examination of the relationship between a variable dependent on different ambient conditions such as atmospheric pressure, temperature, light intensity or relative humidity.

The data storage capability also provides the teacher with a convenient system for maintaining records of equipment, stock, chemicals, apparatus, or student performance, e.g., test scores, lab. marks. A simple inventory control program can not only list inventory items, quantities, location, prices, and addresses of suppliers, but can also monitor consumption or deterioration rates and indicate when reordering or replacement is needed. Frequently, student grades at the end of a course are a weighted sum of a number of individual assessments; by utilizing both the data storage capability to record test scores when they are obtained and the data processing capability to compute the required sum for each student, many of the end-of-term frustrations associated with finalizing student grades can be avoided - detailed class records are readily available too.

Individualizing Instruction. From a more instructional point of view, the microcomputer can be used in several ways which largely represent the individualization of instruction. For example, the computer can be used to *test* students, either in a formative way to facilitate the learning process or in a summative way for student assessment and placement. In either case, a predetermined number of questions is presented to which the student responds by entering answers via the keyboard.' Test programs may vary from containing precisely each question as displayed to containing one or more general question formats into which information for specific variables can be substituted, the question format being chosen at random and the variables being selected at random from a specific pool or being generated by the program itself; random selection from a pool is more appropriate for string variables (e.g., names of elements) whereas random variable generation is more appropriate for numeric variables (e.g., number of moles of compound). The ability to generate questions at random enables the

teacher to produce either equivalent or unique forms of a test, the latter being especially useful if a high degree of security is required.

Depending on the situation in which a test program is administered, but particularly when used for assessment purposes, only certain students may be permitted access to a test or students may only be permitted to "write" a test once; this requires the test program to have a monitoring procedure whereby when a student attempts to use a given test, a record file is searched to determine that student's status and the possibility of granting access. In such cases of privileged-access, the same degree of security over student performance data can be achieved by immediately saving such data on file at the conclusion of the test sequence; by using a different program, the teacher can then inspect such data at a later time, e.g., at the end of the period, or day. Also to draw a parallel between a "traditional classroom pencil-and-paper" test, a computerized test for assessment would give no indication of a student's performance, either on individual questions or on the test as a whole (even though the computer is checking each answer and recording the student's performance). The situation would most likely be different, though, where testing was used to evaluate and direct learning: access may not be restricted (though doing so permits a greater degree of control over who uses a test - and the equipment); performance data would most likely be collected for later inspection by the teacher as well as being provided to the student after completing the test; in addition, students could be provided feedback on their performance on an individual question basis, either immediately after each question has been answered or collectively at the end of the test.[2]

As far as utility is concerned, the microcomputer can be used to test a wide variety of learning, from facts and concepts to principles and problem solving. At the same time, though, it is important to recognize a potentially serious limitation of computer-based testing; namely, the restrictions imposed on response topography. Because of the programming complexity required to permit the evaluation of freely constructed responses (e.g., as trivial as one or two sentences), the current state-of-the-art favors responses which are primarily of a selection variety (e.g., true/false, multiple choice, matching) and to a limited extent, constructed responses which are relatively consistent in format (e.g. numeric, one word, or short phrase answers). Caution should therefore be exercised to ensure that student behaviors demanded by computer-based testing are consistent with those required by one's curricular or course goals and objectives; if one's goals can be enhanced through computer use then all well and good but under no circumstances should goals be compromised just for the sake of using the computer. This is not to say, though, that computer-based testing could not be used in a formative way to stimulate and facilitate learning, and pencil-and-paper tests used for summative assessment; if this were indeed the case, the need to provide experience and practice with pencil-and-paper tests would in no way be lessened by using the computer.

To some degree an extension of the testing capability, the microcomputer can also be used to provide *drill and practice* with previously learned skills. Drill and practice programs usually consider a specific skill with questions being presented in a variety of ways. However, since questions usually vary in difficulty, students frequently progress from the simpler to the more difficult questions rather than questions being presented in random order; in some cases, questions may be arranged in sets representing different levels of difficulty, a certain standard of performance being required to progress from one level to another. Feedback is provided after the evaluation of each answer and a limited number of attempts is usually permitted for each question.

Although in its simplest form feedback may be whether or not an answer is correct, the greatest utility of drill and practice programs for individualizing instruction is when the sophistication of feedback seeks to emulate the real-world classroom situation, i.e., by a series of interactions with a student, a problem can be diagnosed and an appropriate remedy prescribed. Consider for example, a drill and practice program for chemical calculations involving the determination of the number of moles corresponding to a given mass of an element in grams. As shown in Figure 2(a), the first incorrect response is followed by an indication to that effect (e.g., THAT'S NOT CORRECT) and a prompt to the student to check (1) the value used for the molar mass of the element and (2) the calculation procedure (e.g., by unit analysis), before trying the question again. Should the second answer also be incorrect, as illustrated in Figure 2(b), the program then engages in a more detailed analysis by first asking the student the actual value used for the molar mass and then informing the student as to whether the correct value had been used and if not, the value that should have been used; following this, the student is required to select from a list of procedures the one that should have been used and feedback on the choice is provided accordingly, after which the student is requested to try the problem again. At this point, the student should now have the information required to execute the calculation correctly. However, if a third incorrect answer is obtained, a worked solution for the problem is provided, as shown in Figure 2(c).

To prevent students from being punished by repeated failure, it is important that performance is closely monitored and the student requested to exit a program and consult the teacher if a predetermined level of success or rate of progress is not maintained; the data so collected and saved can then be separately inspected by the teacher (c.f. testing). In fact, much of the preceding discussion concerning the utility of computer-based testing for different types of learning and procedures for establishing question pools is applicable to a consideration of drill and practice programs.

In contrast to drill and practice where the emphasis is on what the student has already learned, the tutorial mode of computer-based instruction is designed to present appropriate experiences and activities for the student to learn new material and acquire new skills. To achieve this, the microcomputer is used to direct a student's activities, e.g., read information displayed on the VDU, study a map or diagram in a text, view a slide, or listen to an audio segment, and then to require responding to a series of questions to determine the amount of learning that has occurred. After evaluating the answers, feedback is immediately provided, a feature which many students find attractive; depending on the amount of learning and the program's sophistication, the instructional sequence would continue for a satisfactory performance but be repeated in either the same or an alternate way for an unsatisfactory performance.

Although the tutorial mode may, in its most unsophisticated form, resemble little more than "electronic" programmed instruction, the evaluation capabilities and the secrecy of information provided by the computer represent significant enhancements over programmed instruction in the print format. Furthermore, performance data collected and stored by the system maybe used for formative evaluation of the program itself as much as for the monitoring of student progress. And once again, the tutorial mode is not restricted to any particular type of learning or any particular instructional approach; rules may be presented in either an expository or discovery oriented manner. In fact, some of the greatest developments in computer-based instruction might be anticipated in association with the tutorial type of use. The color graphic and sound synthesis capabilities of some microcomputers already represent components for enriching and enhancing the computer-based learning experience. In addition, progress in both

402

(INSERT FIGURE 2)

hardware and software which will extend an author's control over media such as audiocassette recorders, slide projectors, videotape recorders, and videodisc players via a microcomputer augur well for future developments in this area.

Simulation. A computer simulation is a system which behaves in essentially the same way as the real world system it models. Since many real-world systems cannot find a place in the classroom because they are either too complex, too expensive, or too hazardous, computer simulations can play a significant role in science teaching. For example, microcomputer-based simulation programs could involve: rates of reaction, equilibria, electrochemical cells, and gas chromatography in chemistry; mass spectrometry, gravitational fields, planetary motion, and radioactive decay in physics; inheritance, pond ecology, and transpiration in biology.

Computer simulations utilize the data processing power of the computer to perform the many calculations demanded by student interactions with the system; the graphic capabilities of the microcomputer may also be utilized to display graphs, some of which may be sufficiently sophisticated to be dynamic and portray the time dependence fluctuations of a variable in "real time." From a pedagogical standpoint, computer simulations are intended not for stand-alone use but rather for incorporation into an instructional "package" which would consist of various learning activities both prior to and following use of the simulation itself; such a package usually includes a teacher's guide, both to provide background information on the simulation and program itself as well as details of the suggested student activities; a student guide, to direct a student's learning and the nature of the interaction with the simulation; and the necessary resource materials, such as a program documentation and listing, flow chart, and testing procedure.

Depending on the curricular goals (as well as the learning activities prior to encountering the program), interaction with the computer simulation may be approached in either an expository or *discovery* manner. For example, a pond ecology simulation might allow the student to observe the effects of fishing rate or level of pollution on fish and phytoplankton populations. If the relationships between fishing rate and fish population etc. are taught first, in an expository way, then use of the simulation principally serves to demonstrate the utility of previously learned rules. By doing so, the potential of the simulation to promote creative thinking and develop problem solving strategies is largely lost: However, if the prior teaching provides only as much information as is required to use the simulation, then exploring the model provides a valuable discovery learning opportunity. Such explorations need to be guided, in the sense that students should be directed as to which variables to control and as to what values to use for the probe variable. By so doing, data produced by the program may be used by students to establish relationships between the probe and another variable; in addition, hypotheses concerning the possible relationships between variables could be generated and subsequently "tested" using the simulation program.

Of the two approaches described, the discovery-oriented approach is more interesting and potentially rewarding as it provides science teachers the opportunity to engage their students in "research" activities and hence, the use of higher order learning. The desirability of a trend to increasing the use of this type of learning is certainly not without precedent at a time when curricula cater principally to the ""average" learner and fail to accommodate the broad spectrum of learning needs of students.

Illustrator. One of the most important developments in computers from a teaching standpoint has been the advances made in display technology - the replacement of noisy printers with video screens which can rapidly "paint" one's output in varying colors and resolution. For this reason, the microcomputer with its video display unit or TV may find some measure of utility in the teaching process as an illustrator. Graphs, diagrams, charts, and pictures can be created by appropriate programming; although this may be achieved by actually writing a program in one of the computer's languages (e.g., BASIC or Pascal), much of the tedious attention to detail and time this requires can be reduced by using a utility program (graphic editor) which permits any graphic to be created in real-time with the help of the keyboard, paddles, or joysticks to control cursor movement on the video display. Such is the technology in this area that graphics may be similarly created by tracing on the VDU screen with a light *pen* or on an '"electronic" tablet with a sensitive stylus.

In addition to displaying graphics in a static way, a certain degree of animation can be achieved using the microcomputer. Components of a diagram could be highlighted in color to emphasize particular features; the points of a graph could be successively plotted against a real or scaled time-base; and the interdependence of variables and their dependence on time could be dynamically represented. As illustrated in Figures 3(a)-(c), diagrams can be built-up so that any discussion or commentary can focus on particular components in a progressive manner. Such capabilities are obviously enhancements to the traditional media available in the classroom and seem especially appropriate for the teaching of science; more importantly, computer graphics can be designed and produced by teachers to meet their own needs.

(INSERT Figure 3. Animated graphic sequence)

Data Capture and Process Control. Less common among the list of microcomputer applications in education but nonetheless potentially important to the science teacher are *data capture (i.e.,* programmed collection and storage of experimental data) and *process control (i.e.,* use of the microcomputer to control the operation of an experiment); these applications may either be implemented separately or in combination. However, the task of designing or the cost of purchasing specialized equipment in addition to the need to interface equipment (and frequently perform analog to digital conversions, and vice versa) to the microcomputer place such applications beyond the budget or expertise of all but the most enthusiastic microcomputer buffs.

Motivator. Although not an application in itself, the positive effect on student attitudes and interest described by users of microcomputers in their teaching should be recognized; the microcomputer is definitely a *motivator* of students. If this stimulation can be harnessed and directed to improve the efficiency and effectiveness of student learning, to produce positive attitudes to learning, especially science, and to increase students' familiarity and awareness with the technological world in which they live then investigating the utility of microcomputers in teaching would seem to deserve our attention.

Managing Instruction. One final use which deserves consideration is the ability of the computer to manage instruction, a use which is usually referred to as *computer-managed instruction.* There is a major distinction between computer managed instruction (CMI) and the various types of computer-based instruction (CBI) discussed above. Namely, in CBI the student will probably interact with the computer itself at some stage in the instruction and that this interaction will form part of the learning process; on the other hand, in CMI the student will not necessarily interact directly with the computer at all, the computer's role being to organize and prescribe learning activities rather than to be an integral element of such activities itself. Hence, CMI has well defined protocols. Upon entering the system, the student is first tested to evaluate the amount of learning which has already occurred for a given subject or topic. Frequently this test is graded by the computer which then crosschecks the student's performance with requirements specified by the teacher as constituting one or more of a course's units or modules; by so doing, the computer identifies the learning needs of the student. Once again, by referring to the teacher's (or course's) structure, the computer can be used to prescribe a set of tasks for the student; such tasks may range from reading assignments or watching films to completing written exercises or doing laboratory experiments and field projects. After each set of tasks has been completed, either as classwork or homework, the student is then tested again and recycled through the process again; present learning is used to predict a new set of learning needs, for which a new set of activities is prescribed.

Of course, such a utility is not without its costs. The planning and design of a course to be implemented using CMI is extensive, as is the preparation and production of materials. Also, relatively sophisticated and powerful hardware is almost essential to maintain the extensive records and execute the amount of processing required by a computer-managed instruction system. For these reasons, the utility of CMI for the microcomputer user would seem limited at the present time, at least until the processing and main memory capabilities of microcomputers can be significantly improved.[3]

At the same time, though, computer-managed instruction represents a highly sophisticated form of individualization and a way to efficiently meet the wide variety of student needs. Another powerful attribute of CMI is its independence of response

topography, a factor identified as a limitation in computer-based instruction; response topography can include simple and complex written answers, verbal responses, and the preparation of material products such as technical drawings, chemical compounds, electronic circuits, or biological slides. The only requirement as far as the use of a CMI system is concerned is being able to observe and measure the particular response so that it may be encoded in a way suitable for processing by the computer. This lack of restriction on student behaviors is a particularly attractive feature of computer-managed instruction. especially given the broad range of activities required of students in science courses.

Conclusions

There would seem little doubt that the microcomputer (or any computer for that matter) has many applications in science teaching. In fact, there may seem so many that the problem facing the enthusiastic or interested teacher is just where to begin. What hardware should be purchased? Where will programs be obtained? Should programs be purchased or developed by oneself?

Before purchasing anything, the most important step is to first decide precisely what you want to do and what you want to use the computer for. It is the decisions you make and the goals you set at this stage which will define the equipment capabilities you will require. When you then go to the marketplace you will be able to evaluate available equipment and determine what meets your needs (and your budget). It's probably good advice to venture into the field on a small scale at first and not be overambitious. At the same time, though, it is important that any equipment you purchase is "upward compatible" (i.e., capable of being modified and extended to a more powerful system) should your system needs become more demanding in the future. For this reason, it is important to know whether a given brand of microcomputer has a memory expansion capability, or the availability of suitable interfaces to permit the addition of a printer or disk drives.

As with hardware, one's goals should determine the software that is required. If feasible, you may wish to develop your own software either by programming in a language such as BASIC or Pascal or by using an authoring system or course authoring language like PILOT or PASS, respectively available for the Apple and Bell and Howell microcomputer systems. Nevertheless, it is useful to purchase software, not only to get started but also to see other people's ideas. In spite of some degree of longevity, the use of computers, let alone microcomputers, is still very much in its infancy. Resources and the literature are diversified and keeping up-to-date requires a degree of diligence and devotion in excess of what might be required for other developing technologies. Hence, the development and evolution of one's own ideas seems as much a function of reading about and seeing what other people are doing as of one's own thinking. A list of magazines and journals which feature or deal specifically with the educational use of microcomputers is included in the selected readings. Of special interest to science teachers, though, is most likely to be *The Journal of Computers in Science Teaching,* published quarterly by the Association for Computers in Science Teaching .4 The existence of a specialist journal such as this is in itself an indication of the degree of interest and activities in the use of microcomputers for teaching science alone.

In reality, though, much of the computer's potential is not only unexplored, it is also underutilized. Science teaching is replete with opportunities for exploring many

aspects of the computer's capabilities. Few current users would deny that a great deal of effort is required to use the computer in one's teaching, but as with many novel ideas, the effort to maintain and develop an activity is rarely as great as that required to initiate it. At the same time, there are many indications that the microcomputer represents a powerful influence in the learning process and, although its mere existence should not be used to justify its use, it would be unfair to dismiss it without an appropriate period of trial and evaluation. The educational use of microcomputers can be rewarding for both teachers and students alike, so much so that science teachers should feel encouraged to try it for themselves.

SELECTED READINGS

Microcomputer Systems

Acker, J. Languages, Interpreters, and Compilers. *On Computing*, 1981, 3(2), 47-50.

Bradbeer, R. Low-Cost Computer Systems. *Educational Computing*, 1981, 2(10), 30-35.

Cannon, D. *Understanding Microprocessors*. Dallas, Texas: Texas Instruments Learning Center, 1979.

Hughes, E.M. A Beginner's Guide to Memory. *On Computing*, 1981, 3(1), 18-26.

Hughes, E.M. What's in the Box? Taking the Mystery Out of Your Computer. *On Computing*, 1981, 3(2), 27.34.

Low-Cost Printers. *Educational Computing*, 1981, 2(8), 43-51.

A Practical Introduction. *Practical Computing*, 1979, July, 53-60.

Hardware and Software

Kleiman, G., Humphrey, M.M., and Buskirk, T.V. Evaluating Educational Software. *Creative Computing*, 1981, 7(10), 84-90.

Petrakos, P. Rushing Toward Courseware. *80 Micro computing*, 1981, April, 74-81.

Poppelbaum, T.L. Match Your New Computer to Your Needs. *On Computing*, 1981, 3(1), 3034.

Staples, B. Van Helps Schools Select the Right Computer. *Creative Computing*, 1981, 7(3), 106-112.

Resources

AEDS Journal
British Journal of Educational Technology
Byte
Computer Education
Computers and Education
Computers in Schools
Creative Computing
Educational Computing
Educational Technology
80 Micro computing
Interface Age
Journal of Applied Psychology
Journal of Computer Based Instruction
Journal of Computers in Science Teaching
Journal of Educational Research
Journal of Educational Technology Systems
Journal of Research and Development in Education
Journal of Research in Science Teaching
Kilobaud Micro computing
On Computing
Personal Computing
Popular Computing
Programmed Learning and Educational Technology
Science
Science Teacher

FOOTNOTES

1. In fact, the keyboard is only one medium for responding to questions, either the light pen and a touch-sensitive overlay can be used in conjunction with a video display unit to permit responding via the identification of a selected answer.

2. From a pedagogical standpoint, there is frequently no reason why the feedback on tests for assessment should not include error analyses or model answers as well as overall scores.

3. In fact, at the time of writing, the new generation of 16-bit microprocessors is already appearing on the market and will undoubtedly replace in time the current 8bit machines with their inferior execution and memory capabilities.

4. Available for a subscription of $7.00 per year from Association for Computers in Science Teaching, P.O. Box 4825, Austin, Texas 78765.

General

Denham, J. Computers and Science Teaching: The British Experience. *The Australian Science Teachers' Journal,* 1976, May, 15-23.

Eisele, J.E. A Case for Computers in Instruction. *Journal o1 Research and Development in Education,* 1980, 14(1), 1-8.

Hooper. R. Computers in Science Teaching - An Introduction. *Computers and Education,* 1978-2, 1-7.

Rushby. N.J. *An Introduction to Educational Computing.* London: Croom Helm Ltd., 1979.

LIVING IN SOCIETY: A MASTER PLAN FOR A SOCIAL STUDIES CURRICULUM

F. Geoffrey Jones
Department of Curriculum and Instruction

There has been an undeniable need to develop a viable Social Studies curriculum in the Province of Newfoundland for a considerable time. The Province has finally been offered a Kindergarten to Grade 11 curriculum which grew out of a grant provided by the Department of Education, Government of Newfoundland. Living in Society: A Social Studies Curriculum Guide for Newfoundland is intended to serve as a master plan for continuous development and operationalization by administrators, supervisors, consultants, and those ultimately responsible for instruction in our schools, the teachers. This paper will outline the salient features of the curriculum and will, where appropriate, provide examples indicating how the process of development and operationalization may be implemented.

Developmental Plan

Few writers in the field of curriculum development provide models for development of a total planned curriculum. Some writers concentrate on models that develop various key components of curriculum. Johnson (1967, 1968) writes about instructional development, Doll (1970) indicates concern with the external forces affecting curriculum development, and Crosby (1970) treats curriculum as a total dynamic entity and disregards the parts and how they might interrelate.

Ausubel's (1963) theory of meaningful verbal reception learning offers one promising avenue for the curriculum developer-researcher but all components of the reception model have not been adequately defined and/or operationalized at this time. Taba's contribution,-however, has been considerable.

Taba (1962) writes,

> "if one conceives of curriculum development as a task requiring orderly thinking, one needs to examine both the order in which decisions are made and the way in which they are made to make sure that all relevant considerations are brought to bear on these decisions" (pp. 11-12).

She continues that curriculum should be dynamically conceived through careful thought and planning, and then provides a plan for development as follows:

Step 1. Diagnosis of Needs
Step 2. Formulation of Objectives
Step 3. Selection of Content
Step 4. Organization of Content
Step 5. Selection of learning experiences
Step 6. Organization of learning experiences
Step 7. Determination of what to evaluate and of the ways and means of doing it.

Living in Society utilized the principles of this standard plan in its conception and development. What, then, was the outcome?

1. Diagnosis of Needs

The statements of philosophy and rationale contained in the report outline the main needs for consideration. In broad terms, students require a solid and substantial cognitive foundation derived from the main social science disciplines of geography, history, sociology, anthropology, economics, and political science. Other peripheral areas such as psychology and religious studies can also contribute to cognitive knowledge. Knowledge obtained from these sources should be selected on the basis of applicability and transferability. If the knowledge is applicable and transferable, then it must be considered relevant and useful at least to the extent that it helps explain and allows students to see how our society and other societies function in the physical setting of our earth.

In order for students to determine the relevancy and usefulness of cognitive knowledge, emphasis must be placed upon learning processes. Both mental and data-processing skills are required that will allow the students

> 'to cope with social problems through the use of reason, evidence, and judgement.... Further, the individual must be able to act with responsibility and to accept and respect the rights and dignity of others.' (Jones, 1977, p. 1.)

The acquisition and utilization of skills should lead to the development of students who,

> "(have minds) whose critical and other faculties are so developed and trained as to enable him to cope successfully with the varied problems and situations that he may expect to encounter". (Aims of Education, p. 4.)

Provision of content knowledge and skills formed the foundation for the development of other student needs including satisfaction in learning, effective human relations skills, and individual responsibility towards learning.

To accommodate the development of knowledge and skills, a variety of sources was used to provide information. Faculty members from each of the Social Science departments at Memorial University submitted papers outlining contributions that each felt could be made to the social studies curriculum. They provided perspectives that not only covered professional aspects of each discipline, but also insights into such areas as culture and its place in a social studies curriculum, and the identification of key ideas and concepts. Similarly, teachers from around our Province submitted a wide range of interesting and useful suggestions concerning content, cultural influence, and methods of teaching. Finally, papers were prepared which focussed upon the relationships between child development and learning.

Analysis and synthesis of the accumulated material, coupled with the selection of a model for learning (See Table 1), formed the foundation of the conceptual-inquiry approach manifest in this curriculum.

Formulation of Objectives

Arising from the analysis of needs, a range of statements was generated which reflected desired learning outcomes. These statements reflected the conceptual inquiry approach that was advocated in the philosophy and rationale of the curriculum. The following learning outcomes were generated.

Students who proceed through the learning experience of this program should:

1) be able to recognize and understand that conceptual knowledge from the social science disciplines, which is pertinent and useful;
   a) that will enhance each individual as a member of Newfoundland society.
   b) that will develop knowledge to cope with social, political and economic situations of everyday living.
   c) that will produce an aware social being that understands the relationship between man and his natural environment.
   d) that will allow for social behaviour, within the framework of Canadian and Newfoundland law and system of justice.
   e) that will allow for the practice of democratic principles by which our society functions.
   f) that will provide broad and deep understanding of Newfoundland, Canadian, and other cultural groups of the world.

2) be able to develop and use mental and data-processing skills appropriate to each learning experience to:
   a) define topics of study, issues, or problems.
   b) select and use appropriate processes of inquiry.
   c) interpret data meaningfully, assess the accuracy of information, and communicate ideas effectively.
   d) use concepts as tools to analyze problems, guide observation, make comparisons, classify data, interpret findings, and communicate ideas.
   e) contrast or compare events and activities as appropriate to explore identities, similarities and differences.
   f) analyze and evaluate solutions to questions, issues or problems.
   g) make and test hypotheses and generalizations, taking account of relevant information and avoiding over-generalizations.
   h) examine and clarify social values.

Selection and Organization of Content

The following charts outline generalizations incorporating major social studies concepts. These generalizations from the individual disciplines were derived from a review of social studies programs in Canada, the United States, and materials from Great Britain (see MacNeil, J. The foundations for a K-11 social studies curriculum guide for Newfoundland and Labrador)*. These generalizations attempt to present the structure of the disciplines. Concepts within each discipline are underlined.

The selection and organization process was based upon the following assumptions:

   a) the individual learner is the focal point of instruction.

b) emphasis upon concepts and generalizations implies an interdisciplinary approach.
c) mental and data-processing skills provide the basis for using a mode of inquiry.
d) a variety of instructional materials is essential for the teaching-learning processes.
e) values and attitudes are not taught but emerge from the learning process.
f) evaluation is necessary for both program and student assessment.

Within the social studies curriculum an interdisciplinary approach refers to the concurrent use of two or more social-science disciplines within the same topic or unit of study. The interdisciplinary approach allowed a broad range of social-science [earnings and the development of mental and data-processing skills through the generation and manipulation of the content materials. However, to avoid a haphazard or random use of the content materials, themes were provided as central organizers. The five major themes were:

a) Man operates within his physical and cultural environment
b) Man functions in an interdependent society
c) Man seeks economic understanding
d) Man experiences change and conflict
e) Man is governed by law and order.

As intended, the emphasis in the themes is upon man and his interrelationships with his physical end cultural environment. Through the themes, structure and continuity were provided to the program both at grade level and across grade levels. Ultimately, students would derive broad knowledge and experience that would enable them to understand their social role and thereby better equip them to live in society. How, then, was this program operationalized?

Selection and Organization of Learning Experiences

The central organizing ideas of the social studies curriculum were identified by the five themes. The themes contained a varying number of major concepts in a statement which highlighted and represented each of the social science disciplines. Theme one: man operates within his physical and cultural environment - represented the content area of geography; theme two: Man functions in an interdependent society - represented the content areas of sociology and anthropology; theme three: Man seeks economic understanding - represented the content area of economics; theme four: Man experiences change and conflict - represented the content area of history; theme five: Man is governed by law and order - represented the content area of political science. The purpose of the themes was to aid supervisors, administrators and teachers to focus upon the key areas of instruction throughout the four levels of the program (K-3, 4-6, 7-8, 9-11).

The four levels recommended in the report were selected because they provided vertical and horizontal flexibility as well as access to experimentation concerning subject matter and class organization. Further, psychological considerations as to age, grade, content, interrelations were taken into account.

TABLE 1

AN EXAMPLE OF A PROCESS OF INQUIRY

Defining the Problem		Developing a Tentative Answer		Testing the Tentative Answer		Developing a Conclusion
Becoming aware of a problem Making it meaningful Making it manageable	↔	Examining and classifying available date Seeking relationships, drawing logical conclusions Stating an hypothesis	↔	Collecting evidence Evaluating evidence Translating evidence Classifying evidence Interpreting evidence Seeking relationships Voting similarities and differences Identifying trends, sequences and regularities	↔	Finding meaningful patterns Stating the conclusions

TABLE 2

CONCEPTS AND GENERALIZATIONS FROM THE SOCIAL SCIENCES DISCIPLINES

Geography	History	Economics	Political Science	Anthropology-Sociology
Spatial relationship exists between any place on earth and all other places. A relationship between two or more locations involves direction, distance and time.	Change is inevitable, and the rate of change is uneven among and within societies.	The conflict between unlimited natural and human resources is the basic economic problem. Scarcity still persists in the world today.	Every society creates laws. Penalties and sanctions are provided for violations of law.	Man is a unique being, and while each individual is unique in some way, greater similarities exist among men than dissimilarities.
Maps are representations of all or parts of the earth. They are used to record and analyze the spatial distributions and relationships of earth features and of people and their life on the earth.	Human experience is both continuous and inter-related. (continuity)	Man constantly tries to narrow the gap between limited resources and unlimited wants. Geographical, occupational and technological specialization (division of labour) are the results of his desire to produce more, better and faster.	Governments are established by man to provide protection and services. In some governments people delegate authority, in other authority is imposed.	Man has unique, common needs which are met within a social setting through membership in primary and secondary groups.
Region refers to an area which is delimited as being significantly different from other areas on the basis of one or more selected physical or cultural characteristics.	Acts and events have both causes and consequences which are never simple and often complex. (cause and effect)	Specialization leads to interdependence which demands a market where buyers and sellers can meet. The market, in turn, needs money which will serve as a medium of exchange, measure of value and a store of value.	Democracy is government in which decision making is in the hands of the people who make their desires known through voting, political parties, and pressure groups. Democracy seeks to protect the rights of individuals and minority groups.	Within these groups man develops accepted ways and means of meeting his needs and coping with the problems of living in their groups. These ways and means are called institutions.

Geography	History	Economics	Political Science	Anthropology-Sociology
Geographic linkage is evident among countless human settlements through the exchange of messages, goods and services.	People tend to judge or interpret the past in the light of their own times and experience. (nature of evidence)	All of mankind is faced with four economic decisions: 1) what and how much to produce? 2) How much and in what way land (Natural resources), labor and management, and capital (tools) are to be used for production? 3) Are the goods and services to be used for further production or immediate consumption? 4) Who shall receive the products and in what proportion? (distribution)	There is a division of responsibility and an interdependence at all levels of government: local, provincial and national. All countries of the world are becoming more interdependent.	A society's whole system of institutions, including the artifacts it produces, constitutes its culture. All cultures have some characteristics called cultural universals.
New Geographies are created as people develop new ideas and technology, and as their appraisal and use of earth spaces change. They rearrange themselves their activities, and their creations over the earth and even modify features of the earth itself.	Each civilization has certain significant values and beliefs that evolve out of the developing culture, and in turn, influence its growth and development.	Public policy, derived from a people's value system, modifies the operation of the market to promote economic growth, stability, and security while attempting to minimize restrictions and injustices.		Individuals learn accepted ways of perceiving, thinking, and behaving from their culture and in turn can effect changes in that culture as it becomes inefficient or self-defeating in meeting the needs of the society it serves. (acculturation, assimilation, culture change)

Therefore, the five major themes were interwined through each of the four levels. How, then, was this achieved?

Under each theme a series of generalizations and concepts were generated. These generalizations and concepts were founded in the generalizations and concepts of the social science disciplines as listed in Table 2.

Generalizations are statements of broad applicability that indicate relationships between concepts. Generalizations can be stated as main ideas, major understandings, principles, laws, rules, and conclusions. The statement of generalizations, e.g., culture, consists of the artifacts, knowledge, beliefs, and ways of living that people have acquired as members of society. They allow students to develop and extend their knowledge as they engage in seeking answers to their society. As new questions are posed or situations encountered, and similar relationships between concepts are discovered, students have the opportunity to understand the generalizations to a greater degree and can state them with greater precision and clarity.

Concepts are abstractions that can be applied to a class or group of objects or activities that have certain qualities in common. Thus, the concepts of artifacts, knowledge, beliefs and members of society, as they relate to the concept of culture, refer to a general class of objects and not to a particular object. As a set they can be considered as a concept cluster which forms a generalization.

In social studies, students learn the names of various items, discriminate similarities and differences among them, and abstract common elements within a given class or group of items. For example, there are a great many artifacts in our society that help us understand our culture. Students could begin by listing as many artifacts as possible. This procedure would serve a number of purposes. Firstly, by identifying artifacts the students would be illustrating recognition of the word; secondly, the students would be identifying aspects of their own culture; thirdly, the students would be developing the basis for comparison between artifacts in their own culture and those in other cultures. By being encouraged to group or categorize the artifacts, students would then be utilizing a part of the methodology of the anthropologist or archeologist, thereby experiencing a balanced approach to learning and skill attainment.

Identification and statement of the artifacts in the example represent the factual knowledge of the discipline. Facts are specific items of information about an object, activity or condition. Facts are the data or information used to develop concepts and generalizations. Facts should not be confused with general statements. For example, long lists of highly specific articles could be generated that represent artifacts used by the members of our society that distinguish our culture.

A further level of organization of content was envisioned within the program; this idea was the expanding environment approach. This is essentially a plan for organizing social studies [earnings to correspond with the interests and societal influences a child encounters as his or her life expands outward from the home and community to the nation and the world. Assumptions are drawn about studying the family and home in the primary-grade years because the child is concerned with those institutions and processes in the immediate environment, with a similar, but incorrect, assumption being made that the interests and societal influences become more complex within the expanded environment of the nation and world. To overcome this problem, the 'expanding environments approach was employed in two ways in this program.

Firstly, the concepts selected within each grade level focused on the development of concepts at a concrete level of operations. As the school year progressed, concepts could be developed at a more abstract level of operations which would be determined by the age and ability levels of the students. Secondly, as students graduate through the program, and are thus exposed to the treatment of concepts ranging from concrete to abstract levels of operation, they would develop skills and processes that would allow them to manipulate concepts on an increasingly abstract level through the grade levels. This would not be tied necessarily with the expansion of the learning horizon, but would reflect increasing sophistication in the treatment of content materials. Therefore, the development of processes should play a key part in the use of the expanding environments approach.

Values and the Social Studies Program

Values and attitudes should not be taught per se, but should emerge from the learning process. Fenton (1966) has stated that

> 'every teacher affects the value system of his students whether he likes it or not.'

Since the social studies deals with relationships among people, value judgements naturally intervene in the learning process. Values cannot be avoided; therefore, the limits to which a teacher can go when dealing with values must be decided.

Teachers do not have the right to tell students that their values- or value systems are wrong; however, they do have the right and, in fact, the responsibility to raise questions and present issues which challenge students to examine their values and attitudes, and to reflect upon them in the light of evidence.

Scriven (1966) has written,

> 'Our goal should be the straightforward development of cognitive skills for handling value disputes - not persuasion or indoctrination in the usual sense.'

Therefore, the purpose of this social studies program should be to present value clarification-type experiences within the cognitive and inquiry frameworks outlined, such that students are involved in further intellectual development that progresses beyond the gaining of cognitive knowledge.

Evaluation

'What is to be evaluated', should be derived from the objectives laid out by the teacher. However, too often course or unit objectives are ambiguous, irrelevant, or unattainable. Objectives are stated using such terms as 'to know, to understand, to recognize, etc.' Objectives written with such beginnings are difficult to measure because they are subject to too many interpretations. Teachers would find it difficult to determine whether a student knows, understands, or recognizes. Therefore, in setting up clear attainable objectives, the key question should be, "What should the student be able to

do at the end of the instruction?" The main focus lies with effective instructional techniques and behavioural changes in the individual.

Mager (1967) has outlined the following steps for constructing behavioural objectives that will describe the terminal behaviour of the learner:

1) Identify the terminal behaviour by name; you can specify the kind of behaviour that will be accepted as evidence that the learner has achieved the stated objective.

2) Try to define the desired behaviour by describing the important conditions under which the behaviour will be expected to occur.

3) Specify the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable.

It is necessary to include all three items in each objective. The object is to write learning outcomes that communicate. Three levels of useful words for expressing behavioural objectives have been suggested as follows:

LEVEL 1	**LEVEL 2**	**LEVEL 3**
(Simple behavioural objectives)	**(Behaviour requiring application of more complex mental operations)**	**(Behaviour showing that students have firm grasp of concept or original thought)**
find	prove	generalize from data
gather data	organize data	synthesize
investigate	analyze	predict
make	compare	reorganize
identify	discriminate	discover
recognize	differentiate	formulate hypothesis
classify	justify	infer
measure	contract	deduce
compute	interpret	discuss critically
illustrate	identify variables	integrate

Evaluation and the statement of terminal learning behaviours are inseparable. If objectives are written that cannot be measured, it probably means that the objective is not valid. Therefore, when the objectives are being prepared an awareness of valid measurability is most important. Unless the teacher knows what he wants to accomplish and understands the pupil behaviour that demonstrates each intended learning outcome, he will have difficulty in selecting and evaluating methods, materials, strategies, and of course, student learning.

Conclusion

Michaelis (1976) recalls:

> 'Some programmes using what is called a conceptual approach are organized around concepts and main ideas; others, via what is called an inquiry approach, are organized to emphasize modes and processes of inquiry .... A promising new development is to link all.... together in an inquiry-conceptual approach to the study of significant settings or topics'. (Page 20)

This Province has in hand a social studies program that incorporates a fine balance of established curriculum development principles and the most up-to-date thinking of some of the key social studies educators in North America. Does the program fill the needs of a social studies curriculum for this Province? Will this program find its way into the school curriculum?

These and other related questions must now be confronted on the way to implementing an active program in social studies for our students.

BIBLIOGRAPHY

Aims of Public Education for Newfoundland and Labrador. Bulletin No. 2A Division of Curriculum, Department of Education, St. John's, 1965.

Ausubel, D.P. **The psychology of meaningful verbal learning**. New York: Grune and Stratton, 1963.

Bloom, B.S. et al. **Taxonomy of Educational Objectives: The classification of educational goals Handbook 1 Cognitive Domain**. New York: David McKay Co., Inc., 1956.

Bruner, J. **The process of Education**. Cambridge, Mass.: Harvard University Press, 1963.

Contributions of geography to a social studies program. Paper submitted to F. Geoffrey Jones by the Department of Geography, MUN, 1977.

Contributions of history to a social studies program. Paper submitted to F. Geoffrey Jones by the Department of History, MUN, 1977.

Contributions of political science to a social studies program. Paper submitted to F. Geoffrey Jones by the Department of Political Science, MUN, 1977.

Crosby, M. "Who changes the curriculum and how", **Phi Delta Kappen**, March, 1970, 385-389.

Dewey, J. **How we think**. Boston: Heath, 1910.

Fenton, E. **Teaching the new social studies in Secondary Schools: An inductive approach**. New York: Holt, Rinehart and Winston, Inc., 1966.

Gagne, R. **Conditions of learning**. New York: Holt, Rinehart and Winston, Inc., 1965.

Jeffery, G.H. **An overview of the application of educational psychology to the proposed social studies curriculum project**. Paper submitted to F. Geoffrey Jones, Department, of Curriculum & Instruction, MUN, 1977.

Johnson, M. "A model for curriculum and instruction", from **Educational Theory 17** (April, 1967), pp. 127-140.

_____ 'The translation of curriculum into instruction", Unpublished paper, Cornell University, 1968.

Jones, F. Geoffrey. **Living in Society: A social studies curriculum guide for Newfoundland**. Report submitted to Department of Education, Government of Newfoundland, May, 1977.

Kenworthy, L. **Guide to Social Studies Teaching**. 3rd Edition. Belmost, Calif.: Wadsworth, 1970.

MacNeil, J. **The foundations for K-11 Social Studies curriculum guide for Newfoundland and Labrador**. Master of Education Thesis, Memorial University, 1977.

Mager, R.F. **Preparing instructional objectives**. Palo Alta, Calif.: Fearan Publishers, 1967.

Michaelis, J.U. **Social Studies for Children in a Democracy**, 6th Edition. Prentice-Hall, Inc.: Englewood Cliffs, N.J., 1976.

Prince, M.A. **Social Studies for early childhood education**. Paper submitted to F. Geoffrey Jones, Department of C & 1, MUN, 1977.

Schwab, J.J. "The concept of the structure of a discipline"; **The Educational Record**, Vol. 43 (July, 1962) pp. 199-203.

Scriven, M. "Values in the curriculum', **Concepts and Structure in the New Social Science Curricula**. Ed. by Irving Morrissett (West Lafayette: Social Science Education Consortium, Inc., 1966) pp. 129-130.

Taba, H. **Curriculum Development: Theory and Practice**. New York: Harcourt, Brace, & World, Inc., 1962.

SKILLS IN THE SOCIAL STUDIES: A CONSIDERATION

F. Geoffrey Jones

Social Studies is imbued with many effective methodologies of teaching and is rampant with a bewildering array of materials. The Social Studies teacher must choose methods and materials that are appropriate for the successful instruction of students. In-service days are used to keep teachers abreast of the "latest" movements. However, concentration upon contents, methodologies, and materials do not represent a complete picture. There has been one major omission. Little attention has been paid to skills. That skills development is paramount in the social studies is undeniable.

Today, society expects high levels of skill expertise. Technology leaves little room for those without skills. Perhaps the most important skills that any member of society requires are those that allow each of us to make a positive contribution to the way our society operates. The development of such skills has fallen heavily upon the shoulders of the social studies.

Skill development in the classroom should range from kindergarten to the high school and provide the basis for ongoing development through life. In examining the various activities of the social studies, and indeed other subject areas of the curriculum, three types of skills appear prominent: mental skills, data-processing skills, and social skills.

Mental skills refers to the intellectual activities resulting from involvement in instruction that provoke students to operate at higher mental levels, i.e., application, analysis, synthesis, and evaluation. Such mental operations are typically tied to the inductive process where problem-solving and inquiry methods are used. Where such methods are used, students are encouraged to operate at the higher mental order levels with one major product being to reach a solution to a perceived social problem.

Data-processing skills refers to the physical manipulation of source materials with a major outcome being the unearthing of appropriate content concerning a perceived social problem. The use of library facilities, manipulation of maps, and the discovery of primary and secondary source materials of history may be considered as examples of data-processing skills.

Social skills refers to the actions and interactions that occur, in the first instance, between members of the class (teacher, students) and then, more generally, the community at large (school, home, community, etc.). The development of social skills emphasizes group work and includes the abilities to participate productively in discussions, to develop ideas through interaction with others, to plan cooperatively, and to practice mutual respect for others. Three skill areas have been identified; however, is it possible to integrate them into a social studies program in such a way that their introduction will complement the ongoing presentation and development of content? There have been a number of attempts to integrate skills (Moore and Owen, 1966; Joyce, 1972; Michealis, 1976), but all only partially succeed. However, a promising attempt, that integrates all three, has appeared as A Skills Framework.' This framework is not intended to be exhaustive, and is presented only to suggest approximate levels at which students may be introduced to various social studies skills. Table one, Skills in the Social Studies, K-11 has been modified to fit the range of grades that exist in Newfoundland schools. An analysis of this skills table would now appear fruitful.

Mental Skills

As was indicated earlier, mental skills are obtained through intellectual activity on the part of the learner. Intellectual activity involves the manipulation or processing of information generally with the desired outcome of arriving at a solution. Thus, intellectual activity requires students to perform mental functions that would include comprehension, application, analysis, synthesis, and evaluation of data. As Hunkins (1967) has suggested, performance of such mental tasks typically requires the raising of questions. Questioning strategies are included on the chart under the more general skill category of problem solving. According to this source, problem solving should be initiated in the kindergarten year. Students should be encouraged to distinguish fact and fiction, draw inferences and develop generalizations, and at the grade three level evaluate ideas. Oral and written communication, reading, listening, and visual communication, as well, involve the use and development of mental skills in that each embodies intellectual manipulation of information. It should be noted that, according to this framework, the development of mental skills is recommended at the primary level, very often at the time the student enters kindergarten. While reading, listening, and visual communication skills are undoubtedly fundamental to future learning and within the abilities of young students, the question maybe raised as to whether the students are mentally and psychologically prepared to handle problem-solving skills as outlined. The abstractions of the operations involved may preclude their use and indeed frustrate the young learner. Consequently, the implementation of activities involving problem solving may better be left to later grades at least when presented as an overt classroom experience.

Data-processing Skills

Data-processing skills are closely as to successful instruction and learning in the social studies. The skills chart identifies time and chronology skills, map skills, and research skills.

The development of skills for using maps and for using time and chronology are the exclusive responsibility of the social studies. The development of these skills demands that they be introduced in the primary school. At this level students should be able to identify and use cardinal directions, tell the time, construct clock faces, draw charts, and make globes. At the elementary level students should be able to interpret various maps, grid systems and meridians, understand the concept of chronology, and develop an understanding of causal relationships between events that have occurred at around the same time. The development of these skills should be continued through junior and senior high school and expanded upon, in the abstract sense, as the student progresses.

As the skills chart suggests, the development of research skills is quite significant. Skills such as constructing and interpreting, compiling information, gathering facts from surveys (interviews and field trips), and organizing ideas (conceptual approaches) may be developed in the primary years. During the elementary grades, application of principles, construction and interpretation of tables, charts, and graphs, using filing systems and card catalogues, and preparing outlines and bibliographies, can be incorporated into the social studies program as it uses more resource and supplemental materials. The development of these skills becomes even more pressing as the student endeavours to incorporate the use of mental skills and data-processing skills to selected materials that focus upon social concerns.

TABLE I

SKILLS IN THE SOCIAL STUDIES GRADES K-11

	Level 1			Level 2			Level 3		Level 4		
Skill Category	**K-1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Learning to work in groups											
1. Practising mutual respect in classroom											
2. Using democratic procedures											
Examples:											
Role playing											
Committee assignments											
Planning group action with divided responsibilities											
Parliamentary procedures											
3. Learning to accept criticism gracefully											
4. Learning to modify one's behaviour on the basis of criticism											
5. Understanding society's need for authority											
Oral and written communication											
1. Express opinions concisely and clearly											
Examples:											
Speak in sentences											
Oral presentations											
2. Substantiate remarks with supportive evidence											
Examples:											
Give credit for quoted material											
Footnoting											
3. Outlining											
4. Notetaking											
5. Creative essay writing											
6. Persuasive letters to editors and public											

	Level 1			Level 2			Level 3		Level 4		
Skill Category	**K-1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Listening 1.	Attentive, appreciational, creative, and critical listening (to teacher, guests, fellow students, records, and tapes) Examples: Exercises to repeating what has been said Taking notes while listening Recognizing how personal beliefs affect what one hears Recognizing emotion-laden words										
Visual Communication 1. 2. 3. 4.	Reacting to nonverbal directions Watching movies and television programs critically Evaluating advertising critically Beginning research topics suggested by television or movies										

	Level 1			Level 2			Level 3		Level 4		
Skill Category	**K-1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Reading											
1. Vocabulary Examples: Word games											
2. Comprehension Crossword Puzzles											
3. Reading with affective study skills Example: Taking notes on index cards and arranging cards											
4. Critical analysis Examples: Swimming, outlining, summarizing Fact vs. opinion Rewrite editorials and news articles Students formulate reply to official document											
5. Recognizing and analyzing propaganda											
6. Adapting rate and technique of reading to various kinds and purposes of material											
Time and Chronology											
1. Understanding time systems Example: Making clock face and sundials											
2. Developing sense of chronology											
3. Developing possible causal relationships between events occurring about the same time Example: Time Lines											

	Level 1			Level 2			Level 3		Level 4		
Skill Category	**K-1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Map Skills											
1. Understanding and using maps, charts, and globes Examples: Making maps of the classroom or neighborhood Recognizing geographical shapes Filling in outline maps											
Problem Solving											
1. Distinguish fact and fiction 2. Draw inferences and make generalizations from evidence 3. Evaluation of ideas as to pertinence 4. Application of principles to new problems 5. Recognition of propaganda											

	Level 1			Level 2			Level 3		Level 4		
Skill Category	**K-1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Research											
1. Constructing and interpreting Examples: Pictures, Tables, Charts, Graphs											
2. Compiling Information Examples: Making personal clipping file Filling material from resource personnel Making personal topical indexes from reading											
3. Gathering facts from field trips and interviews Examples: Identifying purposes and planning execution of trip or interview Evaluating , Reporting, Recording, Summarizing											
4. Use of dictionary											
5. Use of library Examples: Card catalogue Reader's guide											
6. Discriminating reading of newspapers, magazines, reports and pamphlets											
7. Organizing ideas Examples: Recounting experiences Using outlines Making bibliographies											

Social Skills

Frequently, the development of social skills is omitted or receives, at best, tacit consideration in the social studies. Their omission does not imply any lack of importance. Man's knowledge is useless unless he can communicate and live with his fellow man. Perhaps the problem is that development of social studies is the responsibility of so many people and institutions that it is taken for granted that someone else is 'doing the job'.

If this is the case, then perhaps the social studies should lay claim to a large share of responsibility for developing these skills. The practice of mutual respect, using and abiding by democratic decision-making, accepting criticism, learning to modify personal behaviour, and understanding the need for authority induce social behaviours that determine how well our society operates. As its focus is predominantly social, in that human interaction is involved, the social studies could readily justify its claim to the development of these skills and the earlier these are developed the earlier we may have contributing members to our society.

Conclusions

Three types of skills were identified. They were: mental skills, data-processing skills, and social skills. A modified skills chart was produced that attempted to show the types of skills that should be developed and the grade levels for which they may be appropriate. The following may be reasonably concluded from the discussion.

1. Most skills (mental, data- processing, and social) should be introduced and developed in the primary grades.

2. The skills should be developed sequentially and treated as a learning experience.

3. Development of these skills could follow the introduction and development of content, in that concrete skill experiences should precede abstract skill experiences.

4. Social and data-processing skill development may be emphasized more than mental skills in the primary grade levels.

5. The development of skills should dovetail into the introduction and development of content.

6. Skills development in some respects occurs across the curriculum. However, the question of who is responsible for the development of skills has not been answered. Through its content, methods, and processes, the social studies is well equipped to handle this responsibility; at least it may have a moral obligation and a social responsibility if the social studies is to fulfill its goals.

FOOTNOTE

1. Adapted from the Wyoming State Department of Education, Framework for the Social Studies in Wyoming, 1969, pp. 38-40.

BIBLIOGRAPHY

Hunkins, F.P. "Skill Building in the Social Studies, K-12." **Education**, Bobbs-Merrill Co. Inc., Indianapolis, Indiana, 1967.

Joyce, B. **New Strategies for Social Education**. Science Research Associates, Inc., Chicago, 1972.

Michealis, J.V. **Social Studies for Children in a Democracy, 6th. Edition**. Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1976.

Moore, E. and Owen, E.E. **Teaching the Subjects in the Social Studies**. The MacMillan Co. of Canada Ltd., Toronto, 1966.

Wyoming State Department of Education, **Framework for the Social Studies in Wyoming**, 1969, pp. 38-40.

SOCIAL SCIENCE TEXTS AND CRITICAL THINKING

Dr. Dennis Bartels
Sir Wilfred Grenfell College

One of the oft-stated aims of high school social science curricula is to teach students to 'think critically' - i.e., to teach them to examine different points of view before making reasoned decisions on various issues.[1] This process is often held to be a central and justifying feature of liberal democracy.[2] Given this aim, it would seem to follow that North American social science texts should present alternative interpretations of socio-economic phenomena and historical events. Yet this is often not the case. Many history and economics texts used in Canadian high schools are regime supportive in the sense that they (a) uncritically support or condone the foreign policy of the Canadian, British, U.S., and other Western governments, and (b) either tacitly or explicitly assert the superiority of the political and economic systems in Canada, the U.S., and other liberal democracies over other political and economic systems.[3] Non-regime supportive positions (i.e., those critical of Western policy or liberal democracy) put forward by well known scholars, authors, journalists, etc. are often ignored in such texts. Indeed, the existence of such views is seldom even mentioned. Insofar as students are influenced by regime supportive texts, they will emerge from high school social science classes with a one-dimensional view of socio-economic and historical phenomena.[4] If they learn to think critically, it will not result from exposure to their text books. The aim of this paper is to show that the history and economic texts which have been used in many eleventh grade classes in Newfoundland and Labrador present views that are predominantly regime-supportive, and that nonregime-supportive points of view proposed by prominent Western academics, journalists, politicians, etc. are seldom, if ever, mentioned.[5]

Understanding the Canadian Economy, by W. Trimble (Copp Clark, 1972), begins by treating different systems of political economy - i.e., capitalism, socialism, communism, and fascism.[6] Trimble argues that "fascism is mainly of historical interest"[7] and that "it exists now only in Spain and Portugal".[8] He writes that communism and fascism are similar insofar as "the basic economic problems are answered by some central planning body whose decisions are final and must be obeyed by every individual in the state[9] and that communism "... takes root in poor and underdeveloped countries while fascism grows in more advanced ones".[10]

All of these claims are highly questionable. Many social scientists would argue that when Spain and Portugal had fascist regimes, there were also fascist regimes in countries such as Chile, Iran, Paraguay, and even South Africa. Also, when Spain and Portugal had fascist regimes, they were not 'advanced' in terms of economic development; in fact, they were among the least developed countries in Europe. The present regimes in Chile and Paraguay are often described as fascist, yet these countries cannot be judged as economically 'advanced' by any standard. Therefore, Trimble's claim that fascism grows in "more advanced" countries is questionable. At the same time, it is hard to understand how Trimble can claim that communism only takes root in underdeveloped countries when such advanced capitalist countries as France, Italy, and Finland have communist parties that are extremely large and active.

It is also somewhat misleading to equate economic planning in fascist countries with the sort of planning that occurs in say, Cuba or Bulgaria. In Nazi Germany and Mussolini's Italy, working people were not involved in formulation of economic plans; but, according to some Western scholars, many working people are involved in formulating

economic plans in some countries with communist leadership.[11] Also, in countries with communist leadership, planning is often aimed at improving the wages, working conditions, and living standards of working people.[12] Fascist planning, on the other hand, often involves limiting the wages and living standards of workers, as in Childe.[13] Thus, it is confusing to lump together the sort of central planning that sometimes occurs in fascist countries with the sort of planning that often occurs in countries with communist leadership.

Trimble claims that in Nazi Germany, while the means of production were privately owned, all economic decisions were made by a central planning body.[14] What Trimble fails to mention is that the membership of this "central planning body" included some of the top bankers and industrialists who supported the Nazi drive for power "in the hope of eliminating or limiting free trade unions'"[15] and left-wing political forces. While Trimble gives the impression that both labour and capital were suffering equally under the strictures imposed by Nazi economic planners, many scholars argue that the biggest capitalists used the Nazis to eliminate unions and to curb wages.[16] In light of these considerations, Trimble"s concluding statement that "fascism is largely a political and philosophical movement and the economic aspects are but secondary'"[17] is questionable.

Trimble's treatment of communism is, if anything, more questionable than his treatment of fascism. He claims that Marx was an "economic determinist".[18]

After dealing with Marx, Trimble undertakes a critique of the way that Marx's ideas have been implemented in the Soviet Union:

> In some cases, factory managers are now judged on the basis of factory profits, and in figuring these profits, a government decreed rate of interest is charged for the use of capital. This is of course a contradiction of Marxist labour theory, by which all value is considered as coming from labour.[19]

It is difficult to see how these Soviet practices contradict the notion that all value comes from labour, even if one disagrees with Marx's labour theory of value. Marx, Engels, and Lenin never asserted that banks in socialist society should not charge interest.[20] What they did assert was that the ultimate source of all value (including profits and interest) is labour, and that, in socialist society, this value should be used to materially improve the lives of the majority of people.[21]

Finally, Trimble notes that, in terms of economic growth, the USSR has been a "great success'[22] but that its economic gains "may have been bought at too high a price in political and personal freedoms".[23] Similarly, Trimble writes, "the Chinese economy is indeed pulling itself up by its own boot straps, but with terrible sacrifice of present to future generations".[24] Trimble is apparently judging political and economic development in China and the Soviet Union by the standards of Western media and governments. His judgments can be interpreted to mean that people in the Soviet Union and China are dissatisfied because they lack the political and econornic freedoms that, according to Trimble, exist in the West. However, Trimble's critical comments obscure the possibility that people in China and the Soviet Union have different standards than his own for judging their respective political and economic systems. Edmund J. King, a noted British authority on comparative education, writes,

> "...what does living in the Soviet system mean to its million of men, women, and children? To outsiders it seems in some ways a grey and repressive

> life. Congested housing, mainly poor and conventional art - these are what we see, even if we forget the grim political side. What does it matter that full-time working hours are being reduced to a maximum of 40 a week, with the aim of 35 before long? What is it to outside observers that Soviet maternity leave is now 112 days of paid absence, or that sick workers get holidays in fine hotels in the Crimea? Outsiders miss the subtle taste of freedom. But then we are judging by inappropriate criteria our own, and not theirs.[25]

If Soviet and Chinese citizens judge their present political and economic conditions in comparison with the political and economic conditions in pre-revolutionary times, they would probably decide that things are better now than they used to be. Indeed, there is evidence that many Soviet and Chinese citizens feel this way.[26] The fact that Soviet dissidents, who often make criticisms of Soviet society that are similar to Trimble's, receive so much attention in the Western mass media, sometimes obscures the possibility that the vast majority of Soviet citizens are quite satisfied with the way that their society is developing. Even such a critic of the Soviet Union as Hedrick Smith writes that the dissidents are "a tiny band among a nation of 257 million people, with some private sympathizers among the intelligensia but scorned by the overwhelming mass... The hard core probably numbers no more than 1,000.[27] Trimble's glib, critical judgments of the Soviet Union and China obscure such facts.

In his chapter on supply and demand, Trimble claims that giant corporations "have been responsible for much of the increase' in the standard of living in the Western world."[28] While there is no doubt that the development of multi-national corporations has changed the economic structure of Western nations, there are many prominent scholars who argue that most majorgains in standards of living have occurred as a result of long, hard struggles by trade unions and progressive political parties. Yet Trimble does not mention this view.

In his discussion of inflation, Trimble does not mention the Bretton Woods Agreement, which allowed the U.S. government to use the status of the dollar as an international reserve currency to finance the Viet Nam war and other military adventures outside U.S. territory. The resulting overheating of Western economies, coupled with the growth of the Eurodollar market and excessive balance of payments surpluses by most of the U.S. ' major trading partners, are seen by some economists as major factors which gave the impetus to current inflationary tendencies in the West.[29] If this analysis is correct, it follows that current inflationary tendencies in Canada are not caused by government spending or by wage demands from trade unions as Trimble claims.[30] Yet, Trimble often takes the position that the Federal Government could control inflation, but is simply unwilling to risk the political unpopularity that deflationary policies would engender[31] among those "who do not understand the business cycle".[32] Presumably, Trimble means most people in Canada. Yet if the key factors which promoted current inflationary tendencies were U.S. government abuses of the Bretton Woods Agreement and military adventurism, then Trimble's conclusions cannot be true. Unfortunately, since Trimble does not discuss the Bretton Woods Agreement, or the way it has developed since World War 11, students who read Trimble's text are not exposed to this point of view.

Trimble presents a host of arguments in favour of foreign - i.e., mostly American - ownership of Canadian industry. He claims that foreign ownership does not necessarily imply foreign control because,

> Canadians, and not Americans, decide the minimum wages that can be paid, the maximum work week, the conditions under which a strike can be called and the corporation tax that must be paid. Americans do not have votes in Canadian elections, and our form of government makes informal pressure on policy makers almost impossible. We might go so far as to say that Canadians control the companies in Canada which are owned by Americans.[33]

Whatever one's opinion on foreign ownership, the statement that it is impossible for foreign investors to apply informal pressure to Canadian policy-makers is highly questionable. If such pressure had not been applied, it is doubtful that the Canadian government would have classified "Time" and "Reader's Digest" as Canadian periodicals for the purpose of claiming exemption from taxation for advertising.[34] The fact that Canadian subsidiaries of U.S. firms have been prevented from exporting goods to Cuba under the U.S. 'Trading with the Enemy' Act also might indicate that Canadians do not always retain control of American-owned companies. There is little that Canadians can presently do when U.S. corporations decide to close down branch plant operations in Canada, thus throwing thousands of Canadians out of work. Trimble does not discuss this aspect of foreign ownership.

Trimble's treatment of foreign ownership contains many other questionable claims. For example, he writes that "...over the past fifty years the control that goes with ownership has been whittled away by the control that accompanies specialized expertise. In most giant corporations, decisions are made by clusters of experts and not by shareholders at all."[36] This claim obscures the fact that many large U.S. and Canadian corporations have been controlled by a single family or group of families for many years.[37] In such cases, corporate control is not exercised by a 'managerial elite', or by the majority of shareholders, since they often cannot, or do not, vote as a bloc. Unfortunately, Trimble does not discuss this feature of contemporary North American economy.

Finally, Trimble claims that, because Canadian investors have put most of their money into residential property, public utilities, and agriculture, Canadian businessmen have not been able to amass sufficient capital within Canada to start new productive enterprises. Therefore, "if it had not been for the Americans, our mining, chemical, and electrical apparatus industries would have been almost at a standstill."[38] Trimble does not mention the argument proposed by many economic nationalists, that U.S. corporations raise most of the capital that they need for investment in Canada from Canadian sources .[39] If this is true, it means that Trimble is wrong in his claim that Canadian capital is unavailable for investment in new productive enterprises in Canada.

Trimble presents a Keynesian analysis of the capitalist business cycle: When the savings of a community increase, the flow of money going to business decreases and so must the flow of money going from business to the public. Too much saving can start the economy on the downward path of contraction... "if the community saves too much and invests too little, the economy contracts.[40] Trimble does not discuss other analyses of capitalist business cycles which focus on under consumption, the drive of corporations to increase profits by technological improvements, the tendency for the average rate of profit to fall, etc.[41]

Trimble enumerates the usual Keynesian array of monetary and fiscal tools for levelling the business cycle - e.g., public works expenditure, welfare expenditure, etc. He points out that such measures often involve a growing national debt.

> The national debt is money owed by the government to people and institutions. Many people (though no economists of any standing) still think that it is a "bad thing" for the government to spend more than it takes in, making up the difference by borrowing from people and institutions. The same people think it is a "good thing" when the government budgets for a surplus and pays back part of the national debt.
>
> In fact, it is much more important to level out the business cycle than to balance the budget, and what is more, the size of the national debt does not really matter. Certainly the outstanding government bonds will someday have to be repaid, but they will be repaid by the government selling more bonds. Some people will get their money back from the government by having other people lend the government money. Interest charges have to be paid, however, on outstanding government bonds. These charges are paid from taxes. Canadians pay tax dollars so that other Canadians can get interest on their government bonds. Does the Canadian economy suffer?
>
> The national debt is very much like a debt owed by a husband to his wife. If the family worse off as a result of the loan?"

While it is true that Canadian governments often raise money by selling bonds to the Canadian public, Canadian governments also borrow large sums from major U.S. financial institutions. In these cases, not everyone would agree that the debts incurred are analogous to the debt owed by a husband to a wife (unless, of course, Canadian governments are somehow married to U.S. banks). Trimble's dismissal of the national debt as a trivial matter of shuffling money around among Canadians simply cannot apply to payments on principal and interest on loans made by major U.S. banks to Canadian governments.

Since Canadian governments also borrow from Canadian banks, Trimble's 'husband-wife' analogy also raises questions about the relationships between Canadian banks and governments. Are debts of governments to banks analogous to a debt owed by a husband to a wife? If so, who is the head of the family? What happens when there is marital conflict? Unfortunately, Trimble does not deal with these issues.

In Trimble's section on labour, he claims that "the tremendous increase in employment of married women could be having harmful effects on the emotional development of children, if recent studies on maternal deprivation have any validity'.[43] He fails to mention a large number of studies which indicate that employment of married women has either no effect, or positive effects upon their children.[44] Trimble also claims that Canadians "at the very top" of the "social ladder" have a "...rather detached philosophical approach to problems involving unions'.[45] Although there are no well known sociological studies which attempt to determine the attitudes of political, business, and military elites toward unions, there seems to be some indication that the owners of major productive enterprises sometimes lose a great deal of the 'philosophical detachment' about unions when their unionized employees go on strike.

In his chapter on economic development, Trimble traces underdevelopment in the Third World to problems of capital formation:

> ...a community must produce more than it needs for consumption in order that people may be spared to produce capital goods -- but people need the capital goods in order to produce more than is needed for consumption. Somehow, a community must have saving (an excess of goods over current consumption) in order to undertake investment (a building up of its capital goods).[46]

In his treatment of underdevelopment, Trimble fails to mention that many social scientists and journalists in North America contend that exploitation of the cheap labour and raw materials in the Third World by trans-national corporations in the advanced capitalist countries is what keeps many countries in Africa, Asia, and Latin America underdeveloped and poor. They also argue that these countries must free themselves from these exploitative relationships, by revolution if necessary, before they can hope to develop economically.[47]

Trimble also claims that one way in which underdeveloped countries

> ...can increase the rate of capital formation is to get aid from foreign governments and international agencies.[48]

Trimble does not mention the view that Western aid programmes often benefit the donor countries more than the recipient countries by requiring that materials sent as aid be manufactured in donor countries and transported by shipping lines from donor countries. This stimulates the economy of the donor country, and renders the recipient country dependent upon the donor country for technological expertise and replacement parts. Such 'tied aid' often discourages the development of manufacturing industries which could threaten industries or investors from donor countries.[49]

On other issues, such as monopoly, monopoly pricing, and democracy in the trade union movement, Trimble explores several alternative points of view that are both regime supportive and non-regime-supportive. But, at the same time, Trimble's text is salted with ambiguous passages which can be interpreted as warnings against the use of economic planning and socialism to achieve goals of economic stability and equality of opportunity.

> If the government controlled the whole economy there would, of course, be no more problem of the business cycle. If all prices, wages, profits, and rents were controlled, if factories were told what to produce, if materials were allocated and finished goods rationed, there could be no more ups and down in business activity. There is a danger, however, that economic control in the hands of the government could lead to other types of control involving an undue intrusion into the lives of people.[50]

If government control of the economy might be dangerous, why isn't corporate control of the economy equally dangerous? Trimble does not tell us. Also, Trimble does not explain which people -.i.e., capitalists or workers -would suffer (or benefit?) from government intervention to permanently end business cycles. Finally, Trimble does not explain why or how government control of the economy could lead to "undue intrusion" into the lives of people. Trimble also warns,

> ... if a government were too eager to bring about equality, it might have to limit freedom to a great extent and even sacrifice the goal of a higher standard of living by removing what to some people is one of the incentives to works[51]

Whose 'freedom' would be limited? The freedom of the owners of transnational corporations? Why might the standard of living suffer? What are the "incentives to work" that' Trimble is talking about? We are not told.

An American history text sometimes used in Newfoundland and Labrador high schools is T.W. Wallbank and A. Schrier's Twentieth Century World (Scott, Foresman 1974). Like Trimble, many of their interpretations are regime-supportive, particularly those which deal with the Cold War. For example, Wallbank and Schrier claim that,

> ...unlike the years after World War I, no threat of revolution appeared in Western Europe (after World War 11).[52]

This seems to contradict their claim that the Truman Doctrine was initiated to combat, among other things, strong communist movements in Italy, Greece, and France.[53] In France, the U.S. government was involved in assassinating communist trade union leaders in the post-war, years,[54], while in Greece, the U.S. government financed a war against the Greek left[55] in order to prevent it from assuming political power.[56] In Italy, the U.S. government engaged in an active propaganda campaign to prevent people from voting for the Italian Communist party.[57] All these activities were undertaken in order to prevent the very real possibility of Communist or left-wing governments from coming to power in these countries.

Wallbank and Schrier provide the following account of the Berlin Blockade:

> ...the British and Americans, unable to obtain Russian co-operation in reviving Germany, proceeded to set up a separate West German government in defiance of Russian objections. The Soviets retaliated in June 1948 and tried to force the Western powers out of Berlin by imposing a land blockade of the city ...[58]

This contradicts the view of the noted U.S. historian D.F. Fleming, who asserts that the Soviets imposed the blockade after the Western powers had unilaterally introduced a new currency into their occupation zones without consulting the Soviets. Since this was a direct violation of the Potsdam Agreement, the Soviets introduced the blockade.[59]

Wallbank and Schrier's account of the beginning of the Korean War is as follows:

> In June 1950 North Korea invaded South Korea. The attack was probably encouraged, if not incited, by the Soviet Union and the recently established Communist regime in China..[60]

Yet the late, eminent U.S. journalist I.F. Stone provided evidence that the South Korean regime, in co-operation with General Douglas MacArthur and Chiang Kai-Shek, provoked the war.[61] Stone also raised the possibility that the South invaded the North, and argued that the Soviets and the Chinese did not incite the Peoples Democratic Repubjic of Korea (i.e., North Korea) to war.[62]

In dealing with post-war developments in Latin America, Wallbank and Schrier contrast the "steadily worsening" economic conditions in Cuba[63] with Mexico's allegedly successful attempt to industrialize the "democratic way".[64] Yet other Western authors contrast Cuba's economic success with the abyssmal economic failure of the rest of South America.[65]

In describing the overthrow of Allende's regime in Chile, Wallbank and Schrier write,

> Allende launched a radical program of nationalizing industry and confiscating land. It had a disruptive effect. Chile was soon beset with food shortages, runaway inflation, strikes, and mounting disorders. In 1973 the military seized power, Allende met death, and authoritarian rule was imposed on the country.[66]

Wallbank and Schrierdo not mention the well-documented role of the C.I.A., International Telephone and Telegraph, and other U.S.-based transnational corporations in precipitating the overthrow of democracy, the murder of Allende, and the imposition of fascism in Chile.[67]'

Wallbank and Schrier provide the following account of post-war developments in Viet Nam:

> In 1957 the Communists in the North began guerilla operations in the south and were later supported by South Vietnamese Communists, commonly called the Viet Cong...The United States supported the government of South Vietnam as a bulwark against the spread of communism into Southeast Asia.[68]

Apart from the questionable claim that the North initiated guerilla warfare, Wallbank and Schrier do not mention the reason that the "Viet Cong" (i.e., the National Liberation Front, or NLF) began to fight - namely, that the Diem regime had refused to hold the elections promised by the 1954 Geneva Accords. Diem and his American sponsors apparently refused to hold the elections for fear that Ho Chi Minh and his party would win them. At the same time, there are many claims that Diem's police and soldiers summarily executed any former Viet Minh supporters that they found.[69]

Wallbank and Schrier are also very critical of the Soviet Union. They draw attention to alleged deficiencies of Soviet agricultures:

> The system of mass collectivization put into operation in the 1930's was reinforced in 1948 and 1949. Peasants were brought under close supervision in an effort to increase food production. But these measures tended to destroy incentive.[70]

> In 1972, faced with critical food shortages, the Soviets signed a massive trade agreement to purchase wheat from the United States.[71]

The latter claim is questionable. According to the American Professor, Harry G. Shaffer, Soviet grain imports do not indicate an 'agricultural crisis'; rather, they are used to feed livestock which account for the increasing per capita meat consumption by Soviet citizens. Of course, many Western critics attribute relatively low Soviet productivity in

wheat production to the fact that Soviet agriculture is 'socialized'. However, while the 1971-72 Soviet wheat yield was about two-thirds as large as the U.S. yield (22.3 bushels per acre vs. 32.8), in other countries with a socialized agricultural sector, wheat yields were much higher (e.g., 51.1 bushels per acre in the German Democratic Republic, or "East Germany", and 58.7 in Czechoslovakia). These figures hardly indicate that socialized agriculture necessarily leads to low agricultural productivity.[72] Almost needless to say, Wallbank and Schrier do not mention the fact that the Soviet Union now leads the U.S. in production of oil, cement, cotton textiles, leather goods, steel, chemical fertilizers, dairy products, and other items.[73]

Wallbank and Schrier also claim that the Soviets "imposed" communist regimes in Bulgaria, Czechoslovakia, Hungary, Rumania, and Poland after World War 11.[74] This claim is somewhat misleading. According to a widespread interpretation of the agreements made between the Allies at Yalta in 1945 (i.e., Britain, the U.S. and the Soviet Union), only non-fascist parties (i.e., those who had not supported the Nazis during the war) could participate in post-war elections and governments in countries that had been allied to the Axis during World War II. In Rumania, the Communists were the only party that had opposed the Nazis. Thus, they were the only party that could be guaranteed a strong role in any postwar government.[75] In light of these facts, it is extremely misleading to claim that the post-war communist regime in Rumania was unilaterally "imposed" by the Soviets.

Wallbank and Schrier also imply that there was little sympathy for the Soviets throughout Eastern Europe during the post-war period. Yet in Bulgaria, according to the Canadian anthropologist Eleanor Smollett, there was a great deal of support and sympathy for the Red Army and the Soviet Union. And this sympathy increased after the war.[76]

Wallbank and Schrier provide the following account of the fall of the Mossadegh regime in Iran:

> During the 1950's nationalism took a strong anti-British turn. At that time, extremists in the Iranian parliament voted to nationalize the oil industry owned by Britain along the Persian Gulf. The industry nearly collapsed because Western technicians were withdrawn. Only after the premier, a fanatical extremist, was seized and imprisoned ... in 1953 was a compromise worked out, giving Iran a larger share of the oil royalties. With oil revenues once again flowing into the treasury, the Shah embarked upon a wide-ranging reform program in the 1960's. It called for land reform, village education, profit sharing in some industries, and an extension of the right to vote. By the early 1970's, the country had reached a measure of stability.[77]

According to another interpretation of these events proposed by many Western academics and journalists, the C.I.A. was instrumental in overthrowing the democratically elected Mossadegh regime, and installed the late Shah in order to secure Iranian oil for U.S. oil companies.[78]

Wallbank and Schrier critically discuss the former white regime in Rhodesia (now Zimbabwe) and the Portuguese African colonies, but do not discuss the military and economic aid from the NATO countries that played a key role in perpetuating these

regimes.[79] While they are critical of the current apartheid regime in South Africa, they do not discuss the Western investment and military aid which helps to keep it in power.[80]

It is not the purpose of this paper to argue that Trimble, Wallbank and Schrier are wrong, and that the alternative views presented here are right. The foregoing non-regime supportive views will probably strike some readers as unusual and dubious. But these, and other nonregime-supportive views, cannot simply be dismissed out of hand. Indeed, if students are to learn to think critically, they must be given sufficient analytical tools and information to evaluate such interpretations for themselves.

NOTES

1. For example, see the grade eleven curriculum Department of Education, Government of Newfoundland and Labrador (St John's, 1978), p. 4.

2. An interesting study of the evolution of liberal democracy is C.B. McPherson's **The Real World of Democracy** (Toronto. Canadian Broadcasting Corporation, 1965).

3. This definition was developed in David Close and Dennis Bartels. "The Socializing Effect of Regime-Supportive Textbooks: First Results and Second Thoughts'. **Socialist Studies/Etudes Socialistes**, Vol. I (1)

4. See Close and Bartels, **op. cit**.

5. Textbook treatments of women, Native Peoples, and other minority groups have been investigated in a recent study by J. Goundrey, et al "Bias in Newfoundland Textbooks" (St. John's: Memorial University of Newfoundland).

6. Trimble, **op. cit**., p. 6.

7. Trimble, **op. cit**., p. 5.

8. Trimble, **op. cit**., p. 6.

9. **Ibid**.

10. Trimble, **op. cit**., p. 7.

11. See Jeremy Azreal, **Managerial Power and Soviet Politics** (Cambridge, Mass.: Harvard University Press, 1966); H. Cordon Skilling and Franklyn Griffiths, **Interest Groups in Soviet Politics** (Princeton, N.J.: Princeton University Press, 1971); Al Szymanski, **Is the Red Flag Flying**; (London: Zed Press, 1980).

12. See William Mandel, **Soviet Women** (N.Y.: Anchor, 1975); Edward Boorstein, **The Economic Transformation of Cuba** (N.Y.: Monthly Review Press, 1968); Jonathan Steele, **Inside East Germany** (London: Urizen, 1977); Owen Lattimore, **Nomads and Commissars** (London: Oxford University Press, 1962); Eleanor Smollett, "Bulgaria: Textbook and Reality", paper presented at the Banff Conference on Central and East European Studies organized by the Central and East European Studies Society of Alberta.

13. See Orlando Letelier, "Economic 'Freedom's' Awful Toll", The Nation, August 28, 1976: R. Palme Dull, **Fascism and Social Revolution** (London: Lawrence and Wishart, 1935).

14. Trimble, **op. cit**., p. 8.

15. Trimble, **op. cit**., p. 7.

16. See Martin Kitchen, **Fascism** (N.Y.: Macmillan, 1976) for a critical discussion of this view.

17. Trimble, **op. cit**., p. 8.

18. Trimble, **op. cit**., p. 9.

19. Trimble, **op. cit**., pp. 10-11.

20. When Lenin was alive, Soviet banks charged interest.

21. See Frank Cunningham, **Introduction to Marxism** (Toronto: Progress, 1978).

22. Trimble, **op. cit**., p. 11.

23. **Ibid**.

24. Trimble, **op. cit**., p. 225.

25. Edmund J. King, **Other Schools and Ours** (London: Holt, Rinehart and Winston, 1973), p. 357.

26. See William Mandel, **op. cit**.; G. Myrdal, **Report From a Chinese Village** (Harmondsworth, Middlesex, U.K.: Penguin, 1967).

27. **Toronto Globe and Mail**, Feb. 22, 1977.

28. Trimble, **op, cit**. p. 64

29. For example, see Hunt and Sherman, **op. cit**., pp. 545-48. Also, see John Weeks, "The Sphere of Production and the Analysis of Crisis in Capitalism", **Science and Society LXI (3)**.

30. Trimble, **op. cit**., p. 203.

31. Trimble, **op. cit**., p. 114.

32. Trimble, **op. cit**., p. 134.

33. Trimble, **op. cit**., p. 104.

34. Peter Newman, **The Distemper of Our Times** (Toronto: McClelland and Stewart, 1968), p. 280.

35. S. Crysdale and C. Beattie, **Sociology Canada** (Toronto: Butterworth, 1973), p. 161.

36. Trimble, **op, cit**., p. 105.

37. See Peter Newman, **The Canadian Establishment** (Toronto: McClelland and Stewart, 1975); Ferdinand Lundberg, **The Rich and the Super Rich** (N.Y.: Bantam, 1968).

38. Trimble, **op. cit**., p. 105.

39. Marchak, **op. cit**., p. 41.

40. Trimble, **op. cit**., pp. 122-23.

41. See Weeks, **op. cit**.; Hunt and Sherman, **op. cit**.

42. Trimble, **op. cit**., p. 135.

43. Trimble, **op. cit**., p. 191.

44. See Gerald R. Leslie, **The Family in Social Context** (London: Oxford University Press, 1973), p. 564.

45. Trimble, **op. cit**., p. 205.

46. Trimble, **op. cit**., p. 225.

47. For example, see Andre Gunder Frank, **Latin America, Reform or Revolution**? (Greenwich, Conn.: Fawcett, 1968); Felix Greene, **The Enemy** (N.Y.: Vintage, 1970).

48. Trimble, **op. cit**., p. 226.

49. See Teresa Hayter, **Aid as Imperialism** (Harmondsworth, Middlesex, U.K.: Penguin, 1971).

50. Trimble, **op. cit**., p. 128-29.

51. Trimble, **op. cit**., p. 174.

52. Wallbank and Schrier, **op. cit**.. pp. 185-86.

53. Wallbank and Schrier, **op. cit**., p. 188.

54. See Carl Oglesby, **The Yankee and Cowboy War** (N.Y.: Berkeley-Medallion, 1977)

55. The Greek left, especially the Greek Communist Party, had formed the spearhead of the Greek resistance during the nazi occupation of Greece. In France, the French Communist party played a similar role.

56. See Richard J. Barnet. **Intervention and Revolution** (N.Y.: Mentor, 1968), pp. 148-53.

57. See David Horowitz, **From Yalta to Vietnam** (Harmondsworth, Middlesex; U.K.: Penguin, 1971), pp. 82-3.

58. Wallbank and Schrier, **op. cit**., p. 189.

59. See D.F. Fleming, **The Cold War and its Origins, 1917-1950** (Garden City, N.Y.: Doubleday, 1961), pp. 507-10.

60. Wallbank and Schrier, **op. cit**., p. 189.

61. **Ibid**.

62.

63. Wallbank and Schrier, **op. cit**., p. 198.

64. Wallbank and Schrier, **op. cit**., p. 197.

65. For example, see Sven Lindqvist, **The Shadow: Latin America Faces the Seventies** (Harmondsworth, Middlesex, U.K.: Penguin); Boorstein, **op. cit**.

66. Wallbank and Schrier, **op. cit**., p. 199.

67. See Orlando Letelier, "Chile: Economic **'Freedom' and Political Repression", Trans-National Institute Pamphlet No. 1** (20 Paulus Potterstraat, Amsterdam 1007, Holland).

68. Wallbank and Schrier, **op. cit**., p. 216.

69. See Richard J. Barnet, **Roots of War** (Harmondsworth, Middlesex, U.K.: Penguin, 1971), pp. 212-263; Hunt and Sherman, **op. cit**. pp. 169-172.

70. Wallbank and Schrier, **op. cit**., p. 191.

71. Wallbank and Schrier, **op. cit**., p. 201.

72. Harry G. Shaffer, "Soviet Agriculture: Success or Failure?", paper delivered to the Eastern Economics Association of Bloomsbury State College, Bloomsbury, Penn., April 16, 1976.

73. See Oxford Economic Atlas, Fourth Edition.

74. Wallbank and Schrier, **op. cit**., pp. 191-192.

75. See Fleming, **op. cit**., pp. 208-211.

76. See Smollett, **op. cit**.

77. Wallbank and Schrier, **op. cit**., p. 217.

78. See David Wise and Thomas B. Ross, **The Invisible Government** (N.Y.: Vintage, 1974).

79. See William Minter, **Portuguese Africa and the West** (Harmondsworth, Middlesex, U.K.: Penguin, 1972); Martin Loney, **Rhodesia, White Racism and Imperial Response** (Harmondsworth, Middlesex, U.K.: Penguin, 1975); Brian Bunting, **The Rise of the South African Reich** (Harmondsworth, Middlesex, U.K.: Penguin, 1969).

80. See various issues of **Southern Africa** magazine.

PART IV

The Organization of Learning and Socialization (445-492)

ABILITY GROUPING: A REVIEW OF RESEARCH

Ishmael J. Baksh
Educational Foundations

Introduction

This article presents an overview of some of the research relating to ability grouping. The specific type of grouping to which reference is made here is commonly termed "homogeneous ability grouping", which involves the placement of pupils in the same group as other pupils deemed comparable in terms of some criterion or criteria such as I.Q. or scholastic achievement.

The following are a few of the arguments usually advanced to justify or defend the practice of homogenous ability grouping:

1. this form of ability grouping makes allowances for "individual differences" by enabling different pupils to progress at their own pace along with others of similar ability or academic competence. The more able pupils can progress at a faster pace because they are less likely to be held back by their less able peers, while the latter are presented material at a pace which would enable them to absorb it.

2. narrowing the ability range facilitates the provision of more suitable curricula and materials and the use of more appropriate teaching methods. The more "competent" students are more easily "challenged" and "stretched" and they generally benefit from the more advanced material to which they are exposed. Students deemed less promising academically can be presented material suited to their needs and to their future adult circumstances.

3. this form of grouping permits more effective individual attention on the part of teachers since they do not have extremes of ability with which to cope. In addition, the more capable groups profit from the positive and supportive atmosphere created by equally able peers and highly interested teachers.

4. pupils are provided with more realistic standards against which they might evaluate themselves; their self-concept is not injured as a result of competition with academically superior peers.

Perhaps not surprisingly, in view of the apparently convincing arguments which might be offered in its defence, homogeneous ability proofing has been widely practised. It has also been extensively discussed and studied, and an attempt will be made here to indicate some of the major findings of research in this area These findings are presented below under the following headings: (1) Selection for Groups and (2) Consequences. of Homogeneous Ability Grouping.

Selection for Groups

in assigning pupils to groups, substantial weight is usually placed on pupils' performance in teacher made tests, in commercially-produced standardized intelligence and/or achievement tests, or in some combination of two or all of these three means of measuring "ability". Of course, tests employed for such a purpose are unlikely to be

perfectly reliable: they normally give rise to some error in measurement. It has been reported, for example, that studies - mainly in Britain and West Germany - relating to methods of selection for academic secondary school courses have revealed the existence of conspicuous error in the measurement of "ability". Even when the best known techniques are employed, some 10 percent of the pupils are wrongly placed (Yates, 1966). The implication is that flexibility is required when pupils are grouped, so that pupils may be reclassified, "to correct for the mistakes made due to the unreliability of the measures" (Johnson, 1970). Evidence exists, however, that once pupils are placed in a certain "track" or "stream" they generally remain in it. As Kelly (1973) notes, a "virtual caste system" evolves, with very little movement from one track to another occurring.

The possibility exists also that tests employed in grouping pupils may be biased. That is, they often seem to result in the disproportionate placement of pupils with differing social origins in different "tracks" or "streams" (Ogletree and Ujlaki, 1971: 250). For example, the tests tend to "favour" pupils from middle-class backgrounds and to "penalize" those of working-class origin. The attempted explanations of such a phenomenon have been highly controversial, involving as they do the old debate regarding the extent to which ability is dependent upon heredity and environment.

It appears, also, that factors other than test performance may enter into the placement of pupils in homogenous ability groups. One investigation, for example, has found that at the Grade Seven level within a particular school system 80 percent of higher-class but 47 percent of lower-class pupils qualifying for placement in the top "track" were actually put there. In other words, among those pupils who had achieved the performance criterion for assignment to the top group, higher-class pupils had a greater likelihood of being placed there than lower-class ones. The converse was true in the case of pupils who qualified for admission to the low "track": 2 percent of higher-class but 85 percent of lower-class pupils so qualified were actually designated low "track" pupils (Kelly, 1973). Clearly, test performance was not the only criterion being employed to determine the "track" placement of the pupils.

A few studies have shed some light on the nature of the other considerations which play a part in the grouping of pupils. For instance, Douglas (1964) observes that children coming from well-kept homes and being themselves clean and of tidy dress and appearance enjoy a greater likelihood of being placed in the higher "tracks" than their measured ability (i.e., their scores on standardized intelligence tests) would appear to justify. Goldberg et a/. (1966) note that in some instances the behavioural tendencies, appearance, language and dress of pupils are barriers to their admission to selected, high-ability classes. Cicourel and Kitsuse (1963) describe how in a high school, a variety of non-academic criteria is utilized to assign students to different curricular "tracks". The guidance counsellor, for example, draws upon available information (such as frequency of police-school contacts, school records and other biographical material) as well as upon his own personal assessment of the student in terms of such factors as motivation, social and emotional attributes, and behaviour. Again, Kelly (1976) -as a result of the in-depth study of a particular school (containing Grades Five to Eight) - reports that, instead of selecting students for groups (e.g., academic versus non-academic classes) on the basis of present academic performance, some teachers prefer to look at the students' past performance (i.e., to their history). If a student has been involved with remedial reading in the past, for instance, this increases his chances of being selected again for this type of class, regardless of what his present reading scores might be (Kelly, 1976: 216). Again, Alexander and McDill (1976) find that status origins (more specifically, socioeconomic status) is almost as important as measured ability in determining "track"

placement. Additional research is necessary, however, to document the extent to which criteria of the kind indicated above play a role in the selection of pupils for supposedly homogeneous groups.

Consequences of Homogeneous Ability Grouping

The main objective of this section is to provide an overview of research findings regarding some of the consequences of homogeneous ability grouping for pupils and for teachers. With regard to pupils, the following will be discussed: (a) Effects on Pupil Performance in Tests and (b) Non-Academic Effects. The latter will include a brief comment on affective outcomes (such as on self-concept and on motivation) as well as outcomes relating to goals and aspirations.

Consequences for Pupils

It might be observed that studies pertaining to ability grouping have varied widely with regard to their objectives, the basis for determining homogeneity or heterogeneity, their duration, the numbers of students involved, the size of classes, and the instruments or techniques used to assess the degree of change in pupils that might be attributable to grouping practice. Also, the quality and degree of sophistication of the studies have not been uniform. Furthermore, the results of the numerous investigations in this area are characterised by a certain degree of inconsistency. Nevertheless, it is possible to identify - even if somewhat tentatively at times -certain general trends in the research findings.

Effects on Pupil Performance in Tests

There is no consistent evidence. It seems, that homogeneous ability grouping succeeds in raising the academic performance of pupils in general. Reviews of the literature have led a number of scholars to conclude not only that homogeneous ability grouping in itself fails to produce improved academic performance in pupils generally but that it may even be detrimental to children in the "average" and "lower-ability" groups, perhaps in part because it robs them of the intellectual stimulation of the "brighter" students (Johnson, 1970). The research evidence up to the early 1970's regarding this form of ability grouping may be summed up as follows:

1. there is some indication that homogeneous ability grouping may result in improved academic performance among the "brighter" pupils but the evidence is far from consistent or overwhelming on this point.

2. there is almost uniform evidence that homogeneous ability grouping does not promote improved academic performance among "average" or "low-ability" pupils.

3. on the whole, in those studies which do show that homogeneous ability grouping has a significant effect on academic performance, the evidence of a favourable effect among "high ability" pupils is counter-balanced by evidence of an undesirable effect among "average" and "low-ability" pupils.

4. the above findings have been found to hold at the primary, elementary and high school levels of the school system.

Some more recent studies have attempted to overcome particular methodological difficulties often associated with earlier ones. Rosenbaum (1975), for instance, notes that since track placements tend to reflect social class (and racial) differences, their effects cannot easily be separated from the effects of social background in most studies. To obtain a "purer" indication of the effects of tracking, Rosenbaum studies the phenomenon in a high school serving a homogeneous, white, working class clientele. Also, instead of examining short-term changes in pupil performance (over a period of one year or less) and investigating only average gains and losses among pupils, this study covers a two-year period and examines different kinds of changes in pupil performance. Furthermore, in order to demonstrate more forcefully the effects of tracking on pupil performance, Rosenbaum investigates the effects of "tracking" on intelligence test scores, arguing that changes in I.Q. scores would be "even more impressive, since I.Q. performance has been shown to be quite stable over time" (Rosenbaum, 1975: 49).

Examining the I.Q. scores of students in Grade 8 and again - with regard to the same students - in Grade 10, Rosenbaum finds that in the two college-oriented or academic tracks the average I.Q. score increases significantly, while in the three non-academic tracks the average I.Q. score decreases significantly. If it is borne in mind that all the students have similar social class origins, one might conclude that "tracking" appears to exert a pronounced influence on test performance. This finding holds even with initial (Grade 8) I.Q. score controlled (i.e., it holds regardless of what students' initial Grade 8 I.Q. score might have been). Furthermore, "track" placement continues to have an effect on intelligence test performance even when such variables as sex, teacher recommendation, and performance on certain standardized verbal and mathematical tests are controlled. In addition, Rosenbaum discovers that in the college-oriented "tracks" the I.Q. scores of the students become more differentiated whereas in the three non-academic "tracks" the I.Q. scores become more homogenized (i.e., the students in the nonacademic "tracks" appear increasingly to resemble one another in terms of performance on intelligence tests).

Alexander and McDill (1976), also, confirm the findings of previous research to the effect that "track" placement affects academic performance. In a more recent study, Alexander *et al.* (1978) attempt to remedy a defect in research methodology characteristic of much of the work in this area. They note the possibility that the educational advantages evidenced by students in academic "tracks" may have existed prior to their track placement and therefore might not have arisen as a result of such placement. In a fairly complex analysis, they attempt to eliminate the effects of various factors (such as SES, race, sex, measured ability, school performance, parental encouragement, peer influence and students' prior educational plans) in assessing the specific effect of "track" placement on Grade 12 academic performance, educational plans, applications for college admission, and acceptance by a college.

Alexander *et al.* (1978) report that when allowances are made for the variety *of* factors indicated above (i.e., when these factors are "controlled"), "tracking" by itself has little effect on verbal achievement but does have an influence on mathematics performance. Such findings give rise to the issue of 'whether "tracking" tends to influence performance more in some subject areas than in others.

Non-Academic Effects

There is research evidence that grouping practices may "assist in developing social situations that influence the student's perception of self, his sense of dignity and worth, and his attitude toward other children" (Johnson, 1970: 187). Research has suggested that homogeneous ability grouping may have somewhat damaging effects with regard to certain aspects of pupils' personal and social development. It has been reported, for example, that the self-concept *of* both the "average" and the "slow" pupils "suffers markedly" in schools where this type *of* grouping is practised, that pupils - especially girls - "in randomly grouped classes had more favourable attitudes toward se!` and higher self-acceptance" than those in "homogeneous" classes (Johnson, 1970: 187). Ogletree and Ujlaki (1971: 255) comment as follows:

> Slow pupils have always had a lower status in regard to academic achievement even in random groups. Upon placement in a low status group noted for low achievement, the slow learners not only perceive their role and self in terms of their low ability peers but also in relation to the social order in the entire school as well. Their status is public and becomes school news.

The consequences of this type of situation may include "declining morale and progress, a sense of failure, a reputation for inferiority, a decline in effort and attainment" among those placed in "slow tracks" (Ogletree and Ujlaki, 1971: 255): The "sense of failure" may be reflected in pupils' self-concepts. In this connection, recent studies have tended to confirm earlier research findings with regard to the effect of "tracking" on self-concept. In a study of over one thousand high school students, for example, Kelly (1975) reports that "track" placement influences students' self-esteem (the latter being measured by asking students to compare themselves with their classmates in terms of their spelling ability, language usage, grades, and general intelligence). Alexander and McDill 1976) obtain similar results in yet another study involving high school students.

Research into the effects of "tracking" on such variables as "morale" and "effort" is much less extensive than investigation of the influence of this form of grouping on, say, academic achievement. A recent study involving Grade Six pupils in eight elementary schools examines the relationship between grouping practice and pupils' "academic motivation" (Williams, 1972), the latter variable being measured by a ten-item scale. Examples of items included in this scale are: (1) "Do you try harder to get high grades than the average pupil in your class?" and (2) "When your teacher gives you a reading assignment in two or three different books, do you read all the material?" These examples are presented here to communicate some idea of what the researcher means by "academic motivation": the term refers, essentially, to the pupil's desire to learn. Williams (1972: 135-6) reports that a significant relationship appears to exist between grouping practice and academic motivation: the three more homogeneously grouped schools have lower average academic motivation scores than the three more heterogeneously or randomly grouped schools. The author concludes that "attempting to group children according to ability may adversely affect their motivation to achieve academically" (Williams, 1972: 136).

In a study to which reference has already been made, Alexander et al. (1978) attempt to determine the specific influence of "tracking" on what might be regarded as another indicator of motivation - students' "goal orientations" (i.e., their educational plans and their application for admission to college). In a sophisticated analysis of longitudinal

data, Alexander et al. (1978) seek to assess the unique influence of "tracking" on such "goal orientations" by statistically "controlling" a number of variables, including parents' education and occupation (SES), sex, race, measured ability, school performance, earlier plans relating to education, parents' encouragement for college and peers' college plans. The authors report that, even when such influences on high school students' "goals orientations" are controlled, "tracking" (i.e., placement in different curriculum "streams") still has a pronounced effect on the students' educational plans and their likelihood of applying for admission to college (Alexander et al., 1978:6061). In other words, if one "streams" students similar to one another in terms of such factors as measured ability (I.Q.), school performance, educational plans, parental encouragement and peer influence, those placed in the more prestigious "tracks" (i.e., in the more "academic" or the "college preparatory" "tracks") are likely subsequently to reveal a greater tendency to entertain plans for college and also to apply for admission to college. They are also more likely to obtain admission to a college.

It seems highly reasonable to suggest that the variables "pupils' self-concept" and "motivation" intervene between "tracking" and performance on tests. Put somewhat differently, it is highly probable that "tracking" affects test performance partly by first influencing pupils' self-concept and motivation. "Tracking" affects self-concept and motivation, which in turn influence pupils' test performance or educational achievement.

Turning now to consider other possible effects of homogeneous ability grouping on pupils, one encounters relatively little in the form of thorough systematic research. Ogletree and Ujlaki (1971: 254-5) review research indicating that "tracking" or "streaming" pupils may result in inflated self-images and intellectual snobbery among the "above-average" pupils (see also, Johnson, 1970: 187-8; Williams, 1972: 131), consequently generating situations in which "students designated as' high ability avoid associating with students. designated as low ability" (Johnson, 1970: 188). Kelly (1975:7), on the basis of his study of adolescents, reports that "track" placement, is positively related to extracurricular participation (i.e., the "higher" the "track" the greater the participation) and negatively related to delinquency and dropping out. Again, a positive relationship has been found between "stream" placement. and attitude toward school (Ogletree and Ujlaki, 1971: 256).

In passing, one might draw attention to indications that "unstreaming" a school may result in improvement regarding cooperation and standards of behaviour, in gains regarding the ability of the socially less able students to work cooperatively with others, and in the replacement of "fierce competition" with "a strong element of cooperation" (Ogletree and Ujlaki, 1971: 256).

Consequences for Teachers

The influence of pupil grouping practice on teachers has received some attention in the literature. Johnson (1970: 189-91) presents a few pertinent observations. He suggests (1) that teachers may form differing expectations regarding pupils' capabilities depending on the "track" to which pupils are assigned, which may in turn affect the pupils' level of achievement (i.e., a self-fulfilling prophecy may develop), (2) that teachers may sometimes form rigid stereotypes of students' ability, arising from the placement of pupils in specific "ability" groups and (3) teachers may derive more satisfaction from - and may be more positive in attitude toward -,groups deemed "high" in ability.

With regard to teacher expectations, Johnson (1970: 190) states:

> The children who suffer the most from the self-fulfilling prophecy involved in ability grouping are those who are placed in low-ability classes or schools. The fact that pupils of relatively low ability can achieve quite successfully in classes where expectations are high ... suggests that teachers generally underestimate the capabilities of pupils in the lower-ability classes, expect less of them, arid, consequently, the pupils learn less.

Summary

The following are some of the major findings of research relating to homogeneous ability grouping "(tracking" or "streaming"):

1. while I.Q. and achievement scores generally play an important role in the assignment of pupils to groups, other considerations frequently enter into pupil placement.

2. homogeneous ability grouping tends to affect pupils' self-concept.

3. homogeneous ability grouping tends to influence pupils' academic motivation as well as "goal orientations".

4. "tracking" also has some effect on students' success in gaining admission to college.

5. homogeneous ability grouping appears to exert an influence on pupils' scholastic achievement or academic performance (but the research results regarding "high ability" students are not very consistent).

6. there is some evidence of a connection between "tracking" and such phenomena as inflated self-image (among "high-ability" pupils)" intellectual and social snobbery (among "high-ability" pupils), and delinquency, dropping out and limited extracurricular participation (among "low-ability" pupils).

7. teacher attitudes toward and expectations regarding pupils may be affected by homogeneous ability grouping.

Some of the arguments advanced in support of homogeneous ability grouping, "tracking" or "streaming" have been presented above. To maintain a balance, it seems appropriate to indicate briefly in the concluding section of this overview how critics of "tracking" view the practice. A fairly good summary of the critics' notions (though mainly in relation to "tracking" at the high school level) is offered by Alexander et al. (1978: 64) in the following terms:

> Others, critics of tracking as it is presently practised, suggest that tracking channels scarce resources to those who have the least need for them. Students in non-college tracks are denied access to students, teachers, counsellors, and information which would broaden their interests, challenge their abilities, and improve their performance. They are discouraged from

competition with initially more advantaged students and hence are not required or even encouraged to strive for academic excellence. They are looked down upon by persons in academic tracks as being somewhat stupid, suffer from feelings of inferiority, and fail to develop attitudes and insights concerning education and institutional functioning which would allow them to compete successfully with their more advantaged classmates for post-schooling resources and rewards. Moreover, they are shunted into curricula which will impede their prospects for success in college should they persevere in their college aspirations and more likely will be relegated to junior and community colleges, further "cooling out" their ambition. They are, thereby, while still adolescents, subjected to social forces beyond their control, or at least whose implications they cannot fully appreciate -which may limit in important ways their prospects for adult success. Thus, curriculum differentiation benefits the advantaged and discriminates against those most in need of additional resources; it especially serves the interests of higher status parents who exploit such mechanisms to legitimate and perpetuate their children's success.

REFERENCES

Alexander, Karl L., Cook, M. and McDill, E.L. Curriculum Tracking and Educational Stratification: Some Further Evidence. **American Sociological Review**, 43, 1978, 47-66.

Alexander, Karl L. and Mcdill, E.L. Selection and Allocation within Schools: Some Causes and Consequences of Curriculum Placement. **American Sociological Review**, 41, 1976, 963-80.

Cicourel, Aaron V. and Kitsuse, John I. **The Educational Decision-Makers**. New York: The Bobbs-Merrill Co., Inc., 1963.

Douglas, J.W.B. **The Home and the School**. London: MacGibbon and Kee, 1964.

Goldberg, M.L., Passow, A.H. and Justman, J. **The Effects of Ability Grouping**. New York: Teachers College Press, 1966.

Johnson, David W. **The Social Psychology of Education**. New York: Holt, Rinehart and Winston, Inc., 1970.

Kelly, Delos H. Track Assignment and Student Mobility Patterns as Barriers to Equality of Educational Opportunity: A Review of Recent Research. **Contemporary Education**, 45, 1973, 27-30.

Kelly, Delos H. Tracking and Its Impact upon Self-Esteem: A Neglected Dimension. **Education**, 96, 1975, 2-9.

Ogletree, Earl J. and Ujlaki, V.E. Role Disparities and Homogeneous Ability Grouping. **Education**, 91, 1971, 250-58.

Rosenbaum, James E. The Stratification of Socialization Processes. **American Sociological Review**, 40, 1975, 48-54.

Williams, Mary H. Does Grouping Affect Motivation? **The Elementary School Journal**, 73, 1972, 131-37.

PUPIL OBSERVATIONS RELATING TO ABILITY GROUPING

W.B.W. Martin
Educational Foundations, I.R.H.A.

Despite the arguments which have been presented for and against ability grouping, and the widespread use of ability grouping of one form or another in our schools, the research into the consequences of such groupings is far from conclusive (Baksh, 1979). In addition, a review of the literature reveals a lack of research which focuses on the pupil perspective on homogeneous ability grouping. It has been argued that the pupil perspective on different dimensions of educational processes is important if we are to get the most from our efforts in the teaching learning endeavour (Martin, 1978). The purpose of the present paper is to draw attention to the pupil perspective on homogeneous ability grouping.

Data for this article are taken from a study of the schooling experiences of pupils in Grades 9, 10 and 11 from several all-grade schools and high schools in one area of Newfoundland. Homogeneous ability grouping was practised to some extent in all the schools in our sample in that where numbers warranted there was more than one class for each grade and the division was generally made according to the academic achievement of the pupils. Obviously, the high schools had more extensive homogeneous ability grouping than the all-grade ones had at the high school level. The high schools had two or more classes of each of the grades in the school, whereas the all-grade schools usually had only one Grade 10 class, one Grade 11 class and two Grade 9 classes.

Interview and questionnaire data dealing with schooling experience from the pupil point of view reveal some observations which can be used to address the pros and cons of ability grouping in the school. These observations are even more interesting when one considers that the present research did not focus on the issue of ability grouping per se. The fact that the pupils made reference to and brought up issues which relate to the practice of ability grouping may be taken to indicate the salience of this concern to them in teaching-learning situations, and the need to give serious considerations to the alternatives. Pupils' observations in the present study as they relate to ability grouping can be summed up under three headings:

(1) the school organization and resultant plans of action,
(2) teacher expectations for different class levels, and
(3) pupils' peers and interest in school.

School Organization and Resultant Plans of Action

The organization of the school along homogeneous ability grouping lines was often not favourably viewed by the pupils. For example, the comments of a male pupil in the bottom group of the four classes of Grade 11's in his school included his belief that the organization of the school was "wrong". He wrote: "Another thing wrong in the school system is the racket of general and academic classes. 11 A, 11 B, 11 C, 11 D, it should all be the same."

Even though criteria other than ability grouping are used for selection of pupils to participate in extracurricular activities such as sports, fashion shows and field trips, pupils

in the lower ability groups often perceive those in the upper ones as receiving favours. For example, several Grade 9 pupils in one school questioned why the top Grade 9 class was going on an out-of-province school trip and only 2 or 3 pupils from all the other four classes of Grade 9 in the school were selected for the trip. The negative reaction of one Grade 11 B pupil concerning what he thought was an injustice in the way a volleyball team was picked is in sharp contrast to the comments of a Grade 11 pupil from another school concerning the selection of teams for the house league sports in his school. Concerning the selection for the volleyball team this person wrote:

> I think that in this school, and there is more than me who thinks this way, that if you got a nice last name and you're not smart you're going to pass anyway. For example, there was a volleyball team picked out of 18 players, 10 from A class and 8 from B class, and 10 of them were picked for the team from A class....

With reference to the selection of teams for the house league sports in another school, a pupil observed:

> Teachers encourage students to participate in sports. 4 houses here. Teachers supervise this, someone to look up to. The house system is across classes. Some sports for 7 and 8, some for 8 to 11. All get a chance to show their skills 'cause there's floor hockey, basketball, tennis and.... It makes no difference what grade you're in.

Teacher Expectations for Class Level

Some of the pupils are very much aware of the different expectations which teachers have for different classes within any one grade. They also see teachers acting differently toward the different classes and toward different grades. For example, one boy in a Grade 11 C class wrote:

> I feel that students will have better attendance towards school and certain classes if the teachers would treat the grade 9's and 10's in the same manner they treat grade 11's.

Other pupils claimed that teachers compared one class to another. In this regard, one pupil reported that "One teacher said we are the worst class in school." Another teacher was quoted as saying, in reference to another class, that this class is the worst one he had in all his years of teaching. One boy in a Grade 9B class said he couldn't understand why the teacher made "such a fuss over the Grade 9's, like there's one class better than the other. Why is that? Cause we're all doing Grade 9."

It was also observed that some teachers have too high expectations for pupils in the top classes. One girl in the top of two grade 9 classes in her school wrote: "The teachers calls us names .... Ask anyone in this school: they expect too much from Grade 9(1)." While claiming that teachers expect too much from them, two Grade 11 students in the top classes in their respective schools noted that "pressure" was on them to do well. But indications are that the pupils in those classes expected this pressure. In the words of one pupil: "What can we expect? ...after all we are the top class in the school." However, not all of those in the top Grade 11 classes view teachers' attitudes and

behaviours in this way. One pupil in the top of the two ability groups in her Grade 11 class wrote:

> Teachers consider us to be inferior and we do not have enough input in decisions that concern our school. Teachers are more concerned with our school marks than in building up our minds in general.

Peers and Interest in School

Several of the pupils were concerned about their relationships with their peers because of the nature of the homogeneous ability grouping. One Grade 9 pupil, from the fourth level of a Grade 9 divided into five groups, complained that her peers "laugh at ya, if you get a high mark." Another pupil in the same classroom complained that she could not "work" in the classroom because of the continuous "carryin' on" by those who were not interested in school. In another school, one boy from a lower level ability group in Grade 10 observed: "We haves lots of fun in class. No one is that interested in books...what the teachers say."

Concerning the Grade 11 class in small schools and the top class of Grade 11 in the larger ones, there often appears to be some antagonism exemplified by a Grade 11 feeling of having reached the top and the belief of those not in Grade 11 in the smaller schools and not in Grade 11A in the larger ones that there is a snobbishness about the members in the top group where there is more than one Grade 11, and about the Grade 11's in general where there is only one class of Grade 1 vs. To illustrate, comments by Grade 11 A pupils include:

> We are looked up to by the school. The pressure is on us because this is the last year .... Our class is the top one here.

On the other hand, one Grade 9 pupil observed, in reference to the top Grade 11 class in his school, "They're foolish, I don't know they also act different...like they thinks they're something." In presenting her concerns about different aspects of school life a girl in a Grade 11 B class wrote:

> The main thing that concerns me in this school is a few Grade 11 's in the "A" class this year who are allowed to run the school the way they want it run. The teachers seem not to know about it or they seem not to care.

Dealing with pupils' interest in school as it relates to ability grouping, preliminary analysis of the data suggests that there is a widespread lack of interest among pupils in the second level of Grade 9's where there are only two Grade 9 classes, and in the 4 and 5 levels where the school has this many levels in Grade 9. Comments which indicate this include the following:

> From pupils in Grade 9B where there are two Grade 9 classes in the school.
>
> I am here because I got to be.
>
> There's nothing' any good in school. I skips off - quitin' next year.

From pupils in the bottom two groups where there are 3 or more ability groupings in Grade 9.

School is not for me.
I don't know why I'm here.
Purpose of school, It's all right I suppose. ...tis not doing me any good.
Some bunch in our class. We haves some time; We don't do any work.

On the other hand, there were some in the lower ability groups who made reference to their getting higher marks than their peers. Other pupils talked about the need to study and to do one's best. Such comments indicate that the grouping does not imply a homogeneous attitude toward school.

Summary

By way of summary, part of a conversation between one pupil from the bottom class of two Grade 9 classes in his school will be presented because it points to several possible consequences of ability grouping. One is that teachers are perceived to have different attitudes towards different classes in the same grade with the most negative attitudes being toward the lower ability groups. Similarly, pupils in other classes have certain predispositions toward this lower level group. Also, the members of the lower ability group seem to have to keep up their reputation of being the "bad ones". If this is so, one might suggest that what started as grouping based on academic achievement and perceived potential has turned into groups which are most vividly distinguished from each on the basis of the behaviour of their members.

Interviewer: You said earlier that students don't treat all teachers alike. What did you mean?

Pupil: Yea, like most stricker teachers comes into our class like our class is the bad one. So most teachers comes in like Mr. - Students are scared of him. Less strick teachers comes in, possibly a new teacher or a substitute, someone like that and they are all carryin' on, just teasing, try out something like that. Seeing who she is, who he is. Sort of testing to see how he gets on.

Interviewer: What makes you think the pupils in your class are bad?

Pupil: Because they are really bad. Teachers say we're bad. Even the students says that. Like other classes - and 11, they says we're bad.

REFERENCES

Baksh, Ishmael J. "Ability Grouping: A Review of Research." **The Morning Watch** 7(l),1979, 21-30.

Baksh, Ishmael J. "Ability Grouping: An Overview of Research." **The Morning Watch** 3(2), 196, 5-6.

Martin, Wilfred B.W. "The Pupil Perspective: A Neglected Dimension in Education." **The Clearing House** 52(4), 1978, 154-56.

A MODEL FOR THE INTRODUCTION OF MAINSTREAMING

Keith Sclater, M.Ed.
St. Phillips Elementary School
St. John's, Newfoundland, Canada

The rationale for the development and introduction of mainstreaming mentally and physically handicapped children in the regular schools is based on several considerations:

(a) the normal special education "isolate and treat" system for handicapped children has been attacked as being undemocratic and in violation of children's rights to an equal education with their peers,

(b) most special educators in the field agree that academic and social improvement in the isolated special education class has been very disappointing,

(c) having the handicapped child in the regular school prepares the child to better cope with normal life in the mainstream of society. It also fosters understanding and empathy among the regular children of the school.

Granted mainstreaming is considered a worthy social and academic policy to be promoted, certain qualifications should be noted:

(a) Mainstreaming will not save money for hard-pressed school boards and should not be considered an economy move. If anything it will cost more to have handicapped children integrated into the schools and to provide the supportive intervention and programs required.

(b) Mainstreaming will not be the magic elixir, for which many parents pray, that will bring their child rapidly up to his peer group level. For many children the experience could be embarrassing and soul-destroying if not handled carefully.

The introduction of mainstreaming is a complicated procedure and should only be approached with careful planning and the cooperation of all involved.

This model has been developed to clearly and graphically display the steps considered essential in this process.

SCHOOL PROCESS

Survey Existing Physical Amenities and Personnel Resources

A survey of existing classrooms and schools is important to ascertain the availability and conditions of amenities in local schools with regard to needs of the exceptional and handicapped. Which schools are single storey, which are adaptable to ramping for wheelchairs, which could be dangerous or advantageous for the poor-sighted or emotionally disturbed? What of transportation for wheelchair students? A survey of existing classroom populations will identify those that are just too crowded to realistically be considered for extra numbers of special children.

A survey of personnel from the regular schools, special classes and resource personnel (including nursing staff) will ascertain present placement and if there are sufficient personnel with adequate experience to properly support a mainstreaming program-remembering the greater range and severity of disabilities that will be evident in the schools.

(INSERT DIAGRAM)

Adapt Physical Resources Where Necessary

Where wheelchair students are being mainstreamed special transport will be required and ramping installed where necessary. Obviously single storey schools will have advantages in this regard. In larger schools elevators would be a necessity. In addition large space toilet facilities would be required. Because of limiting factors, both physical and personnel wise, it may be necessary to concentrate certain students in particular schools.

Extra classrooms maybe required inasmuch as while certain special education students may be capable of mainstreaming in the regular classes, there will always be those incapable of functioning this way who still require a protected classroom. Further to this, space may be 'required for more severely disabled students from institutional schools, who, while not strictly mainstreaming, could well benefit from at least being part of a special class within the structure of the regular school; this under the premise that limited involvement may be superior to institutionalization.

Hire and Reassign Resource Personnel Where Required

If mainstreaming is to be implemented properly with the rights of the disabled child as of paramount importance it appears that an increase in personnel would be required. Mainstreaming children would be spread over many schools in a district and supportive services and personnel, formerly localized in institutional schools, would be far less effective on a cost/time basis. The teacher who formerly taught a class of say ten exceptional children in a special school would find it impossible to deliver similar support to the same students were they dispersed in the regular schools.

It would appear natural that if students capable of mainstreaming are to be taken out of institutions then some teachers from these institutions would need to be integrated

into the regular school system, both to satisfy contractual obligations and for their specialized training and experience that would be in such demand. Some disruption and transfer of existing special education personnel would appear inevitable to meet the changing needs that mainstreaming would demand. It may also be necessary for full-time nurse allocations at particular schools where children with special disabilities may be concentrated.

Form of Specialist Intervention and Support

Mainstreaming will be little more than a form of educational window-dressing unless strong and effective support programs are instituted to help the child. Association and involvement by themselves are insufficient for the child's needs. Extra support is necessary but it is unrealistic to expect the classroom teacher to provide this support; regular students have their rights to an equal education as well! Depending on the nature of the special education population and the physical and personnel resources available, various approaches and combinations of approaches are possible. There can be paid teacher aids, volunteer aids (institutional schools often rely successfully on extensive parent and friend assistance), itinerant specialists serving several schools, and variations on the resource room approach with a resident specialist providing support for the child.

Inservice Workshops - Resource Personnel and School Faculty

Mainstreaming will introduce to the classroom problems that regular teachers have rarely had to deal with. It will also introduce problems that most special education teachers have not had to deal with either! While inexperience dealing with these exceptional children will be a problem, more difficult again will be the problem of providing a realistic and effective educational program. All concerned faculty should thus be involved in workshops to discuss ways and means of assisting mainstreaming children generally and the mode and function of the appropriate support programs specifically. Visits by resource personnel to institutional schools prior to the transfer of eligible students would appear an excellent opportunity to observe techniques of instruction and organization. If school and staff are fully prepared then those mainstreaming children coming from an outside institution can expect as smooth as possible a transition into what could be a frightening situation.

CHILD PROCESS

Survey Special Students in Regular and Special Schools

A survey would normally be required to ascertain the numbers, nature of handicap and location of exceptional children in regular and institutional schools. Denominational considerations may be necessary with respect to school board allocation to those outside the regular schools.

Medical Limitations - Neurological and Physical

Medical limits for the selection of possible mainstreamers should be applied in consultation with the child's individual doctor and/or public health doctors associated with

the schools. Clearly there is a limit, physically and mentally, at *which* a child could not be expected to function realistically and safely in a regular school. Institutional schools and special classes were set up to provide a protected learning environment for special children - many children will still require this protection and be better served by remaining where they are.

Educational Diagnosis

Achievement level testing should be applied to each child to ascertain the educational level he or she has reached to assist realistic class placement. Diagnostic testing would be applied to establish probable parameters of the child's learning ability in the regular class and to direct suitable supportive and interventionary procedures to enable the child to benefit from regular class placement. Educational testing and medical limitations could indicate that while mainstreaming as such is out of the question for certain children, a protected special class in a regular school could still be beneficial.

Family Consultation

It is important that parents of mainstreaming children be consulted prior to and after placement in a regular class. In some jurisdictions parental permission may well be a mandatory requirement. The parent should be made aware, clearly and concisely, of the physical and mental limits of the child's ability and the aims and nature of the mainstreaming program. Above all else educators should stress that the program would not be a magic panacea for the child's problems but rather a difficult and traumatic time for the child who will require the parent's understanding and support.

School and Classroom Placement

Given medical and educational opinions of the child's suitability for mainstreaming, appropriate placement level and suggested supportive program, actual classroom placement will then depend on the ability of the school board and/or a particular school to deliver the resource base required - bearing in mind the limitations that the child's handicap imposes. The provision of a particular resource base for mainstreaming children with specific disabilities may be (a) beyond the resources and school population parameters of certain boards, (b) possible only at a central school where specific resources can be concentrated, or (c) possible at the nearest regular school. Limitations of the child's handicap and limitations of resources within the schools are important considerations.

Program

Given all the foregoing, certain decisions must be made regarding the educational program of the child. It would appear natural to develop programs to meet the child's learning disabilities and instructional capacity; however, we must be aware that in mainstreaming it is the regular class program that is both the criterion and the pacemaker. Thus, a basic decision is required of the support specialist; is intervention to be aimed at the treatment of the child's learning disability or is intervention to be aimed at supporting the child's progress within the regular class program?

With the limited tools and desultory processes at the special educator's disposal it is not surprising that successful intervention towards curing serious learning disabilities is a rare thing. The apparent success of initial mainstreaming programs must be due, at least in part, to the fact that intervention has by necessity become more directly remedial, associative, and supportive of the regular classroom program.

Mainstreaming offers a tremendous challenge to the schools and to all the children involved. It is a challenge because it faces reality, not by sequestering and hiding those children of our society who are physically and mentally impaired, but by bringing them into the mainstream of the child's world and ultimately adult society itself. That it may be a painful experience we cannot deny but if carried through with wisdom and understanding all the children of our society will benefit.

FACTORS AFFECTING SCORES ON WRITTEN COMPOSITION

Philip Nagy
Institute for Educational Research and Development
Memorial University of Newfoundland

Elaine McNally Jarchow
Department of Secondary Education
Iowa State University

Introduction and Purpose

This is a report of a large scale study on the reliability of essay grading at the high school level. We attempted to answer two main questions. First, we wanted to obtain information on the relationship between quality of student writing with time limits, typical of exam conditions, and without, typical of "home" or "office" conditions. Traditional assessment in schools has used a combination of the two conditions. The latter, however, is more representative of the end goal of instruction, and the assumption has been that writing ability under exam conditions is an accurate reflection of the same ability under more relaxed conditions. This assumption has not been tested in any systematic way.

In order to accomplish the above examination, we needed to take into account too well established facts, the lack of consistency among graders of written composition, and a similar lack of consistency in quality when students produce more than one writing sample. To do this, we relied on a system of asking students to produce more than one piece of writing, and of scoring each writing sample by more than one judge. This technique not only allowed us to address the first concern with some confidence, but also allowed us to consider our second major issue, the best manner of distributing a given amount of total teacher marking time allotted to the assessment of student writing ability. We ask the question is it more efficient to increase the number of writing samples collected, or to increase the number of persons who grade a given writing sample? For example, two teachers teaching the same size classes could each assign a topic to their classes, and then each mark all the essays produced by both classes. Alternatively, each could assign two different topics, on two occasions, and each mark his own. Total marking time is the same, but it is an open question as to which method produces more reliable writing scores. Put another way, which is greater, consistency in performance by students, or consistency of marking by judges?

An important feature of this present research is that it focuses on the grading process as typically practised at the classroom level. That is, no special instructions were provided to scorers. They were asked to grade to their own implicit notions of a grade ten standard.

A final related purpose of the study was to document grade inconsistency under the described circumstances, and to report the effects of other minor factors built into the design of the study, effects on different topics, and of the countries of both the judges and student.

Background

"Reliability" is a term with many meanings. In a testing context, it can refer to consistency of scores produced by students on different occasions, or to consistency of individual items with each other. In the present composition context, there are two meanings, consistency of different judges on grades awarded to the same piece of work, and consistency in the estimation of an individual's writing ability based on more than one writing sample. Reliability is measured by a reliability coefficient, which usually has a range of values from 0.00 to 1.00. To put the following discussion into perspective, a test reliability of less than 0.50, as a measure of any type of consistency, is considered unacceptable. A typical reliability for a reasonably well designed teacher-made test or school level exam might be between 0.60 and 0.70. Commercially published achievement tests, using multiple choice format, usually have reliabilities above 0.80. It is rare to see a reported reliability over 0.90.

Many factors have been demonstrated to affect the reliability of the grading of essays. Vernon and Millican (1954) summarized much of the earlier research, which produced a range of estimates of reliability of grading from 0.41 to 0.88. In their summary, they suggested four factors influencing reliability: first, poorer quality essays are marked more consistently, presumably because judges concentrate on more mechanical aspects of writing; second, more experienced markers score more consistently; third, longer essays are marked more consistently; and fourth, more heterogenous samples produce higher reliability coefficients.

Using three experienced markers for each sample, and a four-point scale fixed by "target essays", Rentz (1980) found that 57% of a set of essays were given two out of three grades the same by the three judges, 38% had all three the same, and the remaining 5% were awarded three different grades by the three judges.

Godshalk et al. (1966), in scoring short essays produced by grade eleven and twelve students, used a three-point scale, and markers inexperienced with this level of student. His judges were provided with sample essays, typical of the levels in the scoring scheme, and were gathered together several times during the five days of scoring for a discussion of standards. Under these circumstances, he found reliabilities of estimates of writing ability from 0.26, for one judge scoring one writing sample, to 0.84, for five judges scoring five writing samples from the same student. The research reported here was motivated by several inconsistencies in earlier results, and by an apparent lack of any information on the time limit effect.

Design and Sample

Full details of the design, analysis, and results are available from either author (Nagy and Jarchow, 1981). A short summary is provided below.

In each of the Province of Newfoundland and the State of Iowa, 160 grade ten students were randomly selected from schools agreeing to participate. Each student wrote essays on two topics, one in thirty minutes, and the other in one class period with overnight revision. Topic 1 was descriptive: "Describe trying to get to sleep with a mosquito buzzing"; and topic 2 was an argument: "Argue for or against the statement 'Children over the age of fourteen should have as much say as parents in reaching

decisions which affect the entire family'." Topic order was reversed for half the students. All writing samples were typed "as is" to eliminate the influence of handwriting quality.

From each location, 32 qualified, experienced teachers of grade ten English were chosen as judges. Half of each group were assigned to each topic. Judges were kept unaware of the nationality of authors, or of the differences in allowed time limits. Eight "sets" were formed consisting of eight judges and forty students each. Each judge marked the papers of ten students from each of the four combinations of country of origin and time limit. Each paper was marked by four judges, two from each country, on the scale 'F, D-, D, D+, ...A, A+' For purposes of reporting and analysis, this scale was converted to a 113 number scale.

Methods of analysis were used which allowed us to determine which factors or combinations of factors contributed to explaining the nature of the scores awarded to the essays. The analysis method, generalizability theory, (Cronbach et al, 1972) also allowed us to estimate reliabilities of the awarded grades under some conditions not actually observed. For example, the reliability of writing scores based on any number of judges, or on any number of writing samples per student could be estimated.

RESULTS

Consistency of Judges

The judges were quite consistent in their scoring, as would be expected based on the literature. Using the 13-point scale for averaging, and then converting back to the nearest letter, the average grade awarded by a judge over the 40 papers grade varied from a 'D' to a 'B'. In average grade awarded, the 64 judges broke down as follows: D, 5; D+, 7, C-, 13; C,18; C+, 12; B-, 6: B, 3. These results show great differences in expectations of experienced, qualified teachers of grade ten English.

The above analysis tends to exaggerate the differences in grading among teachers. Even though the set of students were formed randomly, they would be expected to differ in performance. Thus, not all of the variation reported in the above paragraph is due to inconsistent grading practices. However, sixteen sets of four judges graded the same forty papers. Within these sets, any spread across judges is a direct reflection of differing standards. In only one of the sixteen sets was the spread across all four judges near one unit on the 13-point scale. Most sets of judges had a spread of two, three, or four points, while in one set of judges the spread was five points. Given that these grades are averaged over 40 papers, the degree of inconsistency is remarkable.

Looking at the 16 sets of four judges who scored identical papers, we can produce six correlation coefficients (all pair-wise comparisons among the four judges) for each set, for a total of 96. To put these figures in perspective, a correlation less than 0.50 would indicate considerable inconsistency between a pair of judges, 0.50 to 0.70 adequate consistency, and over 0.70 quite high consistency. On this basis, of the 96 correlations, 21 would be rated poor, 52 adequate, and 23 high. In summary, it would seem that the problem of average grade differences between judges is more serious than the problem of judge intercorrelations.

Influence of Various Factors

A summary of the distribution of grades awarded is presented in Table 1. Column 1 gives a breakdown of the scores of the entire sample (320 students x two topics x four judges/topic). The scores are positively skewed, with a mean of 5.78, between 'C-' and 'C'. Considerably more low grades have been awarded than high grades. There are more grades of 'F' than 'A-', 'A', and 'A+' combined. As experience suggests, these results confirm that it is more difficult to do quite well in English than in, for example, math.

Time Limits

Columns 2 and 3 give the results broken down by time limits. Against expectations, there is a small but consistent difference in grades in favor of the short time limits. Since students were writing under the understanding that the grades would "count", this cannot be explained by suggesting that students would not bother with any effort at home merely to cooperate with a research project. The difference in grades under the two conditions is quite small, and probably of no practical significance. However, on the basis of this analysis, it does appear that testing writing ability under time conditions does generalize reasonably well to writing under everyday conditions. It would be an interesting extension of this study to see if lengthening the time limits (and the length of the writing sample) might change this tentative conclusion. For example, would grades differentiate between a one hour time limit and a one week time limit.

Topic

Columns 4 and 5 give a breakdown for the two topics. There is a difference in grades, in favour of the descriptive topic. Unlike the time limit effect, inspection of the pattern of grades shows a trend in the difference. The descriptive topic was awarded fewer grades in the range D+ to B-, and more in the B to A range. The number of very low grades was about equal in both cases.

Country of Student

Although this variable has been dubbed 'country', we are considering students from only one state and one province. This, of course, limits generalizability of the findings. Columns 6 and 7 demonstrate that the Newfoundland students scored considerably higher than the Iowa students. The difference appears to be real, statistically significant, and large enough to be educationally important. The cause, however, is open to question. Matching of the two groups was done roughly, on the basis of school and community size, and on the basis of standardized test scores available for earlier grades in the same communities. The finding could be attributed to a poor match across countries. Or, since the matching was on scores from earlier years, the higher dropout rate in Newfoundland could lead to a better student, on average, remaining in school in Newfoundland. As a closely related alternative, the schools in Iowa are in most cases composite high schools. Due to the widespread population in Newfoundland, a system of regional vocational schools draws vocational students away from the largely

TABLE 1

SUMMARY OF SCORES AWARDED
(% OF T0TAL SAMPLE

	1	2	3	4	5	6	7	8	9
Score	**N = 2560**	**Short Time Limit N = 1280**	**Long Time Limit N = 1280**	**Topic 1 N = 1280**	**Topic 2 N = 1280**	**NFLD. Students N = 1280**	**Iowa Students N = 1280**	**Nfld. Students N = 1280**	**Iowa Students N = 1280**
1-F	10.2	9.5	10.9	9.2	11.2	6.6	13.8	16.3	4.1
2-D-	6.6	6.3	7.0	7.6	5.6	6.0	7.2	8.1	5.1
3-D	10.3	10.5	10.1	10.3	10.3	10.5	10.1	9.3	11.5
4-D+	8.2	9.1	7.4	7.7	8.8	8.3	8.2	9.1	7.3
5-C-	13.1	12.3	13.8	12.7	13.4	13.6	12.6	12.2	14.0
6-C	11.7	12.5	10.9	10.9	12.4	11.7	11.6	10.9	12.5
7-C+	9.5	8.5	11.2	9.5	9.4	10.9	8.0	8.5	10.4
8-B-	9.6	10.2	9.1	9.3	10.0	10.5	8.8	8.6	10.7
9-B	7.6	7.2	8.0	8.4	6.9	8.4	6.9	6.3	8.9
10-B+	5.1	5.0	5.2	5.9	4.3	5.5	4.7	5.1	5.2
11-A-	4.3	4.8	3.8	4.4	4.2	4.2	4.4	2.7	5.9
12-A	3.4	3.7	3.1	3.8	3.0	3.5	3.3	2.6	4.2
13-A+	0.4	0.4	0.3	0.3	0.4	0.2	0.5	0.3	0.4
Average	5.78	5.85	5.72	5.88	5.69	6.04	5.53	5.24	6.34

academic high schools. Again, the population in the Newfoundland schools could, on average, be more academic than in Iowa. Choosing among these explanations, and the controversial and unlikely alternative that
Newfoundland education is simply better, is, without further investigation, merely idle speculation.

On average, Newfoundland students scored more than 0.50 points higher than Iowa students, on the 13-point scale. Inspection of the table shows that they were awarded fare fewer failing grades, which was compensated for by more grades in the range C- to B-. There were about equal numbers of good grades.

Country of Judges

Columns 8 and 9 report the grades awarded by judges from the two countries. As can be seen, Iowa judges, on average, gave scores a full point higher than Newfoundland judges. The awarding of far fewer failing grades by the Iowa judges is balanced by more very good grades. Numbers of grades in the average range are about equal.

Individual variations among judges are very large. Four judges gave failing grades to 15 or more of the 40 papers they scored. All were from Newfoundland. Twenty judges gave no failing grades, and 17 of these were from Iowa. At the other end of the scale, considering A-, A, and A+ as one grade of 'A', only one judge, from Iowa, gave more than ten A's-twelve. Ten judges gave no A grades, nine from Newfoundland.

This phenomenon reflects, we believe, not so much a difference in expectations of quality of work, but in the language through which work is judged. That is, Iowa judges tend to consider a "typical" or average paper to be worth a higher grade of the F... A+ scale. As long as the language and expectations are understood, and internally consistent, no problems arise. Problems do arise, however, when between country comparisons are made.

It is important to realize that, for the values in Table 1, judges from both countries scored essays from both countries, but were unaware of country of origin of the papers. If the Iowa papers had been marked only by the Iowa judges, scores would not be comparable with Newfoundland papers marked only by Newfoundland judges. This seems as important finding, and is worthy of further investigation.

Improving Reliability of Scoring

Analysis of the scores by the methods of generalizability theory shows that judges are more consistent in their scoring than students are in their writing. For a given amount of marking time, it is more efficient to estimate the writing ability of students by having them produce more than one writing sample, with each sample marked by one judge. The alternative, in which a given sample is scored by several judges, produces lower reliability.

Discussion

The purposes of this report were: one, to document the lack of consistency among scorers of essays; two, to report the effect of time limits on essay performance; and three, to make recommendations on improving efficiency of scoring which are practical in a classroom situation.

On the first issue, considerable evidence was presented that the scoring of essays is subject to huge idiosyncratic variations. This judgement is not to condemn the 64 judges who participated in this study. We thank them for their cooperation, and suggest that, given their manner of selection, (recommendation by colleagues, professors, and supervisors) they are representative of the better teachers of high school English. Indeed, we fully expect that less experienced teachers, and those who would not come to one's mind when asked for a recommendation, would show even more fluctuation. The fault, if that is the proper term, lies in the nature of the task.

It should be noted that procedures which have been demonstrated to improve scoring reliability, such as use of training sessions and sample essays, were deliberatly avoided, in order to maintain our ability to generalize to classroom reality. It can be argued that the essays were marked "out of context" in that the conditions of writing and the students were unknown to the judges. Such a criticism points to the limitations of research of this nature. However, we would argue, that when teachers are aware of the author of test material, they often award scores for what they think the student intended to say, rather than what he/she actually said.

The second issue, that of time limits, produced an interesting result. Judges were quite unaware of which time limits applied to which essays, or even of the fact that different time limits were involved. Further research is obviously required, but one possible explanation of our results is that students operating under the longer time limits didn't push themselves particularly hard during the first class period, on the assumption that they could work at their leisure later. However, once home, they may have lost their ambition.

The last issue, concerning the improvement of reliability, must not be overgeneralized. As with God - shalk (1966), our results suggest more writing samples to be more efficient than more scorers. One is tempted to generalize to an exam situation, such the provincial exams in Newfoundland, and suggest that the students should produce two writing samples, rather than one, and that each should be scored once rather than twice. This, however, assumes that a student would show as much variation in writing quality on two time limit essays written during the same exam as on a timed and untimed performance a week or more apart. This has not been demonstrated, but suggests an appropriate topic for further research.

REFERENCES

Cronbach, L.J., G.C. Gleser, H. Nanda, and N. Rajaratnam. **The Dependability of Behavioral Measures**. Toronto, Wiley: 1972.

Godshalk, F.I., F. Swineford, and W.E. Coffman. **The Measurement of Writing Ability**. New York, College Entrance Examination Board, 1966.

Nagy, P. and E.M. Jarchow. A generalizability study of the effects of time limits on student writing quality. A paper to be presented to the Annual Meeting, American Educational Research Association, Los Angeles, 1981.

Rentz, R.R. Rules of thumb for estimating reliability coefficients using generalizability theory. **Educational and Psychological Measurement**, 1980, 40, 575-592.

Vernon, P.E. and G.D. Millican. A further study of the reliability of English essays. **British Journal of Statistical Psychology**, 1954, 7, 65-74.

HIGH TEST SCORES ARE MORE TRUSTWORTHY THAN LOW ONES

Stephen P. Norris
Institute for Educational Research and Development

When teachers give ability tests to students in their classes there is usually a range of results from lower scores to higher ones. Often, teachers would like to infer from this that the students' abilities in the area in question differ, and that those students with the lower scores have less of an ability than those with the higher scores. However, the exercise of caution is in order because statements that students have low levels of a particular ability based upon those students' low scores on a test of that ability tend to be less trustworthy than statements that students have high levels of the ability based upon their high scores on the test. I will call this underlined statement 'The principle of the trustworthiness of test scores'. In the next section I will discuss briefly the motivation for the principle, and in further sections provide an example which illustrates its application, discusses some of the implications of the principle, and some precautions which teachers trying to abide by it ought to observe.

Motivation for the Principle

One of the most important questions to ask of a student's score on an ability test is, 'Why did the student get that score?'. Generally, teachers who give tests want to know whether students' scores were due to their levels of ability or to some other factors. Generally, good performances on a well-constructed ability test have one plausible explanation. It is that those who performed well have the ability in question to a high degree. So, generally, when one asks of a high score on a good test, 'Why did this student get this high score?', only one plausible answer comes to mind, 'He or she has the ability being examined'. 'Why did Lucy do so well on the multiplication test?': 'She has the ability to multiply'. This is so for at least two reasons: (I) a well-constructed test is one for which it is implausible that good performances could be achieved by guessing, by chance, or by using cues gathered in the test; and (ii) a good test is also one for which the accepted answers are most likely the ones that would be reached by a person using the ability being examined.

On the other hand, poor performances on even a well-constructed ability test generally have not one but many alternative, plausible explanations. When one asks in such cases 'Why did the student get this low score?', several plausible answers come to mind. It is usually plausible in such cases, until implausibility has been demonstrated, that the poor performance could have been caused by the student's low motivation, by his or her lack of the prerequisite reading ability or background in content, by his or her being fatigued, by having something else on his or her mind, by not grasping the point of the test, etc., rather than by a low level of the ability being examined.

In general, then, for a well constructed test there are more plausible explanations of poor performances then there are plausible explanations of good performances. Also, the more plausible explanations that there are available the less one can trust any one of them. Thus, as the principle of the trustworthiness of test scores implies, one can infer high ability from good test scores more dependably than one can infer low ability from poor performances.

An Illustrative Example

The Cornell Critical Thinking Test, Level X is for the most part a well-constructed test. In Part I, Section B of that test examinees are given twenty-five, three-alternative, multiple-choice questions each containing two statements. For each question the examinees are to decide which, if either, of the statements given in the question is more reliable. The following are the first three questions of that section. They are a continuation of a story on which the test is based in which an auto mechanic, a health officer, and several others investigate a village on another planet.

26. A. The auto mechanic investigates the stream by the village and reports, "The water is not safe to drink."
    B. The health officer says, "We can't tell yet if the water is safe to drink".
    C. Equally reliable or unreliable.

27. A. The mechanic says, "The water looks clear".
    B. The health officer, after making tests, says, "This water is good to drink".
    C. Equally reliable or unreliable.

28. A. The health officer says, "This water is safe to drink".
    B. Several other men are soldiers. One of them says, "This water supply is not safe".
    C. Equally reliable or unreliable.
    (Ennis & Millman, 1971).

These three questions are designed to check whether examinees can assess statements according to the varying degrees of expertise of the people asserting them. So, then, in question twenty-six the health officer's statement is more reliable because a health officer would usually be more of an expert in judging the quality of water than an auto mechanic. The remaining questions of this section require examinees to assess other statements based upon similar principles for judging reliability.

Suppose, now, that a high school student receives a very good score on the twenty-five questions of this section of the test. Suppose the student gets twenty-two correct. How might the student's good performance be explained? The most plausible explanation of which I can think is that the examinee in some sense knew the principles of assessing reliability which were being tested and was able to successfully apply the principles in making the required judgements. When I ask myself how else the student might have reached such a high score, I am stumped. It is very implausible that the student could have guessed correctly the answers to twenty-two of the twenty-five questions. It is also implausible, given the construction of this test, that the student could have used cues provided in the test to "psych out" the test makers. Ennis and Millman have been very careful in eliminating such cues. These statements I am able to make in general, without knowing the student whose high score is being discussed. This is so because my knowledge of the test and my experience with high school students tells me that the most plausible means of doing well on this test is to think in the way the test makers had in mind.

Suppose, instead, that a high school student earns a poor score on this-part of the test by answering§ only ten of the twenty-five items correctly. How might this student's score be explained? In this case there is no most plausible explanation which applies to poor performances in general. To explain the student's poor performance I need to know

much about the student, the test, and the circumstances under which the student took the test. Even then there may be many competing explanations. For example, if I know the student was tired at the time he or she took the test, then the student's being tired might explain the poor performance. If I know the room was noisy or uncomfortable in some other way, then these conditions might explain the student's poor performance. If I know the student's reading capability and also know that the test's reading level was too difficult for the student, then the test's too high reading level might explain the student's poor performance. If I know the student does not like science fiction stories, then this test's being focussed on such a story might explain the student's poor performance. If I know the student is terrified by tests, the student's being terrified might explain his or her poor performance. Without this intimate knowledge one cannot begin to eliminate the many possible explanations of poor performance and to narrow the possibilities to a few. Many possibilities remain plausibilities. Even with such intimate knowledge we are often left with more than one plausible explanation, including the one that the person just does not have the ability in question, and we must be cautious in settling upon one. In general, to explain poor performances on good ability tests one needs to be much more intimately acquainted with the persons whose performances are being explained, and with the circumstances under which the people took the test.

Some Implications and Precautions

The prime implication of the principle of the trustworthiness of test scores is that those who have their poor test performances interpreted assigns of lacking an ability are more likely to be incorrectly judged by this interpretation than those who have their good test performances interpreted as signs of having an ability. This applies to all tests of ability, whether standardized ability tests, high school leaving tests, or teacher made, classroom tests. One must remember and act upon the fact that having a test in common is not sufficient reason for interpreting the test scores in common for all people who take it, especially for those who do poorly on the test. We are always concerned with knowing why people performed as they did, and for poor performances there are usually many plausible answers to this question besides the one that the people do not have the ability being examined.

Those who administer tests to gauge people's abilities must keep the principle of the trustworthiness of test scores in their minds at all times when interpreting test performances and take precautions to compensate for the unequal trustworthiness of high and low scores. So that high scores are interpreted correctly, the most important precaution is to construct and use good tests. A good test is one for which good performances are most plausibly explained by people's having the ability being tested. Of course one must also take precautions to know that those who do well are not persons who have cheated on the test, or have had a longer time than is allowed, but such factors are generally easy to control.

So that low scores are interpreted correctly, special precautions must be taken. One important precaution is to keep in close touch with the examinees when they are taking the test and to try to monitor such things as the motivation, degree of comprehension, and level of fatigue of the individuals. It is also a good idea to monitor the testing situation for distractions which might explain some student's poor performance, if such performance occurs. It is also a good idea to probe more deeply into the reasons for students' poor performances than one would tend to do for good performances. This might be done by interviewing students who obtain low scores in an

attempt to learn whether or not something other than low ability caused their poor performances. One might have the examinees work through some of the test orally, if originally the test was written. Such interviews often indicate that things such as people's misunderstanding the task of the test, their being tired when taking the test, or something else other than their lacking ability was responsible for their low scores.

A final precaution which I will mention is to use varied types of assessment to examine the same ability. An explanation of some students' poor performances on written tests is not that they do not have the ability in question but, rather, that they cannot cope well with written test^. This would be uncovered if on giving an oral test on the same ability the students performed well, or if on examining the students' capability outside a testing situation they performed well. An explanation of some students' poor performances on all tests might be that they become terrified in testing situations and subsequently cannot display their abilities. This fact might be uncovered in less formal or less threatening evaluation circumstances. One needs to be imaginative when trying to assess students' abilities, because students comprise a varied group.

These precautions are ones that have been urged before by others. However, the main value of this paper is not in urging specific precautions for interpreting test scores. The main value is in offering a general principle, the principle of the trustworthiness of test scores, which shows why these precautions must be taken. Having this general principle in mind when interpreting test scores and having the intention to compensate for what it tells one about the comparative trustworthiness of high and low test scores should, however, suggest other specific precautions to one who regularly interprets the test scores of others.

Summary

In this paper I have presented and elaborated on the meaning of the principle of the trustworthiness of test scores, and suggested some precautions based upon the principle for interpreting test scores. The principle says the following: For good tests, statements that people have low levels of an ability based upon their low scores on a test of that ability tend to be less trustworthy than statements that people have high levels of the ability based upon their high scores on the test. This principle tells people attempting to interpret ability test scores that they must take special precautions to interpret low scores correctly. People obtaining low scores on tests are more likely to be treated unfairly by having their scores interpreted as signs of low ability than those whose high scores are interpreted as signs of high ability.

REFERENCE

Ennis, R.H. and Millman, J. Cornell Critical Thinking Test, Level X. Urbana, Illinois: Illinois Critical Thinking Project, 1971.

REPEATING GRADES: FURTHER RESEARCH

Ishmael J. Baksh

Introduction

In a fairly recent article in The Morning Watch the subject of repeating or non-promotion was discussed. [1] In that article certain conclusions drawn by various studies conducted over four decades were presented. Among these conclusions were the following:

1. The average repeater in Grade One learned no more in two years than the average non-repeater of similar I.Q. learned in one year. That is, if we consider two children of similar I.Q., the Grade One repeater has learned no more in two years than his non-repeating classmate has in one year.

2. In higher classes, also, repeating because of poor achievement seems in most cases valueless, since it does not generally result in improved academic achievement. In one study, it was found that 21 % of the repeaters did better work on repeating. However, 39% did worse and 40% showed no improvement. In other words, 79% of the repeaters were not helped academically by having to repeat. In another investigation, it was found that while 35% of the repeaters performed more successfully than in their previous year, 12% did worse and 53% showed no improvement. Thus, in this second investigation, 65% of the pupils involved were not helped by their extra year in the same class. The results of studies such as these suggest that the majority of pupils are not helped academically by non-promotion (as traditionally practised), which negates the argu-year of the investigation, all first grade pupils (in two suburban school districts) who had not previously been held back were included in the testing. In the second year of the project, the testing was confined to one group of twenty-five non-promoted pupils (i.e. all the nonpromoted first-graders in the two school districts), a randomly selected group of twenty-five borderline pupils (i.e. pupils showing similar characteristics to those of non-promoted ones in terms of maturity, achievement, attitudes and behaviour but having been promoted for various reasons), and a randomly selected group of twenty-five promoted pupils (selected from the entire promoted group).

Finlayson reports that after nonpromotion, the non-promoted pupils continued to increase their self-concept scores significantly while the scores of the borderline and promoted pupils tended to drop slightly - but not significantly - during the second year. The latter phenomenon, the researcher suggests, may be due to the likelihood that the more mature and intellectually advanced pupils arrive earlier at a more realistic appraisal of their capabilities.

The findings of the study suggest, then, that non-promotion does not in general negatively affect the self-concepts of pupils. Of course, if we accept Finlayson's reasoning about the promoted pupils we would expect that the nonpromoted pupils also will in time arrive at a more realistic appraisal of their capabilities. Would their self-concepts then be negatively affected? Clearly, a longitudinal study following the nonpromoted pupils for several years seems to be necessary.

It might be added, by way of interest, that in the Finlayson investigation the teachers involved generally felt that the non-promoted pupils exhibited stable or improving self-concepts. The parents of the non-promoted pupils also - in the majority of cases - felt that their children were happier, more confident and more mature during the year of non-promotion than previously and approved of the non-promotion for their child.

Sex and Non-Promotion

In another recent study, Safer et. al. offer confirmation of the findings of previous research that there is a sex difference in experience of nonpromotion3. They report that boys are twice as likely as girls to repeat. The authors found that in a low socioeconomic region of the particular American county they were investigating more than two-fifths of the boys experience non-promotion during their elementary school careers. The male-female ratio regarding non-promotion was found to be uniform throughout the county regardless of the socioeconomic level of the different regions selected for study.

Socioeconomic Status and Non-Promotion

Safer et. al. also provide findings pertaining to socioeconomic status differences in rates of non-promotion. They observe that the percentage of students retained at least once during the course of elementary school is "approximately three times greater in the lowest compared to the highest economic area of the county.[-4] In other words, elementary school non-promotion "runs three times greater in the blue collar area than it does in the white collar area" in a fairly affluent American county.[5] Furthermore, analysis of data on non-promotion for the
years 1964 and 1972 reveals that only very modest declines in rate of nonpromotion have occurred in the eight year period, 1964-1972, and these have been mainly in the case of girls.

Conclusions

The findings of the recent studies cited in this article do not strongly challenge those of previous research. The earlier findings have been summarized by Safer et. al. as follows:

> Data from the literature on elementary school non-promotion indicate that retentions have decreased substantially over the last fifty years, that boys suffer retention nearly twice as often as do girls, that first grade represents the most frequent time of retention, that grade retentions occur more often for children with problems in learning, behaviour and emotional health, and that elementary school grade retentions often prelude a school drop-out. Studies also indicate that children socially promoted achieve more academically than those who are retained and that such factors as being female, having relatively good skills in reading, and having parents who pressure the school, positively influence the school to promote in the face of borderline achievements

Safer et. al. discover that in an eight-year period there were no significant declines in rate of nonpromotion. Regarding mental health, the Finlayson investigation reveals that pupils' self-concepts were not generally damaged by the experience of nonpromotion. As suggested above, however, there is need for more thorough longitudinal research. There is also the need for such research to be conducted at a variety of grade levels. If it proves to be true that self-concepts are not generally affected negatively by non-promotion, it is still important to ascertain the nature of the influences which result in stable or declining academic performance in the non-promoted pupils. For example, might teacher expectations be a factor here?

Given the conclusions drawn from research into non-promotion, it seems worthwhile to examine the practice more closely. The following are simply examples of the kinds of questions that may be raised and are provided simply to encourage discussion:

1. Is it fair to judge children from differing social backgrounds by the same standards?[7]

2. Does the policy of non-promotion achieve the objectives that are desired?

3. Do the advantages of nonpromotion outweigh the disadvantages of such a policy?

4. Is automatic promotion for all pupils the answer to the problem? Is automatic promotion for all pupils combined with special individual attention for those who need considerable help a realistic alternative? If the latter is realistic, what measures can be taken to ensure that we do not hold unduly low evaluations and expectations regarding the "potential" of the pupils concerned especially if the special individual help is given in a separate class?

5. Most studies of the effect of nonpromotion on educational achievement do not include pupils who receive special help when they repeat. What is the effect on repeaters if they receive special attention and if the teacher manipulates other factors which are reported as influencing learning (e.g. relationship with teacher, classroom atmosphere, communicating favourable expectations, et cetera)?

6. What is the effect on the pupils' educational achievement if the school allowed parents and children to make their own decision regarding promotion or non-promotion, with parents and children having all necessary information about the pupils' performance, the requirements of the next grade level and other relevant information? If parents and pupils voluntarily agree to accept non-promotion - with the assurance that teachers will make a concerted effort to assist the children - will the effect on pupils' academic performance be beneficial?

7. What is the likely effect on the child of promotion for some subjects but not for others?

8. How feasible, as an alternative, is a non-graded program?

At the moment, we do not have firm and conclusive answers to the majority of the above questions.

REFERENCES

1. I.J. Baksh, "To Promote or Not to Promote, **The Morning Watch**, Vol. 4, 4 (May 1977), 9-14.

2. H.J. Finlayson, "Non-Promotion and Self-Concept Development", **Phi Delta Kappan**, 59, 3 (November 1977), 205-206.

3. D. Safer et. al., "Socioeconomic Factors Influencing the Rate of Non-Promotion in Elementary Schools", **Peabody Journal of Education**, 54, 4 (July 1977), p. 277.

4. **Ibid.**, p. 277.

5. **Ibid.**, p. 279.

6. **Ibid.**, pp. 275-6.

7. **Ibid.**, p. 281.

THE ART OF CREATIVITY

Mary Kennedy

> Play is the art of childhood, and art is the mature form of play. Both are forms of conscious self-deception, with the play-acting make-believe of childhood evolving into the more controlled illusions of the adult creator.
> (Gordon, 1961)

Dictionary definitions of the word "play" fail to give a satisfactory description of the broad connotations of this word. Compare "recreation, amusement, especially as in the spontaneous activity of children or young animals," (Concise Oxford Dictionary, 1976) with the myriad impressions conjured up by Samuel Beckett's use of this word. Gordon (1961) states that play is "the ability to sustain a willingness to suspend adult disbelief, making the familiar strange." (p. 29).

Making the familiar strange is precisely what the artist does. He mirrors reality, but the image he creates springs totally from his perception of reality, not ours. For example, "one sees the familiar tree as a collection of solids in an otherwise empty space. The sculptor consciously may invert his world and see the tree as a series of voids or holes carved within a solid block of air." (Gordon, 1961, p. 36).

Illusion, conscious self-deception, daydreams, and free associations are included in play. The artist plays with images, using a variety of ways to express his perceptions of the real; that is, what he sees with his mind, until he clarifies his own understanding of what it is he wishes to create. "Illusion is that through which the imagination of a child at play enables him to transcend the limitations of everyday reality." (Gordon, 1961, p. 117).

Play, then, in both adults and children is not a non-thinking amusement, a waste of time, but an ordering of impressions and imaginings which contributes to the form-making effort. (Kneller, 1965). It is, in effect, "the fabrication of a world that is not." (Gordon 1961, p. 120).

Art, or creative behaviour, is a continuation of the play of childhood. While the child expresses himself in play through the world of fantasy, his adult counterpart does so through writing, composing, or painting. The relationship between creativity and play can best be realized when one sees the happiness of the creative person in playing with ideas for their own sake.

In play and in art, delight does not spring from the purpose of the activity; rather, the creative process itself is intrinsically worthwhile.

Because it is a pleasure in itself, play generates energy. This feeling of energy and freedom is expressed through art, with no intrusion of pragmatics.

Shakespeare, in A Midsummer Night's Dream, (Act. V, Sc. I, 12-17) paints a vivid picture of the creative process:

> The poet's eye, in a fine frenzy rolling,/ Doth glance from heaven to earth, from earth to heaven;/ And, as imagination bodies forth/ The form of things

> unknown, the poet's pen/ Turns them to shapes, and gives to airy nothing/
> A local habitation and a name."

It is precisely because of the relationship between play and creativity that educators should be concerned, the one being a forerunner of the other. Play should be heavily emphasized in the elementary grades, extending into creative activity in high school.

While creative writing has won a place in the high school English curriculum during the past few decades, creative behaviour has not spread to other areas of curriculum. As well, many English teachers have now become disenchanted with the emphasis on creativity as there has been no marked improvement in general writing ability. Could it be that creative writing should not be linked to improve writing techniques, as creative work is justified in itself?

When one examines the great strides forward man has taken in the past century, one realizes that these achievements would not have been attained if creative thinking had not abounded; if man had accepted his world as it appeared, without questioning.

> It occurred to me half a century ago that nature might have a coordinating system of her own - which might not be the same system as that which man has arbitrarily invented, adopted, and applied to his measuring of nature.
>
> (B. Fuller.)

Buckminster Fuller is not alone: this thought has occurred to many men. Without such musings the scientific and technological advances which have proliferated during the twentieth century would be much fewer. It is the innate curiosity of the intellect, the ability to play endlessly with ideas, to search continuously for new ways of perceiving the universe, that makes man the creator that he is.

One has only to enter the world of science fiction to realize this. This genre provides an excellent and obvious example of what man can do when he chooses to look forward into history, rather than back. Science fiction demands of the reader a suspension of his traditional beliefs about nature, a willingness to broaden his concepts of the universe.

The necessity to open one's mind to limitless possibilities can be demonstrated by the novel Dune. Imagine the planet Arrakis, a world of total desert, a world where men live in still suits which reclaim and recycle continuously the body's moisture; where giant stillworms produce the spice melange, a drug of immortality which gives to men such gifts as extra-sensory perception, prophecy, and a past and future consisting of all that has or ever will happen. (Herbert, 1965.)

Or what of a world discovered by space voyagers on a routine assignment? A world within a giant spaceship, with inland seas, skies, mountains and valleys, oxygen, cultivated gardens, and six complete cities, as described in Rendezvous with Rama. (Clark, 1973.)

Then there is the world where a new source of power has been tapped, a source which makes all others instantly obsolete. This source is contained in the expulsion of

air from the lungs of humans at death. One such gasp is capable of supplying enough power to meet the needs of a city the size of New York for one year. (Gary, 1968).

Impossible, you say? To those who indulge in creative thought, who play constantly with ideas, not impossible. It just hasn't happened yet.

REFERENCES

Clarke, A.C. **Rendezvous with Rama**. New York: Harcourt, Brace, Inc., 1973

Gary, R. **The Gasp**. New York: Dell Publishing Co., 1968

Gordon, W.J. **Svnectics**. London: Collier-Macmillan Ltd., 1968

Herbert, F. **Dune**. Philadelphia: Chilton Book Co., 1965

Kneller, G.F. **The Art and Science of Creativity**. New York: Holt, Rinehart, 1965

Sykes, J.B. (Ed.) Concise Oxford Dictionary. (6th ed.) London: Oxford University Press, 1976

ENCOURAGING CREATIVITY

Ishmael J. Baksh
Educational Foundations

Introduction

I recently attended a conference on the education of the gifted and the talented. I am not a specialist in this area: my interest in the topic stems from my concern with ability grouping and with the associated problem of providing an intellectually invigorating environment for all pupils, as much as possible within the regular classroom. I came away from the conference with the following impressions regarding the "'state of the art" in the education of the gifted or talented (though I am of course open to correction or enlightenment by experts):

1. There appears to be no unifying framework - theoretical or conceptual - fostering coherence or consistency among projects and programmes for gifted or talented pupils. Efforts described at the conference are apparently inspired by the notions of individual scholars (e.g., Bloom, Guilford, Torrance, etc.) - mainly psychologists - and sometimes simply by reviews of the literature on education of the gifted or talented to identify "skills" frequently designated as meriting cultivation in such pupils.

2. Perhaps not surprisingly, there seems to be little agreement or consistency regarding specific objectives. Depending on the projector programme, emphasis is placed on the development of "creativity", or of various types of "skills", or of critical thinking and the like. Sometimes, combinations of such objectives are apparently adopted.

3. There is substantial divergence among projects and programmes in terms of pupil organization. In some cases, the gifted or talented pupils are taught in the regular classroom whereas in others they are assigned to special classes and taught as "homogeneous" groups. Often, both homogeneous and heterogeneous grouping are employed where they are deemed appropriate. That is, selected pupils might spend part of their time in the "regular" classroom and part within special groups taught separately, the amount of time spent in the former situation being dependent upon how far it meets their intellectual and other needs. It has been suggested that the duration of the integration of the gifted or talented might be examined at different levels but should always be related to the degree to which the pupils' needs are being met. Thus, pupils might be sent to special classes when their needs are not being met in the regular classroom and to special schools when the "'regular" schools are not adequate for their needs.

4. There are no universally adopted criteria for identification of the gifted and the talented. The pupils' I.Q. is commonly used as an indicator of ability but the cut-off point appears to vary somewhat, the lowest mentioned at the conference being 130. Other psychological instruments (such as "creativity" and aptitude tests) are also frequently employed but in at least one project reliance is placed on the teachers' own general assessment of the pupils.

5. Not much attention has apparently been paid to social, philosophical and other issues arising out of attempts to provide special education for the gifted or the

talented. For example, programmes designed for such pupils are often highly costly and debate might be initiated regarding the desirability of inequalities between these pupils and "less talented" ones with respect to educational expenditure. Also, it has been suggested that pupils' activities might be integrated by relating them to a central topic or theme. In other words, pupils are to be encouraged to choose their science, social studies, literature and other subject-related individual projects so that these are linked to a specific topic or theme pursued by the entire class. However, the extent to which such a strategy is consonant with communicating the essence of a discipline or with the logical or sequential presentation of subject-matter remains largely unexamined.

6. A substantial proportion of the practices and strategies recommended for application among the gifted or talented might in fact be employed with a much more diverse group of pupils. There is very real danger that a self-fulfilling prophecy might occur, that we might assume the gifted or talented to be the only ones capable of exhibiting specific types of skills and so deny others opportunity to develop the skills that in the end they actually fail to display them.

It is with the hope that they are deemed to merit use with a wide range of pupil ability or talent that I present below - rather uncritically - a few ideas gleaned at the conference regarding ways of encouraging creativity in the young. Teachers can, I am sure, invent other practices to serve the same end.

Encouraging Creativity

Here are some suggestions:

1. Cutout specimens of a particular shape (e.g., a jellybean about an inch and a half long) from paper varying in colour. Tell the pupils that the "jellybean" can be any part of a picture they can draw to incorporate it and it can be anything or any part of an object in the picture. Offer to paste the jellybean wherever the pupils would like on a blank sheet of pa per. Then allow the pupils to choose a "jellybean" of any colour that suits their purpose. Once the "jellybeans" have been affixed wherever the pupils wish, the latter proceed to draw their pictures. Afterwards, they are given an opportunity to describe what they have drawn.

2. Show the pupils a picture and then let them give as many reasons as possible for what is "happening" in the picture.

3. Show the pupils a picture. Let them describe as many different sets of circumstances as possible that might have led to the scene or event depicted.

4. Let the students see a picture and then describe as many different ways as possible in which the event depicted might have unfolded or concluded.

5. Ask pupils to draw a treasure map or plans of ideal cities. Alternatively, ask pupils to construct models of ideal cities or of cities of the future. Encourage them to create in drawing their own alien (space) creatures and describe the environment in which each originated or thrived.

6. Ask pupils to picture a piece of rope (or show them a piece) and suggest that they list one possible "bad" use of the object for each "good" use they could think of. Then let them try to decide if a piece of rope is a "good" or "bad" thing.

7. Challenge pupils to see if they could find a dozen or score of something or some category of objects in the classroom or the school (e.g., games, toys, etc.).

8. Show pupils a picture and ask them to list everything they see. Then suggest that they re-examine the picture and write down all the things they had not seen the first time.

9. Give pupils a relatively simple drawing and request that they make additions which would render it more interesting or exciting.

10. Display some "apparatus" (e.g., a rubber band stretched out in a triangular form with the three points of the triangle attached to a cardboard base). Encourage pupils to suggest possible uses for the "apparatus" or to indicate any principles (e.g., scientific, mathematical, etc.) they believe to be evident in it.

11. Persuade pupils to write a story or a "book" for younger pupils. The cooperation of the younger ones' teachers is important. The older pupils might ask the younger what the latter would like the stories to be about. They also need to be sensitized to such issues as size of "print", vocabulary level, sentence structure, and related matters.

12. Items of the "What do you think would have happened if..." kind might be utilised in such subjects as literature and history. In such cases, some circumstance is artificially altered by the teacher in order to encourage creative thinking on the part of the pupils. The latter might be invited to suggest as many different courses as possible which subsequent events might have taken.

Conclusion

The above are simply examples of the sorts of activities teachers might introduce to encourage creativity. Many of them are perhaps not new to the reader. They are presented here because they might be employed with children of a wide range of "measured ability" and because most are fairly easily carried out.

INDIVIDUALIZING INSTRUCTION

Ishmael J. Baksh
Educational Foundations

The individualization of instruction is one response by some schools to the challenge of providing for the differences with regard to learning which are presumed to exist among pupils. Such differences include variations in rate of learning, in technique of learning, in pattern of interests, in needs, and in motivation) The main advantages claimed, as far as pupils are concerned, are that the pupils can proceed at their own pace through the work to be covered; the instruction is not tied to grade levels and each child can go as far as his "ability" will take him, and pupils can study in greater depth those elements in each subject in which they need special assistance while they proceed more rapidly through those elements with which they can more easily cope.[2] Other claimed advantages are that individualization of instruction leads to a more personal relationship between teacher and pupil, that teachers are encouraged to focus on the perceived needs of pupils, and that in some instances pupils enjoy more "freedom" and responsibility.

The Practice of Individualized Instruction

Individualization of instruction has meant different things to different people. For some, it means merely taking the textbook material, dividing it into small units and allowing each pupil to progress from one unit to the next as the appropriate assignments are completed.[3] For others, it has meant creating new courses and an abundance of supplementary materials, aids and learning activities.[4] Often, the individualizing of instruction has been carried out through the non-graded school. In this type of school there are no official grade levels, at least in some subjects. A particular teacher receives a new set of pupils from the previous teacher (i.e., the one who has had them during the previous year) and continues each child's education from whatever point the child has reached with the previous teacher. In the year during which these children are under her care, the teacher takes each as far as he can go in the non-graded subject areas. It is highly possible that in a given class, at a particular point in time, the work being done by the group may span three or more "grade" levels.

In addition to making curriculum arrangements, teachers have utilized a variety of instructional strategies in their effort to individualize the teaching of their pupils. They have employed one-to-one instruction of their pupils. Often, they have made use of small-group instruction and activity. They have also encouraged independent study on the part of many pupils. Teachers have sometimes employed a "contract" system, whereby pupils sign a "contract" to do a certain kind, amount or portion of work or learning activity. Some teachers have found it useful to provide "enrichment" experiences for many of their pupils. Such experiences involve additional reading, individual assignments, special individual projects, and the like. In some schools, teachers have utilized peer tutoring, for example with more advanced pupils giving assistance to less advanced ones.[5]

These various strategies have generally had positive results. Peer tutoring, for instance, has been employed for many years with mostly favourable consequences. Practices here are somewhat varied. One child may work with another or with a small group. Sometimes, the tutors are of roughly the same age while at other times the tutor

may be older, playing the role of "big brother" or "big sister". In some cases, the tutor may be an "advanced" child of the same age or a child of the same age who is weak in many areas but has some strength in a particular subject area. In other cases the tutor may be an older child, from another level, who is having problems with his/her own work. Some research has shown that both tutors and tutees are likely to benefit academically.[6]

Of course, some writers have urged caution in the use of a practice such as peer tutoring. Ehly and Larsen, for example, suggest that several considerations must be attended to before a programme of peer tutoring is launched. To begin with, are there adequate space and materials? Perhaps a number of teachers might co-operate in a peer tutoring programme and seek administrative support regarding allocation of space and materials. In the early stages, perhaps small-scale peer tutoring projects might be conducted in sectioned-off corners of classrooms, in hallways and in any other appropriate space. Again, which pupils will act as tutors? Teachers may choose from among volunteers, from among those judged to be proficient in some respect(s), from among those who are well behaved and have certain academic strengths, et cetera. However, care needs to be exercised to ensure that tutors possess appropriate characteristics. For example, can they work easily with other pupils? Do they have the necessary awareness of sequencing of instruction (if sequencing is necessary, the teacher needs to develop tutor's competence along such lines)? Do they have the capacity to persist patiently with another individual over a long period? Obviously, teachers who wish to employ peer tutoring need to be aware of the possible limitations of pupils who are candidates for the role of tutor.

Some writers suggest that we expand our conceptions of the practice of individualized instruction. Absolute reliance on individual pupil activity tends to reduce opportunities for learning through interaction with peers and to promote greater passivity in pupils ,[8] and we therefore need to reconsider our instructional methods. Hyman, for instance, makes the following suggestions regarding individualization of our teaching:

1. As teachers, we should create a positive environment emphasizing mutual trust and respect. We should not breathe down pupils' necks; rather, we should allow pupils some independence, accept their work, and tactfully lead them further.

2. We should play down the evaluation of pupils. If testing is used, it should be for diagnostic purposes or to aid the teacher in improving the process of education.

3. We should relate classroom activities, whenever practicable, to the pupils' own lives in and out of school.

4. We should vary our teaching methods. We should learn new ones, liven up old ones, and rotate our methods. We should not rely exclusively on individual pupil activity. It would be helpful to utilize group discussions, group projects, peer tutoring, as well as other methods.

5. We need to ask a variety of questions so as to stimulate pupils' thinking, including critical and creative thought. Many of our questions have predetermined answers. If we would vary the nature of our questions, and if we would ask the appropriate kinds of questions, we are likely to succeed in encouraging individual thinking of different kinds. For example, questions such as "Should the use of marijuana be legalized?" or "How would our lives be affected if our country had no laws?" are likely to generate a diversity of ideas among pupils.[9]

Another approach to individualization involves giving pupils greater choice regarding learning activities. For example, instead of the teacher's saying, "Today we are going to find our how the bear feeds," she may say, "Today let's see what we can find out about bears". With the latter approach not all pupils are required to do the same thing or follow the same interests and all have a chance to be successful at pursuing a line of investigation which appeals to them.

Individualization may be taken even further. For instance, children may be allowed to choose their own interests at any particular moment. In such an approach to individualization, no grades are distinguished; no courses are required; the classrooms are highly flexible, often with no two students working on the same project, problem or lesson at any given time; the learning environment contains abundant resources and materials, with pupils making their own choice regarding what they wish to use. In some schools this "open school" or "open classroom" approach has been tempered by requiring pupils to do some work or engage in some learning activities in specified subject areas each day.

The Effectiveness of Individualized Instruction

Since "individualization" has meant different things to different educators it is unwise to attempt a general comparison of individualized with other forms of instruction. In this discussion of the relative effectiveness of individualized instruction our concern will be essentially with approaches requiring pupils to work through a definite programme of studies, mainly at the elementary level, albeit each doing so at his own pace. Variations are possible even here, since teachers may employ supplementary practices such as peer tutoring, individual projects, independent study, and small-group instruction.

Steere reviews a number of studies which compare pupils in graded programmes with pupils in nongraded programmes (i.e., programmes in which pupils progressed at their own speed) in relation to achievement, critical thinking and mental health.[10] In the majority of the studies reviewed, the nongraded students obtained higher - often significantly higher - scores in each of the three areas indicated above. The subject areas in which achievement was measured included reading, spelling, language arts, and arithmetic.

Pavan reviews sixteen studies published between 1968 and 1971.[11] These compare nongraded with graded students on achievement and/or mental health factors such as self-esteem and anxiety. All studies selected for review utilize standardized objective measures. Pavan observes that of the sixteen studies only one reports an advantage for graded pupils with regard to achievement as measured by standardized achievement tests. Eight studies reveal the nongraded students as scoring significantly higher than the graded ones on such tests, while seven studies report no significant difference between graded and nongraded pupils with regard to scores on the standardized achievement tests used. Generally, "nongraded groups perform as well as, and possibly better than graded groups on tests designed for the graded schools".[12]

Of the sixteen studies reviewed by Pavan, thirteen include a comparison of some mental health factor such as anxiety or self-esteem. All the studies either favour the nongraded groups or reveal no significant differences between the nongraded and the graded students.

A more recent review of research comparing students in nongraded programmes with their counterparts in graded programmes arrives at similar conclusions regarding achievement and mental health factors.[13] Martin and Pavan conclude from this review that "nongraded programs can enhance academic achievement and foster positive attitudes among children".[14]

Some Difficulties Experienced by Teachers

Again, the emphasis here is on individualized programmes in which all pupils are expected to do the same work though perhaps at different speeds (i.e., on nongraded programmes). Teachers have encountered certain difficulties in attempting to individualize instruction along such lines.

Teachers have reportedly experienced difficulty in providing a variety of materials on different levels for a diversity of needs all at one time. Also, they have found it difficult to know what each pupil was doing at any given moment. Again, teachers experienced difficulty in finding enough time to plan for differences among pupils.

Johnson and Lewis [15] make a number of recommendations regarding areas in which teachers might be assisted. Among these are that teachers need help in developing skills in classroom management and classroom organization so that they can be more successful in individualizing instruction. Also, teachers need help in developing a variety of procedures for evaluating and recording pupil progress, grouping pupils, assessing the needs of individual students, and providing opportunity for children to pursue appropriate areas of interest.

Some Problems Regarding Individualized Instruction

Hyman notes that individualization of instruction may have certain latent functions the desirability of which is somewhat debatable.[16] These latent functions may include the maintenance of the teacher's power and authority through the fragmentation of the class into a collection of relatively powerless individuals, the reduction of opportunity for group discussion and interaction and thus of opportunity to learn from peers, the fostering of dependence and docility (regarding the teacher) on the part of pupils, and the pre-adaptation of pupils "to the industrial bureaucracy by preparing them to work alone and follow orders". [7] However, the likelihood of such latent functions occurring would depend upon the nature of the strategies employed in individualization (e.g. the extent to which small group activity, peer tutoring, and other methods are used).

Another problem that might arise concerns the formation by teachers of rigid expectations for particular children. It is possible that even with individualization some pupils may be given labels such as "slow learner", "less able", and so on, perhaps to the detriment of the pupils' progress at school.

A number of philosophical issues also arise, depending on the nature and extent of individualization. Questions such as "What is 'freedom'?" "What is the appropriate role of the teacher?" and "What is 'teaching'?" appear to be vital and relevant ones requiring discussion.

Conclusion

On the basis of the available research evidence, we might conclude that individualization of instruction appears to be of some value with regard to pupil achievement and certain mental health factors. It cannot, of course, be the only consideration with regard to pupil achievement and mental health. We might note, also, that while individualization of instruction seems to be of some utility, it often gives rise to a number of difficulties and problems. On the whole, however, it is apparently worth considering as an alternative to more rigid learning arrangements.

REFERENCES

1. R.W. Burns. "Methods for Individualizing Instruction", in J.E. Duane (ed.), **Individualized Instruction - Programs and Materials**. Englewood Cliffs, N.J.: Educational Technology Publications, 1973, pp. 25-26.

2. H.E. Blake and A.W. McPherson. "Individualized Instruction - Where Are We?" in J.E. Duane (ed.), **op. cit**., pp. 12-15.

3. R.T. Hyman. "Individualization: The Hidden Agenda." **Elementary School Journal**, 73, 8 (May 1973), p. 413.

4. **Ibid.**, p. 414.

5. G.R. Johnson and A.J. Lewis. "How Individualized Is the Nongraded School?" **Educational Leadership**, 29 (November 1971), pp. 139-141.

6. S.W. Ehly and S.C. Larsen. "Peer Tutoring to Individualize Instruction." **Elementary School Journal**, 1976, pp. 476-80.

7. **Ibid.**, pp. 476-78.

8. Hyman, **op. cit**., pp. 415-416.

9. **Ibid.**, pp. 417-21.

10. B.F. Steere. "Nongradedness: Relevant Research for Decision Making." **Educational Leadership**, 29, 8 (May 1972), pp. 709-11.

11. B.N. Pavan. "Good News: Research on the Nongraded Elementary School." **Elementary School Journal**, 73, 6 (March 1973), pp. 334-41.

12. **Ibid.**, p. 338.

13. L.S. Martin and B.N. Pavan. "Current Research on Open Space, Nongrading, Vertical Grouping, and Team Teaching." **Phi Delta Kappan**, 57, 5 (January, 1976), pp. 311-312.

14. **Ibid.**, p. 312.

15. Johnson and Lewis, **op. cit.**, p. 141.

16. Hyman, **op. cit.**, pp. 414-18.

17. **Ibid.**, p. 416.

PART V

Early Childhood Issues (493-527)

PARENTAL REACTIONS TO A DEFECTIVE CHILD*

Dr. Norman W. Garlie
Department of Educational Psychology,
Guidance and Counselling

Social attitudes toward defective children have been, and still are, a source of great pain to both the affected child and the family. Historically, defective children were treated in a variety of ways. In some ancient cultures they were destroyed. In Medieval times, they were often trained as court jesters where they were mocked and ridiculed. Even during the Reformation, Luther and Calvin described the defective child as "filled with Satan." Although attitudes toward this group have improved, there still appears to be certain residual feelings of guilt, anger and fear about these children, held by many professionals and, most regretfully, by parents themselves. (Hewett, 1974).

During the past few decades the treatment focus has been upon separation and custodial care. More recently, there has been a movement toward total integration into the home, school, and the community. Throughout both of these "movements" little attention has been paid to the emotional burdens that parents must carry. Therefore, the purpose of this article is to analyze the complex feelings and reactions of parents of disabled children and suggest some ways of helping parents gain some understanding of their reactions.

Most parents develop an understanding of their child's condition in a gradual and painful manner. Parents who are not themselves handicapped almost invariably perceive their child's exceptionality with a profound sense of shock. Their dreams of the future are shattered and their own feelings of adequacy seriously shaken. They experience a grief reaction similar to the individual suffering a loss through death. The process of acceptance seems to follow a rather regular pattern, whether it covers a period of years or is telescoped into a single interview. There appear to be five successive stages in this acceptance process. The first stage is characterized by an awareness that a serious problem exists; the second, by recognition of the disability for what it is; the third, by a search for the cause; the fourth, by a search for a solution; and the fifth, by acceptance of the problem. Unfortunately, the fifth and final stage is seldom obtained. (Finn, 1970).

Because of the initial shock and the process of acceptance, treatment centres, such as the Menninger Clinic, feel it is essential that both parents accompany the child brought in for the diagnostic study. It is hoped that each parent will, thereby, have an opportunity to present his individual concerns, and the depth of his own reaction and emotional investment. One parent could distort the problem.

Since few couples view the child's problems in the same way, it is not surprising that they are seldom united in the struggle to find the solution. Over the years, the Menninger Clinic has identified some of the characteristics exhibited by this group of parents. For example, they have observed that: (1) the parents protest against the time of the examination; (2) they protest the cost, which seems to indicate that in reality they feel all effort is futile; and, (3) they often become involved with many different clinics in an effort to prove that the defectiveness was not inherited. (Mandhelbaum and Wheeler, 1960). In this search they often become trapped into the use of "miracle cures" and the influence of unqualified and unethical treatment people who exploit the parents' feelings of guilt and self-blame.

Other problems arise during this period of adjustment. Within the family itself turmoil and conflict may develop. For example:

> "Mrs. A often insisted that her husband take Ben with him when he went out, although she knew Ben's behaviour was often unpredictable and likely to be embarrassing. If Mr. A protested, Mrs. A would accuse him of not loving the boy. Mr. A admitted frequently this was true, but it no longer caused him to feel guilty. There was a time when he shared his wife's belief that a miracle might happen and Ben would suddenly become a normal boy. 'But, he explained, 'I no longer have that faith - only a little hope.' Feeling his marriage jeopardized and lacking a shared belief in 'love, faith, and hope,' Mr. A proposed that his wife either place Ben or agree to a divorce. He said, in effect, 'Choose between us - either my son or me.'"
>
> (Mandelbaum & Wheeler, 1960, p. 362)

In the above example, the mother tried to use her own troubled feelings about the child to punish her husband and make him feel guilty. Quite often disagreements such as this spread throughout the marriage and threaten total disintegration of the family. In such cases, it is difficult to determine whether the child is the major cause of marital tension and, if so, whether the parents have enough stability and find sufficient gratification in other areas of their relationships to indicate possibilities for saving the marriage. A profound disagreement between the parents about a child - if it cannot be resolved - acts as a dangerous infection in the entire family, often culminating in a severe emotional crippling of all members.

Oftentimes, in this group of parents, certain basic defensive patterns are evident. A mother whose guilt makes her feel she alone is responsible for the problem may carry the full burden for the physical and emotional care of the defective child. Ostensible, she does this to shield and protect her husband, but she may actually view him as too weak and too passive to share the burden. As the responsibilities become heavier with time, she tends to become resentful of her husband's apparent indifference and he, in turn, feels excluded. Acutely sensitive to the unexpressed attitudes of his wife, the father attributes his exclusion to his weakness. He assumes that his wife is more able to assume the responsibility for their child. For example:

> Mrs. H assumed the major physical and emotional burden of caring for their daughter, Inge. On the basis that the husband was busy with his work, the mother rarely shared with him the daily problems created by the girl. In reality, however, she felt she was the stronger of the two and better able to deal with Inge. Although she gave care uncomplainingly, she deeply resented her husband's acceptance that she carry the burden. She interpreted his behavior as rejection to Inge and his silence as a lack of concern about the child and an inability to make decisions for the family. Although Mr. H was relieved not to have to be bothered with the care of Inge, he felt guilty about his lack of involvement and resentful of his wife's implication that he was inadequate."
>
> (Mandelbaum & Wheeler, 1960, p. 363)

In such a situation, the father's withdrawal into work may be viewed as his method for handling his grief and depression. His withdrawal, although partially desired by the mother, creates in her a fear that she has been left alone to deal with the child. She feels that her husband has deserted both her and their disabled child. It is hard for either

spouse to fully understand this kind of withdrawal as a defense against grief. A mother has fewer environmental methods of withdrawal.. She cannot easily leave the child and family to seek solace in work. Therefore, one frequently finds mothers using such defenses as emotional isolation, retreat into depression, and outbursts of anger.

In many mothers, there is an attempt to deal with the distress of having given birth to a defective child, by the decision not to have other children. Other mothers attempt to prove their adequacy by bearing a healthy child. Having given birth to a healthy child, the mother can then withdraw from the defective child and give all of her attention to the normal one. This usually adds to her guilt. Frequently, each spouse blames the other's family as being the cause of the defective child. ("The poor stock of your family"). In other instances, parents may suggest the child has certain grotesque characteristics that are frightening to them. They may see the neighborhood children treating their child as silly and funny. Parents who harbor these ideas seem to think that life has played a cruel joke on them, which causes them great dismay and anger.

Another common reaction is overprotection. The overprotection probably stems from a variety of sources. First, the busy mother may find in the short run that it is easier and quicker to continue to feed, bathe, and dress the child who is slow to learn to do these things for himself. Secondly, overprotection may be a defensive maneuver to conceal rejection. Keeping the child a baby and protecting him from possible danger reassures the mother that her hostility has not annihilated the child. Unfortunately, she may actually be crippling him in more subtle ways. For example, her behavior tells the child implicitly - "You are incompetent; you cannot do things for yourself." Overprotection definitely perpetuates the child's dependence, on his parents and others, thereby preventing him from mastering skills within his limitations.

Eventually every family of an exceptional child must face that fact. The circumstances of this recognition may be sudden or gradual. In the case of a severe disability (e.g. Mongolism) the recognition may come at birth. In less severe cases recognition may not occur until much later. Usually, school entrance forces recognition on the part of parents. As the child interacts in the school environment more subtle disabilities usually become apparent and are reported to the family.

At whatever age recognition of the problem occurs it is unwise to offer the parents a false hope of recovery. So often parents are told - "Don't worry, Johnny will grow out of it." It is unwise to fall into this trap as the parents will become increasingly untrusting of further professional advice because most often Johnny does not "grow out of it."

Although important to not mislead the parents, it is doing the parents an injustice to ignore the child's exceptionality at this time. Parents whose children are damaged but who have not had some help in understanding the problem are beset by worry, self-blame, and anxiety.

Once they recognize the extent to which their child is disabled more parents next seek the cause for the tragedy which has beset them. Two kinds of motivation seem to underlie this search. The first and more rational is a hope that, in discovering the etiology of the disorder, they may find a way to cure it and prevent its occurrence in any future children. Additional motivation for the search probably stems from an ardent wish for relief from a heavy burden of responsibility and guilt. In one way or another, a great many parents feel that the blame for their child's handicap rests with them. They may, for example, be concerned because they allowed the baby to roll off a bed or failed to call

a physician when he was ill. Still others harbor the memory of an unwanted pregnancy or sometimes even a deliberate attempt to abort an unwanted fetus. In many parents, the most primitive kinds of thinking determine beliefs about the etiology of the handicap. Sometimes the child becomes the focus of all past wrongdoings of which the parents feel ashamed. Parents who thus blame themselves for their handicap suffer an additional burden which takes its own toll. For example,

> "Chip, a severely disabled boy of eight, was seen in a diagnostic clinic upon referral by a public health nurse who had visited the home to care for his aged grandfather. The mother had never sought medical advice because she and the father both believed Chip to be God's punishment for her having borne, long before the marriage, an illegitimate daughter, then eighteen years old. This girl was living in their home and doing fairly well. As a consequence of her guilt, the mother had been unable to discipline the boy and, at age eight, he was like an untamed animal. He had not been toilet trained, he grabbed food from plates of others, and he was disobedient and destructive."
>
> (Finn, 1970)

Beside the emotional problems encountered by the family of the disabled child there are many practical problems. For example, the family may find it difficult to entertain people in the home, to visit their friends, or attend movies together. The budget may be strained because of the extra costs often associated with caring for the disabled child. It may be difficult to arrange for babysitters, particularly as the child gets older. Therefore, the parents may feel trapped and unable to have any time when they can be on their own. These and other problems make it important that the helping person involved with parents of exceptional children be aware that consistent warmth and understanding can often break through rigid and hostile defenses.

There is an obvious reciprocal relationship between an exceptional child and his family. The more favorable the relationship, the more stable and self-possessed the child will be and the greater will be the happiness and stability of those who live with him. In turn, the child will be more likely to gain the affection and support he needs to enhance his healthy adjustment.

BIBLIOGRAPHY

Barker, R.G. et. al. **Adjustment to Physical Handicap and Illness: A Survey *of* the Social Psychology *of* Physique and Disability**, New York, Social Science Research Council, 1953.

Finn, R. "Meaning of the Defective Child to Parents" Unpublished paper 1970.

Hewett, F.M. **Education *of* Exceptional Learners**, Boston, Allyn & Bacon, Inc. 1974.

Kennedy, J.F. "Parental Reactions to the Birth of a Defective Child," **Social Casework**, Vol. 11(7), 1970.

Mahoney, S.C. "Observation Concerning Counselling with Parents of Mentally Retarded Children," **American Journal of Mental Deficiency**, Vol. LXIII, No. 81.

Mandelbaum, A. & Wheeler, M.E. "The Meaning of a Defective Child to Parents," **Social Casework**, Vol. XLI No. 7, 1960.

Queen, A.S. **Social Work in the Light of History**, Philadelphia: J.B. Lippincott Co., 1922.

*Grateful acknowledgment is hereby given to Bob Finn a former student and friend who prepared a paper for a class assignment which provided the nucleus from which this article was developed.

**The reader will note that frequent reference is made to the female gender in the remainder of this article. This appears to be an accurate reflection of the literature but it does point out the need for more study regarding the effects of the birth of a defective child on the male partner in marriage.

THE STIGMA OF SOCIAL ASSISTANCE: OR, WHAT I BRING TO SCHOOL

Wayne C. Nesbit

> The time has come to stop blaming the mirror for not being a window, for presenting us with things we would rather not see.
>
> The Special Senate
> Committee on Poverty

Although it is a commonly shared point of view that social assistance recipients are shiftless unaspiring social burdens, it is not always the case that welfare living is by choice. Granted, there are those whose life style as a "kept" person is an extension of an established family pattern; but for some, the thought of welfare, relief, social assistance is an excruciating prospect. It is too often the case that individuals are hastily maligned for circumstances over which there is no magic or instant solution. Frustration, feelings of inferiority, shame, and self- derogation are not uncommon reactions to the welfare prospect.

Traditionally in Canada there has been a dominant cultural emphasis upon self-reliance, initiative, and productive activity. History has favourably recorded the industrious efforts of the Jean Talons and John A. MacDonalds. So strongly have these culturally shared values been established that the blocking of chances for personal achievement and autonomy often fosters stressful psychological reactions. A decrement in self-esteem upon first receipt of welfare is common.

Williamson (1974) found that on the issues of idleness and dishonesty misconceptions concerning welfare recipients exist at all levels of income and education. Consistently these misconceptions are in an antiwelfare direction with welfare recipients being viewed as more idle and more dishonest than they actually are. It was also noted that two ideology variables, liberalism and work ethic, are strong predictors of opposition to increased welfare payments. That is, those who most strongly support the work ethic show the most opposition to increased payments. Similarly, subjective beliefs about the work motivation of the poor are better predictors of opposition to increased welfare benefits than are factual considerations.

According to Ryan (1971), while most people will admit that situational factors are important considerations in a discussion of poverty, the more common tendency is to focus upon those aspects of poverty which relate to individual shortcomings. Lauer (1971) found that 43 per cent of middle-class respondents, in reply to questions relating to causative factors of poverty, indicated lack of motivation as the key consideration. Other studies have also indicated "worthiness" as a major consideration in public approval or disapproval of welfare service (Ogren, 1973).

In a brief presented by the Canadian Welfare Council to the Special Senate Committee on Poverty (March 5, 1970), it was reported that in case studies of nearly 300 rural families and over 200 urban families described as poor, the incidence of "shiftlessness" was almost nil. McQueen (Report of Special Senate Committee on Poverty, 1971:24) noted that 76 per cent of poor families at the time of the 1971 Canadian census had one or more earners in the family and that 66 per cent of poor families obtained most of their income from salaries, wages and self-employment.

In Canada, welfare recipients fall into three major groupings. The majority group (about 84 per cent) is composed of those who cannot support themselves - the aged, physically and mentally handicapped, women in charge of families. The second group (about 3 per cent) are unskilled workers whose employment is subject to labour conditions. This group is comprised of the working poor who are members of the labour force but do not earn enough to live on. These people are the first to be unemployed in nonproductive times. The third group is composed of those who are not currently employed.

The third group, slightly greater than one in ten welfare recipients, should not be described in two as inherently lazy and shiftless. To do so would be an injustice which ignores the current employment situation. At present, jobs are becoming increasingly fewer for those with no marketable skills and little education. With approximately 200,000 persons joining the Canadian work force annual!y, and the increase in automation, the prognosis for members of this group of welfare recipients is anything but bright.

Table 1

Persons (Excluding Dependents) Receiving Social Assistance, July, 1970

Category	Percent	Number
Aged (not all over 65 years)	9	59,580
Permanently disabled or ill	41	271,420
Female heads of families	26	172,120
Temporarily disabled	8	52,960
Some working poor	3	19,860
Unemployed	13	86,060
Total	**100**	**622,000**

Source: Table 1 is reprinted and edited from Poverty in Canada, 1971: 31. Information was supplied by the 'Dept. of National Health & Welfare.

The Special Senate Committee on Poverty (1971) reported that approximately 90 percent of welfare cases are based upon need and that the number who "beat the system" is extremely small. It is interesting that this is the case, given the prevalent myths concerning freeloaders and lay-abouts who supposedly monopolize the Canadian welfare system. Adams et al. (1971) have noted that a deep suspicion exists with regard to the machinery which makes welfare benefits available. The idea that welfare recipients are bleeding the country dry and are masquerading destitution make the myth of the "welfare bum" indestructible.

The fact that welfare recipients are publicly stigmatized, and that the benefits align with the minimum wage, would lead support to the government finding that few are "enjoying" welfare living. It is more often the case that after Unemployment Insurance is exhausted as a first line of defense, welfare becomes a resource which must be considered. Basically, it would appear that life on welfare in most Canadian settings is so ignominious that only the irrational would live "on the dole" if an alternative were presented. The costs in terms of stigma and humiliation are so weighty that most Canadians have a repugnance toward the prospect of receiving welfare assistance. The

first receipt of social assistance usually brings negative feelings toward both oneself and the help offered.

Miller (1964) attempted to classify the "lower class" in terms of two variables - economic security and family stability. Four subgroups or cells were classified by cross-tabling the two dimensions - (1) "the stable poor" characterized by stability, economically and familiarly; (2) "the strained", a secure economic pattern but an unstable family pattern; (3) "the copers," economic insecurity but family stability, and (4) "the unstable," neither economic nor personal stability. It is cells three and four that merit consideration vis-avis social welfare.

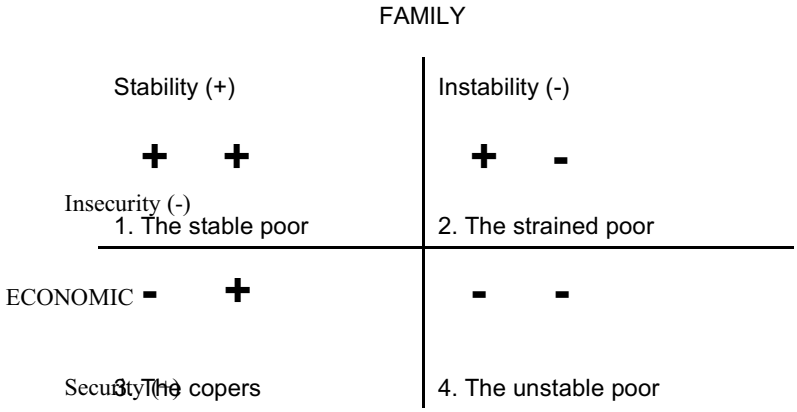

Figure 1: Cross-classification of familial and economic influences on poor families. From "The American Lower Class: A Typological Approach" by S.M. Miller, Social Research, 1964, 13 (1), 2j

Although new welfare families initially might be located within the third classification (the copers) it would seem reasonable that such families might slip into the fourth classification as a result of the undesirable predicament of being unemployed. In the newly created welfare family, where the father finds that as the result of some misfortune he is suddenly unemployed, the chance of comfortably "coping" on a long term basis seems rather remote.

Prolonged employment, irregular employment, and low income are typical factors determining the chronic dependence pattern of the "unstable" subclass. This group comes to view the world as unpredictable and without promise. Personal and familial instability may be consequences as well as sources of long-term unemployment.

With the tendency to perceive welfare recipients within a single framework comes the tendency to forget the infinite variations within this dubious grouping. Categoric statements about the attitudes and motivations of the poor tend to misconstrue the reality of many situations. Although an apathetic stereotype has been strongly presented to represent the cumulative social-psychological traits of the poor, often apathy is a

situational response to an environment which seems hopeless and helpless rather than a cause or an inherent trait (Herzog & Lewis, 1970).

Canadian views toward welfare recipients are not so severe that those who do not work are left unsupported. There is public agreement that support is required and provision has been made for it by government legislation. Nonetheless, despite the fact that there are very few who profess the "are there no jails; are there no workhouses?" approach to poverty, the down-and-out are often described in something less than positive terms (Adams et al, 1971).

The Special Senate Committee on Poverty (1971:169) strongly condemned the degradation which characterizes the receipt of welfare in Canada.

> ...evidence indicates that the welfare system is increasingly unable to deal with the needs of its clients. It has failed to achieve its humanitarian goals. It deprives its recipients of dignity and provides no incentives or rewards for those who wish to escape from poverty. It has become punitive and demeaning.

It would be naive to suppose that children are insulated from the shame associated with welfare. For those on the receiving end of the process welfare is a symbol of shame. The callous remarks which supposedly are directed toward those who "could work" tend * to extend to all welfare recipients. Children are sensitive to the family shame and share in it.

In school the poor child is made aware of the differences between himself and others. He learns how conspicuously poor he is. The comments of a 14 year old Quebec boy illustrate the subtly destructive effects of the realization of poverty:

> I love sports but I can't participate in anything because we have no money for equipment. We can never do anything because of lack of money. I feel as if it will always be this way. (Poor Kids, 1975: 9)

The problem with the slights and embarrassing situations associated with being poor in school is that the episodes are cumulative. The single incident can be handled by youthful resiliency. It is the recurring pattern of personal defeat which inevitably points out the grim prospect and defeats even the strongest optimism. The realization that your clothes were once pretty when someone else wore them or that other families go on a summer vacation contributes to the destruction of self esteem. "Unworthiness" begins early and is an essay which is constantly being rewritten.

The account of a boy in northern New Brunswick in Poor Kids (1975: 8), is demonstrative of the most dramatic aspects of Canadian poverty.

> My name is Pierre and I'm 13 years old. I'm the eldest of seven children. What makes me suffer most is not having a house, having to live in a shack where it's always cold and too small for all the family. There are nine of us. The seven children all sleep together in two 36" wide beds - pushed together in winter for more heat since we don't have enough blankets. We have an old broken-down stove. In the winter we push the beds near the stove, but it's dangerous.

Clearly, all incidents of poverty in Canada are not this startling nor do all poor people live in such dire circumstances. For most of Canada's poor, the reality of poverty is less dramatic. Nevertheless, on a daily basis, self-derogation does its work and youthful aspirations slowly but steadily are destroyed.

SELECTED REFERENCES

Adams, I., Cameron, W., Hill, B. & Penz, P. **The real poverty report**. Edmonton: Hurtig, 1971.

Lauer, R.H. The middle class looks at poverty. **Urban and Social Change Review 5**, Fall, 1971, 8-10.

Miller, S.M. The American Lower Classes: a typological approach. **Social Research**, 1964, 31, (1), 1-22.

Ogren, E.H. Public opinions about public welfare. **Social Work**, 1973, 18 (1), 101-107.

Ryan, W. **Blaming the victim**. New York: Pantheon, 1971.

Williamson, J.B. Beliefs about the welfare poor. **Sociology and Social Research**, 1974, 58, 163-175.

Poor Kids, a report by the National Council of Welfare on children in poverty in Canada. National Council of Welfare, March 1975.

Poverty in Canada, a report by the Special Senate Committee on Poverty in Canada. Ottawa: Deyell, 1971.

LET ME TELL YOU A BIT ABOUT TOY LIBRARIES*

Gary H. Jeffery
Department of Educational Psychology

On a rather damp and chilly early April morning, a small van drove down a narrow alley and came to a stop in front of a door bearing only a small yellow sign. The van discharged nine people, three adults and six children. So began a typical day at the Sunley House Toy Library, one of Britain's over 600 such facilities. I had the chance to visit this library along with several , others while in England attending the first ever International Toy Library Conference.

While the idea of toy libraries is not new (the first being opened in 1934), the real growth of such libraries has occurred only in about the last ten years, with the greatest growth and the current movement being centred in Britain. Toy libraries can now be found in about 18 different countries, not the least of which is Canada, which has its own very active Toy Library Association,' the only such association in North America.

A toy library is just what the name implies. It is a, usually quite informal, service which makes toys available to child users much as does a conventional book library. Toy libraries differ from conventional libraries in that they are typically initiated by "ordinary" interested folks, i.e., parents, preschool teachers, public health nurses, etc. In Britain, this latter feature is credited with much of both the rapid growth and success of the movement.

The "typical toy library" is a somewhat difficult place to describe due to the widely varying range of libraries which exist. Initially most toy libraries, including several in Canada, were begun to supply specialized, or less available and sometimes expensive equipment to handicapped users. While this still holds true to a large extent, libraries aimed at a variety of other groups (obviously including normal children) can now be readily found.

Toy libraries can be situated in a wide array of settings ranging from shopping malls to hospitals, church basements, preschools, conventional libraries, and even garages and vans. Most are designed (at least in the beginning) to serve a small number of users (usually about 20 children), and hence tend to be open only about 2 to 4 hours per week. Most also have rather modest beginnings, often using largely donated toys or toys bought from funds offered by organizations such as a church, service club or an occasional government grant. The majority are organized and operated by volunteers from the community or by persons from other organizations (i.e., preschools, hospitals, libraries, etc.) who either donate their own time or are allowed to use some of their working day for the library.

The core of a toy library is obviously the toys. These are typically selected with their child users in mind. Often toys are selected to aid a handicapped child to develop particular skills deemed useful (i.e., balance, fine muscle coordination, spatial concepts, etc.). Others (possibly, although not necessarily for different groups) are selected on the basis of pure play value. Toys in a library are typically selected in terms of their durability, esthetic value, play value, teaching/ learning potential, etc. Many toy libraries often seek to obtain toys less accessible to their users thereby expanding the range of the child's play experiences. It is also not unusual for toys in a library to be specially designed and constructed with specific users in mind.[2]

Perhaps if you are not already convinced, a brief comment on why one should develop a library might be in order. Toy libraries are especially and obviously useful for special children. While they can supply selected special materials to large numbers of children, both normal and special, who might not otherwise have such an opportunity, they also, perhaps even more importantly, offer a means by which parents can obtain special materials.

Toy libraries also often allow parents to meet both other parents with problems similar to theirs and also with people who could potentially help them, all these meetings taking place in a typically very nonthreatening relaxed atmosphere.[3] Many toy librarians in Britain have expressed to me that their parent contacts represented the greatest success of their libraries.

Toy libraries obviously help all parents beat, at least in part, the high costs of play. Parents often can and do try out toys they subsequently buy! Toy libraries also serve to train and orient both children and their parents toward book lending libraries. The benefit of toy libraries, especially mobile ones, to rural, shut in, or hospitalized children, be they special or not, is obvious.

*For an expanded description of toy libraries see my paper entitled, "Toy Lending Libraries: An Introduction and Annotated Bibliography."

This is available from the Resources Clearing House, Box 90, Education Building, Memorial University, St. John's, Newfoundland, AlB 3X8 (Catalogue number B-035, cost $.90).

NOTES

1. For additional information contact Mrs. Joanna Von Levetzow, Director, Canadian Association of Toy Libraries, 50 Quebec Ave, Suite 1207, Toronto, Ontario M6F 4B4.

2. A number of very specific suggestions for toys can be found in publications such as the ABC of Toys, available from the British Toy Library Association Seabrook House, Wyllyotts Manor, Darkes Lane, Potters Bar, Herts, England.

3. Some toy libraries actually build in a requirement that parents must attend a number of classes on toy selection before or while borrowing the materials.

TOYS IN THE LIBRARY: THEIR ROLE AND EVALUATION

Gary H. Jeffery
Educational Psychologist

As a developmental psychologist and an educator, I am interested in the power or impact that toys can have on a child's development. My interest and involvement in toy libraries was initially founded on this interest. A toy library, through the materials it offers, can have a tremendous influence, hopefully in positive directions, on the development of its users. Throughout this brief paper I shall attempt to illustrate some of the ways in which toys influence children and thereby hopefully justify the need for careful thought about evaluation of them. The final part of the paper will deal with criteria which might be useful in such evaluation.

A child's play (and, interestingly, often an adult's!) is very much shaped by what is present for him to use (Yawkey and Silvern, 1977; Jeffery, 1977a; 1979). The materials may, for example, encourage the child to explore, manipulate, fantasize, role-play, compete (Caplan and Caplan, 1974; Matterson, 1975; Jeffery, 1977a), etc. They can do other things as well, including encouraging the child to be quiet or noisy, rough or gentle, and even whether or not the child seeks out companions to share his play (Quilitch and Risley, 1973)'. With this view in mind, you will begin to appreciate both the educational role of toys and the potential impact of a toy library. Children learn by doing. What they do depends to a considerable degree on what activities are suggested, allowed, encouraged, etc. by the particular toys that have been made available to them.

Some of the early (and many of the current) toy libraries appear to appreciate this reality, particularly those specializing in offering materials to handicapped children (Knowles, 1973; Von Levetzow, 1977). Helping or offering remedial aid to a young child often takes the form of having the child rehearse or practise skills, actions, tasks, etc. that the child finds difficult. The belief (one common to almost all rehabilitative approaches) is that such rehearsal helps overcome the child's weaknesses. While a program of repeated exercises or activities certainly has its merits, the use of such a program with younger children obviously poses problems. An adult, who understands the potential good of such activities, can "stick at" the task and await the payoff. A child will not do this. Toys, including those of a type often supplied by a toy library, have provided a partial, albeit significant, solution to this problem. For almost every child, play is an enjoyable and sought-after activity. When that play can be structured through carefully selected materials, ones chosen or designed with the child's particular problems in mind, then that play can result in the child willingly and maybe even enthusiastically performing those activities deemed remedial. In other words, the child through his play performs (rehearses) activities suggested by the toy and hence potentially attains the benefits of repeated exercise. While I admit that this perspective may be somewhat idealized and certainly is excessively simplified, it does illustrate the function of toys and also explains, and hopefully clarifies, one potentially realizable goal of toy libraries. The major stumbling block and the area of greatest difficulty is, of course, the toys themselves.' Great effort and thought needs to go into both their design and selection.

The reality that toys, by their design, delimit or suggest activities and uses, is of importance, not just in the situation of the handicapped child, but to all children. Toys do influence behavior and hence potentially educate. Parents, and obviously toy libraries, by selecting and offering toys to children, are essentially offering what as educator would call a curriculum, or, more accurately in this case, a 'toy curriculum'.

To understand the idea of a toy curriculum, one must focus on the activities suggested by the toys. In a school curriculum, materials are often supplied along with the teacher's comments, questions, instructions, etc. The child is expected to learn from these experiences. While I am not encouraging early schooling or that we impose a formal "curriculum" on young children, I am trying to point out that there is a great similarity between school experiences and those offered through toys. In both cases the child learns from what is offered. In each instance the child learns by his activity, in one instance school work or his attention, in the other play. A child engaged, for example, in exploratory play is exploring (and learning about) some object, be it a truck, doll, puzzle, assembly toy, etc. Similarly, when a child is engaged in dramatic or imaginative play, he is using some prop or object. In these latter situations, the object typically will have been instrumental in starting the activity and often in directing it.

While the space available does not permit me to fully explore this point, a few illustrative examples are in order. The educational or developmental influences of toys are best understood (from a research perspective) in terms of their impact on areas such as sex-typed (Hartley, 1964; Mitchell, 1973; Maccoby, 1966; Maccoby and Jacklin, 1974; Katz, 1977) and, to a lesser degree, aggressive (Yee, 1966; Gross, 1968; hammar, 1970; Turner and Goldsmith, 1976), co-operative, dramatic, imaginative, and exploratory play (Caplan and Caplan, 1974). In the area of sex-role development, for example, it has been demonstrated that most of our personality differences relative to our sex (i.e., our "maleness" or "femaleness") derive largely from our learning experiences as children (Lynn, 1966). It is well appreciated that parents do treat boys and girls differently (Maccoby and Jacklin, 1974). A significant portion of parent 'treatment' involves the offering of selected toys (Hartley, 1964; Rheingold and Cook, 1975). From birth, a boy, as compared to a girl, is given toys typically differing in colour (blue vs. pink) and usually in form (a hammer vs. a dolly). While I am in no way suggesting that this should or should not occur, I am suggesting that we often very conciously do make such decisions. Boys do tend to be more frequently offered trucks, tools, sports equipment, etc., while girls are offered dolls, carriages, miniature kitchen utensils, etc. While a parent will often tell you that a child wants or maybe even demands such toys, it must also be appreciated that a preference for and familiarity with certain groups of sex-typed toys has been established before the child begins to express his or her wishes. In addition to sex-typed toys (or "curriculum materials"!) ones stressing (or minimizing) violence, competition, co-operation, solitary play, etc., can be offered.

Up to this point, my aim has been to offer you a perspective or background on the place and importance of toys. Hopefully, in this all-too-brief discussion I have convinced you that toys are important. What now obviously needs to be considered is the specifics of how to go about selecting and evaluating play materials.

It is very difficult and quite inappropriate for an outsider to tell a parent what materials a child 'should' have. In selecting toys, what first needs to be considered is what the toys are intended to accomplish. In the situation where toys are offered with helping overcome a specific handicap as the goal, the criteria are, at least in a general way, already set. For other children, the goals become more diffuse and parental views and desires become more important.

Two often expressed, quite legitimate and highly related goals are that the child should enjoy the toy and also that he should use it for an extended period of time. ! suggest that these are related. A child will not use a toy at all if he is not interested in it. The duration of his use relates to the nature and range of the use or uses the child sees

in the toy. Obviously, the more the potential uses the child notices, the longer the play (Jeffery, 1977a; 1979). Often, for example, a relatively low-detailed toy has a longer period of use as the child is freed, by the absence of detail, to be more imaginative and creative in his play. Child interest is an obvious first consideration when selecting a toy.

One must be cautioned that a child's attraction to a toy or his initial interest frequently does not predict that the toy will later be either enjoyed or used. Attractive toys often quickly lose their novelty, where a high-play-value toy may take time to be discovered and often requires that an adult bring it to the child's attention.

A number of "guides"[3] for evaluating toys can readily be found by the interested consumer. These guides typically recommend that toys be evaluated in terms of their safety and durability and also as to whether the toys encourage different forms of physical, manipulative, sensory or intellectual play. They less often recommend that toys also be considered as to their ability to encourage different forms of interpersonal or social interactions (i.e., various forms of competitive or cooperative play between peers or between the child and an adult). Various play characteristics, such as its quietness or loudness, activeness or passiveness, and roughness or gentleness, are also not often discussed.

Detailed discussion of specific factors which must be considered when selecting toys are not possible in the space available. A few last considerations might, however, be mentioned. Before any toy is bought, consider the value of the toy relative to its cost. A valuable toy teaches lessons you deem important and also has a cost per hour of play which is affordable. By 'cost per hour of play' I am simply referring to the cost of the toy divided by the duration of its use. If a toy offers an acceptable or valuable experience and has an affordable cost per hour (an amount obviously decreased by multiple users!) it is a good toy. Toys which effectively offer very worthwhile experiences are also obviously valuable, even though their duration of use may be low.

A last consideration reflects the very current nutritional concern that we have a "balanced diet". One, in selecting toys, should also seek to offer a child a 'balanced toy diet', i.e., one including rough, gentle, quiet, loud, messy, precise, etc. types of toy/play experiences. Similarly, you should seek to provide opportunities for the child to experience group and solitary play as well as play in a wide range of areas including fine and gross muscle, sensory discrimination, discovery (intellectual), role playing, etc., etc., etc. When it comes to toys, you really are a curriculum designer! Select your lessons carefully.

FOOTNOTES

1. See Jeffery (1977b) for an evaluation guide potentially useful for this purpose: a paper reviewing other toy evaluation guides is currently being prepared by its author.

2. A paper reviewing the uses of toys for working with handicapped children is currently being prepared by the author. Also see Jeffery 1979).

3. The names of a number of "toy buying guides" are listed at the end of the paper. Lists of suggested toys are also available; however, I do not typically recommend these as they tend to include toys which are often not readily available in different

areas and also tend to very quickly become out-of-date Perhaps the major criticism of these lists is that they usually do not specify the types of play that the toys are likely to encourage.

Suggested Readings

General Books on Toys:

Arnold, Arnold. **Your Child's Play: How to Help Your Child Reap the Full Benefits of Creative Play**. London, England: Pan Books, 1975.

Caplan, Frank and Caplan, Theresa. **The Power of Play**. Garden City, N.Y.: Anchor Books, 1973.

Clepper, Irene. **Growing Up With Toys**. Minneapolis, Augsburg Publishing House, 1974.

Toy Buying Information:

ABC of Toys (6th Edition). Toy Libraries Association, Seabrook House, Wyllyotts Manor, Darlser Lane, Potter's Bar, Herts., England, 1977.

Allen, Andriana. "Criteria for Selecting Gifts", **Childhood Education**, 1968, 45(3), 118-121.

Braga, J.D. and Braga, L.L. **Child Development and Early Childhood Education**, Chicago Model Cities, Chicago Committee on urban Opportunity, 1973.

"Choosing Good Toys for Young Children". James Galt and Company Limited, Cheadle, Cheshire.

"Choosing Toys for Children of All Ages". New York: American Toy Institute, 1973.

Good Toys, 1978. (Available from Canadian Toy Testing Council, P.O. Box 6014, Station J, Ottawa, Ontario K2A 1T1.)

Jeffery, Gary H. ' 'Toy Evaluation Guide", 1977 (Available from Author or Resources Clearing House, Box 90, Education Bldg., Memorial University, St. John's, Newfoundland (AlB 3X8).

"Little Gifts for Big Occasions". Ottawa: Canadian Toy Testing Council.

"Tips on Toy Buying". Ottawa: Canadian Toy Testing Council.

"Toy Buying Guide". Ottawa: Canadian Toy Testing Council.

"Toys and Your Child: Some Things You Should Know About". Ontario Public School Men's Teacher's Federation.

Zimmerman, Lyndall D. and Calovini, Gloria. "Toys as Learning Materials for Preschool Children". **Exceptional Children**, 1971, 37(9), 642-54.

References

Caplan, Frank and Caplan, Theresa. **The power of Play**. Garden City, N.Y.: Anchor Press/Doubleday, 1974.

Gross, Dorothy W. "Violence and Toys". **Childhood Education**, 1968, 45(3), 149-52.

Hammar, Stina. "Children and War Games". **International Journal of Early Childhood**, 1970, 2(2), 74-77.

Hartley, R.E. **"A developmental view of female sex-role definition and identification"**. Merrill-Palmer Quarterly, 1964, 10(1), 3-17.

Jeffery, G.H. "Toys: their developmental role and evaluation", 1977. Unpublished paper presented at maritime Day-Care Association Conference, Halifax, N.S., Canada. (For copies, contact author at Department of Educational Psychology, Memorial University, St. John's, Newfoundland.) (a)

Jeffery, G.H. "Toy Evaluation Guide", 1977. (Available from author or Resources Clearing House, Box 90, Education Building, Memorial University, St. John's, Newfoundland, A1B 3X8.) (b)

Jeffery, G.H. "Toys as Tools in Working with Young Children". Paper presented to Canadian Guidance and Counselling Association Annual Conference, June 6-9, 1979, St. John's, Newfoundland, Canada.

Katz, L G. "Sex role socialization in early childhood", 1977. **ERIC** ED148472, 107 pages.

Knowles, Susan E. "Toy Libraries for Handicapped Children". **Teacher of the Deaf**, 1973, 71(418), 128-30

Lynn, D.B. "The Process of Learning Parental and Sex-role identification". **Journal of Marriage and the Family**, 1966, 28, 466-70.

Maccoby, Eleanor (Ed.). **The Development of Sex Differences**. Stanford: Stanford University Press, 1966.

Maccoby, Eleanor and Jacklin, Carol N. **The Psychology of Sex Differences**. Stanford, California: Stanford University Press, 1974.

Materson, E.M. **Play with a Purpose for Under-Sevens**. New York: Penguin Books, 1975.

Mitchell, Edna. "The learning of sex roles through toys and books: a woman's view". **Young Children**, 1973, 28(4), 222-231.

Quititch, H.R. and Risley, Todd R. "The effects of play materials on social play". **Journal of Applied Behavioral Analyses**, 1973, 6(4), 573-578.

Rheingold, Harriet L. and Cook, Kaye V. "The contents of boys' and girls' rooms as an index of parents' behavior". **Child Development**, 1975, 46, 459-63.

Turner, C.W. and Goldsmith, D. "Effects of Toy Guns and Airplanes on Children's Antisocial, Free-play Behavior". **Deficience Mentale/ Mental Retardation**, 1977, 27(3), 29-31.

Yawkey, T. and Silvern, S.B. "Play and Playing Processes of the Young Child in Early Education Programs: a Piagetian Analysis", 1977, **ERIC** ED144717, 27 pages.

Yee, Albert H. "Toys, Children and a Crisis in Values". **International Journal of Religious Education**, 1966, September, 4-5, 40.

AN ECLECTIC-PROCEDURAL MODEL OF SPECIAL EDUCATION

Keith Sclater, M.Ed.
Brinton School, St. John's

Probably no other child in our society is the focus of so much attention from so many sources as the exceptional child. The culture itself, its institutions, its professional workers, and the family of the child all influence his growth and development.

This model is designed to display these eclectic influences in the procedural form in which they may be applied to the child.

Culture

Cultures in the past and still somewhat in the present have dealt harshly with their, deviants. The exceptional or retarded have been killed at birth or left to die on some barren hillside. In more recent times the midwife's knitting needle driven through the ear canal of an odd looking child left no traces and spared parents the embarrassment and problems of a deviant offspring. Alternately, the child's culture and times could decide on incarceration, exploitation, or, at best, patronization as the "village idiot."

Rejection of the exceptional can be based on societal mores at a given time, on survival techniques in a harsh environment, or on religious grounds. Of course the culture that may not necessarily value quickness of mind or limb may not consider the exceptional as deviant. Indifference to the exceptional can be viewed as the result of lack of education and understanding of the problem as well a unavailability of the tools and the motivation to do anything about it.

There is a great range of levels between total indifference in one society and recognition of responsibility and the provision of services in another. This range can be generally attributed to the level of education of the society itself and its financial ability to divert resources to assist special education. Variations exist of course, and in the centres of wealthy, educated societies there exist groups who have not been well served by, for want of a better term, the "system", and whose particular local mores inhibit educational progress as it would be defined by the culture at large.

Family

The family, its situation regarding stability, its environment, its level of education, socio-economic status and personal relationships will, in most cases, establish the parameters of parent support for the child. Of all the agencies and forces acting on the exceptional child the family has by far the greatest influence - for better or worse. Paradoxically, it is the family, that in its most critical period of influence, receives the least professional attention. For some children this attention is only forthcoming when social welfare agencies are called in to attend problems of marriage breakdown, financial support, child abuse and the like. Social agencies thus may be involved with some families and children many years before professional educators are. While social workers are instrumental in many ways in support of the family and child they are not necessarily qualified in diagnosing early childhood developmental problems and prescribing treatment within or without the family setting.

For many families there may be no overt need for social agency or health care contact and problems may not be recognized until the child starts school. On the positive side there are of course many families who have alerted themselves to problems with their child and with professional assistance have provided caring and supportive atmospheres for them. The fostering of understanding and constructive support within the family is of paramount importance to the exceptional child.

Health Care Practitioners

The delivery of health care and the provision of information regarding exceptionality is under the control of the medical specialists and public health nurses attending mother and child. Education for pregnant women on possible birth defects due to environment, diet, and personal habits appears to be on an ad-hoc basis from newspaper columns, women's magazines and television. The medical profession provides pre-natal classes carried out by public health nurses to provide education on this subject but concern exists that it is not the "at risk" population that attends these voluntary classes. In the same context it is not the "at risk" population that consistantly attends for medical checkups with the doctor or public health baby clinic. In the baby clinics it is now almost universal practice to apply early developmental screening tests - this is an excellent procedure but unfortunately only a small percentage of exceptional children will come from those parents who have the vital interest, concern and understanding to volunteer their children and their time.

On a procedural basis the child presenting with evidence of developmental or perceptual delay either prior to, or after admission to school, can be referred for examination by medical or paramedical personnel to a developmental clinic usually attached to a children's hospital for specialized diagnosis and treatment of problems with speech, sight, hearing, motor control and/or underlying physical or psychological disturbances. A neurological examination may be required to determine the possibility of brain damage and the extent of mental impairment.

Direct medical intervention, where possible and feasible, would then be in terms of drug therapy, physical therapy, specialized surgery, or a combination of procedures.

Educational Diagnostician

If the exceptionality of a child has passed unnoticed prior to schooling it should be clearly in evidence after some time in kindergarten, although in some cases problems may not be evident until more sophisticated curricula are encountered. The basis of the teacher's referral to diagnostic services will rest on informal observation and comparative assessment with the child's peer group. Referral may be to a resident or itinerant guidance counsellor assigned to the school, a central diagnostic clinic for a school board area, or university research centre.

The guidance counsellor tests and observes the child in a prescribed procedure relative to the standardized tests being applied. The standardized tests are normed to the peer group population of children and if applied correctly should give reliable and bias-free results. The number of tests and their areas of concern are legion but generally cover the area of fine and gross motor control, personal-social, language,

conceptualization, and various forms of intelligence. Specific tests are available in all areas to further define where problems may be occurring.

In addition to testing intrinsic abilities the diagnostician can also test for achievement relative to the curriculum such as letter knowledge, colour recognition, number manipulation etc. This testing may be again with standardized test or simply to an organized check list. The diagnostic "package" is then delivered to the teacher together with suggestions for alleviating the child's learning problems.

Special Educator

The provision of sufficient personnel and facilities for the treatment of the wide range of disabilities evident in the schools is a problem. The problem has been increased with the drive for mainstreaming which aims to treat virtually all forms of disability within the regular school setting. Special education teachers are thus required to effectively assist an expanded number and variety of learning disabled children than previously. School boards are having to hire additional special-area therapists and consultants, not only to assist exceptional children in the schools, but to advise and support special education teachers and classroom teachers with children enrolling from special schools where specially trained support staff was concentrated.

While it is a relatively easy task for the diagnostician using sophisticated instruments and tables to develop a comprehensive profile of the exceptional child, the task of remediating learning disabilities thus exposed is arduous and, in most cases, of limited success. The special educator's ability to markedly improve the academic achievement of the exceptional child appears to be hampered by a lack of sophisticated teaching procedures. Present approaches appear all too often as revamped kindergarten practice or as reflections of test requirements such as pattern copying, jigsaw work and the like. The special education curriculum thus appears to be a corruption of the normal child's curriculum reflecting the unspoken premise that the child's mind is also a corrupted version of the normal. There would appear to be a need for exceptional curricula to assist exceptional children.

Medical and Educational Researchers

Research affecting the exceptional child occurs in two areas - medical and educational. Laboratory and clinical research in biochemistry, neurology and gynecology may ultimately defeat many problems of exceptionality at their source although, considering the complexity of the problem, results are very slow in coming. Research on the subject does however consistantly provide evidence that early childhood environment is a critical factor in the development of the child.

The amount of financial support available for medical research is very large when compared to the minimum allocated to educational research in exceptionality. Actually most educational research is carried on by psychologists and not educators per se, thus giving an unfortunate (for the special educator) bias to research programs. Most effort takes place in the field of diagnosis and assessment - comparative studies of T.H.I.S. Test and T.H.A.T. Test, and projects to develop more esoteric test instruments.

(INSERT DIAGRAM)

AN ECLECTIC-PROCEDURAL MODEL OF SPECIAL EDUCATION

Research in the development of exceptional teaching procedures and exceptional curriculum appears to be at a minimum when, to this teacher's mind, it is greatly needed if the classroom teacher is to have any modicum of success in assisting the exceptional child.

Discussion

The idea of creating a model is to graphically display the parts in a plan or steps in a process. The model forces attention to detail yet demands cohesion to an overall plan. This model was developed to display the eclectic influences bearing on the exceptional child and the process of their involvement with his development. The organization of the model forced attention to three problems;

(1) the very large maturational time lag that exists before educational professionals become involved with the exceptional child. This is not the first time this problem has been mentioned but the model emphasized that of all the forces involved, the educators are both the last on the scene and those charged with the often insurmountable task of remedying the situation. The education of the mother or family regarding exceptionality appears to be from a multiple range of sources and delivered in a fragmentary hit or miss manner. There appears to be a need for a concerted "educational" program to reach all families and stress prevention, identification, and very early remedial action. Of all the professionals involved with the child only the educator is primarily concerned with education and the educators should therefore be involved from the beginning in an encompassing program of family education, infant and childhood screening, and very early remedial action for the exceptional child,

(2) the state of educational research as it pertains to the development of teaching procedures capable of assisting the exceptional child. In considering the aspect of research and evaluation it appeared that while medicine; social work and educational diagnosis were the focus of funding and research, very little academic interest appears to be shown in the development of exceptional teaching procedures to assist the special educator in the classroom. A tremendous developmental gap is apparent between the tools of diagnosis and evaluation and the tools of remediation. The problem is partly caused by the fact that education is a provincial domain and hence educators are largely denied access to federal government grants that sustain research in other fields. Research funding that reaches education does so via psychology departments under the category of social science, thus giving, as pointed out earlier, a bias toward the esoterics of testing and evaluation. It should also be obvious that lack of development in this field is due as well to the extreme difficulty of developing learning procedures for the exceptional - results are hard to come by and publications, the life blood of the researcher, would be at a minimum.

(3) the eclectic influences bearing on the exceptional child. In many situations eclectic influences have added vitality, depth and richness to the development of the arts, education and society. This development, however, has only occurred ;where all the various forces have had the opportunity and the foresight to adapt and combine into a newer and better creation.

In the field of exceptionality it ;mould appear that eclectic forces, at least at present, are too disparate, individualized and professionally isoiated to blend and combine into a superior system of assistance for the exceptional child.

LIGHT OR HEAT?: A CRITIQUE OF THE DOMAN-DELACATO POSITION VIS-A-VIS LEARNING DISABILITIES*

Dr. W.C. Nesbit
Department of Educational Psychology

> Since the mid 1950's, a physical therapist and a school administrator have parlayed obsolete nineteenth century theories of biology and neurology with irresistable enthusiasm and offers to help to parents of handicapped children. ....
>
> (Glass, 1968, p. 140)

Into a discussion characterized by references to alchemists and "Piltdown Men" (Eoanthropus Darsoni) one fears to tread. Given the fact that an earlier critique of the Doman-Delacato methods extended from the realm of education into that of jurisprudence, and secondly, that the writer has a reading knowledge rather than an experiential knowledge of these methods, a few prefactory remarks are in order.

The major critics of the Doman-Delacato position have been Glass and Robbins who have reviewed in much detail the theory and research associated with neurological organization therapy. This paper incorporates such counter positions. The Doman-Delacato hypotheses were not tested by the writer.

Between 1955 and 1962 the essential tenets of the theory and practise of neurological organization were developed by Glen Doman, a physical therapist, and Carl Delacato, Ed.D., a school administrator. Subsequently, the Institute for the Achievement of Human Potential was established in Philadelphia to facilitate the diagnosis and remediation of neurological problems of handicapped children in terms of the Doman-Delacato theory. The clinic at Philadelphia soon was flooded with applications from parents of brain injured and neurologically handicapped children representing a vast range of problems. Many children from various parts of the United States (and some parts of Canada) were prescribed programs of crawling, creeping, and patterning so that their nervous systems would achieve organization. As the programs became better known, various individuals and groups began to critically evaluate both the theoretical tenets and research results associated with the Doman-Delacato methods. Some of the more contentious issues are presented.

The Popular Reaction

"Miracle in Pennsylvania" in **Good Housekeeping** (Ernst, 1962)

"A Boy Who Would Not Die" in **Look** (Brossard, 1962)

"Hope for Brain-Injured Children" in **Reader's Digest** (Maisil, 1964)

"Unlocking the Secrets of the Brain" in **Chicago Tribune** (Beck, 1964)

"Why Kids Can't Learn" in **Saturday Evening Post** (Bird, 1967)

"You Can Teach Your Baby to Read" in **Ladies Home Journal** (Doman, 1963)

"Train Your Baby to be a Genius" in **McCalls** (Doman and Delacato, 1965)

The Professional Reaction

"Neurologists will be unlikely to find this book scientifically informative. It is of some passing interest if viewed as an excursion into the realm of science fiction." (Brown, 1964, p. 600)

". . educationists have unearthed many a Piltdown Man in our day and that if we are not careful we will waste enormous amounts of precious time and money unearthing others." (Glass, 1968, p. 148)

". . Delacato's data on which his theories are based are fallacious, his rationale poor and his conclusions untenable." (Oettinger, 1964, p. 125)

". . .the Madison Avenue treatment of Delacato's claims (in the mass media) have, however, been little different from statements which appear within the book itself and in fact are often overdone by the unsupported evidence presented in the book." (Wepman, 1964, p. 352)

". . there is as yet no firm evidence substantiating the claims made for the Doman-Delacato methods and programs. What is needed are well controlled studies by recognized experts." (Executive Board of the American Academy of Pediatrics, Dec. 1, 1965)

". . a dangerous book... a multitude of post hoc ergo propter hoc positions, which are quite unjustified in light of modern knowledge of neurophysiology." (Cole, 1964, p. 345)

Critique of Theory

The Doman-Delacato theory is a theory of neurological organization. The theory posits that ontogeny, the process of individual development, recapitulates phylogeny, the process of species development.

Doman and Delacato support their theory with reference to the work of Haeckel who in 1866 formulated the well known Biogenetic Law. This law provided the basis for Haeckel's recapitulation theory of fetal development. Examination of various embryonic stages in the development of the spinal cord, kidneys, and respiratory system prompted Haeckel to conclude that the human embryo provides evidence for Darwin's theory and that the evolutionary sequential model is recapitulated during embryonic development.

In a wholesale fashion Doman and Delacato incorporated the Biogenetic Law into their theoretical framework extending it far beyond embryology, deciding upon it as the functional requisite for human development.

According to Doman and Delacato, each child in the course of development passes through five major "brain stages" which determine his functioning at each level. These stages represent the vertical progress of neurological development from the spinal cord to the higher levels of cortical functioning; or, the progress of man through eons of time - from the most obscure and uncomplicated vertebrates to the highly differentiated

homo sapiens. Doman and Delacato ascribe to each stage of neurological organization a phylogenetic stage. Briefly consider each stage of the theory (Delacato, 1963).

The medulla stage phylogenetically corresponds to the fish. The medulla joins the spinal cord to the higher nervous system and is associated with vital autonomic processes related to breathing and heart action. During the first few weeks after birth the spinal cord and medulla represent the upper reaches of neurological organization. According to the theory this stage is characterized by ancient and primitive reflexes - sucking, crying and gross trunkal movements. Movement during this stage is "fishlike" by lateral undulation of the spine.

The pons stage represents sensory and motor functioning above the fish-like existence of the medulla level. The pons, which is located just above the medulla, contains various nuclei which are involved in gross sensory and motor operations. Phylogenetically this stage equates the amphibian level - salamanders, frogs, etc. During this period the child begins to crawl and in amphibian-like fashion the body remains in contact with the floor, propulsion being in a homolateral fashion (arm and leg on same side flexed). Gross sensory perception appears at this stage, but stimuli reception is by no means integrated i.e. the eyes do not function in concert as demonstrated in the strabismus of the young child.

The midbrain stage phylogenetically describes the reptiles -- lizards, turtles, crocodiles, and alligators. This stage represents a significant step in neurological development for the reptile has a comparatively large mid-brain in relation to organisms at the lower end of the phylogenetic scale. During this period the chilli begins to creep and demonstrate smooth and efficient cross-pattern locomotion. The child begins to emit meaningful sounds and is capable of interpretation of visual, tactile, and auditory stimuli.

The early cortex stage represents the primate monkey. Rudimentary language, a crude form of upright posture, and the ability to understand a limited vocabulary are attributes of the child at this level. By the end of this stage the child is beginning to divorce himself from the earlier primates in that he is capable of standing fully uprignt, opposing the thumb and forefinger, and speaking, uniting and using symbolic representations.

The cortical functioning stage in the Doman-Delacato theory is characteristic of man and it is at this stage that man acquires the unique characteristic of cortical hemispheric dominance. The two hemispheres of the cortex begin to develop differentiated functioning with one becoming dominant; the other, sub-dominant. It is this differentiation of cortical functioning which must be achieved if the child is to be completely coordinated. Lack of such differentiation results in numerous learning disabilities - dyslexia, hyperactivity, aphasia, reading reversals, stuttering, spelling deficiencies, motor dysfunctions.

The Doman-Delacato theory has been criticized from various directions.

1. Doman and Delacato, in basing their theory on Haeckel's Biogenetic Law, make a great theoretical 'jump from embryonic stage to childhood.

2. Haeckel's theory and Biogenetic Law has been discredited (Kraus, 1964; Moody 1962).

3. Although certain areas of the human brain correspond with broad areas of the brain of lower animals, there are gross differences which make it difficult to accept the view that the lower brain stages in man follow the development of the brain stages of lower animals (Peiper, 1963; Gardner, 1963).

> Delacato makes as his basic theoretical concept the recapitulation theory, that the ontogenetic organization and development of man recapitulates phylogenetic development. Not only does evidence from comparative neurology fail to support this theory in any detailed way, but it has long been discarded in the educational and psychological fields from evidences on the development of behavior.
>
> (Perkins, 1964, p. 120)

4. Each level of development is dependent on the previous level, according to Doman-Delacato theory. Earlier stages predict the quality of later stages; the order of the stages is fixed; and stages may not be omitted. Shirley (1933) and Dearborn and Rothney (1941) found almost no corelation between motor development and later intellectual development. Robbins (1965) found that doing poorly in earlier stages does not necessarily mean that the child will have difficulty in later stages. Hudspeth (T964) found that some people omit certain stages without detrimental effects.

5. Laterality and dominance are central tenets of the Doman-Delacato theory. The literature maintains that as yet there is no test for laterality which is reliable, valid, and objective although there are several tests in existence including the Delacato Test Summary Sheet and the Doman-Delacato Developmental Profile.

Research studies refute the hypothesis of consistent laterality (Goodglass and Quadfasel, 1954; Cole, 1964; Hecaen and Ajuriaquerra, 1964). Mulligan (1968) stated that "Eye dominance and limb dominance are completely different things and trying to establish laterality by placing filters over a dominant eye is foolish. . I would conclude, then, that the Doman-Delacato rationale is for the birds (p. 527)."

Doman and Delacato refer to Orton's (1928) hypothesis which relates dominance to language. Glass and Robbins (1967) point out that Doman and Delacato fail to mention that Orton's research did not support his hypothesis. Doman and Delacato maintain that speech is controlled by the sub-dominant hemisphere, but research indicates. that speech is usually a function of the left hemisphere, regardless of which side is dominant.

The Doman-Delacato theory also states that mixed dominance is a cause for reading disability. Studies by Robbins (1965) did not support this claim. Glass and Robbins (1967) listed numerous studies that find no statistical relationship between dominance and reading achievement. Lerner (1971) noted the same lack of consistent findings with regard to cerebral dominance and reading disabilities.

In addition, there are normal and superior readers who exhibit mixed dominance. This certainly would not be expected according to the Doman-Delacato theory. Fernald (1943) was probably the first to note that "A very large number of individuals who have never had the slightest reading disability, many with distinctly superior reading skill, have unmatched eye and hand dominance (p. 161)."

Critique of Research

Interest in Doman-Delacato methods has been prompted by the large number of positl've findings reported by Doman and Delacato themselves. A wide variety of problems including dyslexia, hyperactivity, asphasia, ataxic gait, reading *reversals,* stuttering, spelling deficiencies, motor dysfunctions and *speech* reversals have been treated by means of these methods (Delacato, 1959). Support for the following hypotheses has been reported:

1. Reading ability can be improved by the application of the Doman-Delacato treatment.

2. Their therapy is an effective supplement to existing reading programs.

3. Brain-damaged children can achieve normal (or better) functioning as a result of Doman-Delacato therapy.

4. Even severely brain-damaged children may improve through passive pattern therapy.

In reference to Neurological organization and reading (1966), a collection of experiments and studies incorporating the Doman-Delacato methods, Delacato (1966, p. 62) described the *experiments* in terms of "excellence of design and control." Critiques by various writers, particularly Glass and Robbins, quickly point out that all are not as convinced of the "excellence" of these studies.

Robbins, after having spent two months at the Institute for the Achievement of Human Potential, conducted research (1966) in which he attempted to replicate the Doman-Delacato findings. His conclusion was that the control concept of the theory - the relationship between neurological organization and reading - was not supported, making the entire theory suspect (Robbins, 1966, p. 523).

Robbins then aligned himself with statistician Gene Glass; jointly they conducted a full-scale analysis of the research presented by Doman and Delacato in support of their therapy. Glass and Robbins re-ran analysis where possible and presented what they considered to be numerous errors in computations, tests of significance, and reporting of results. As well, they were most critical of the experimental design used to structure the experiments. The following segment of this critique is a summary of the investigations carried out and presented by Glass and Robbins.

Two questions must be asked in evaluating research: Did the experimental treatment in fact make a difference in this specific instance (internal validity)? And, if it did, to what populations, settings, etc., can this effect be generalized? In relation to internal validity, eight classes of extraneous variables capable of invalidating research are presented by Campbell and Stanley (1963). Glass and Robbins considered the Doman-Delacato research in light of these variables relating them to the reports of specific studies reported in: C.H. Delacato, The treatment and prevention of reading problems (1959); C.H. Delacato, The diagnosis and treatment of speech and reading problems (1963); and, C.H. Delacato, Neurological organization and reading (1966). The essence of their criticisms is presented.

(A) **History** - Specific events which occur between pretest and post-test in addition to treatment effects. As subjects in educational research do not exist in environments influenced solely by the specific treatment, experimentors must attempt to control for historical variables. In the Doman-Delacato experiments, the treatment groups are sometimes exposed to greater attention, more time spent with the teacher, a novel approach. This is likely to generate a different impression or attitude toward going to school. Masterman's (in Delacato, 1966) study of 422 students had the experimental group coming to class for an extra 30 minutes a day over 6 weeks. Sr. M. Edwin's (in Delacato, 1966) experimental group received 25 minutes a day extra exposure to stories, folk songs, and nursery rhymes. Control groups did not receive these "extras".

(B) **Maturation** - processes within the respondents operating as a function of the passage of time. When an experiment extends over a period of time anywhere from 6 months to 2 years one must not overlook the possibility .that some part of the noted improvement could be a function of natural maturation. This also applies in experiments where reading improvement is measured in grade placement units - normal expectation of reading improvement (8 weeks = 2 yr.) must be deducted from results. According to Glass and Robbins (1967, p. 14), Delacato did not subtract elapsed time from gain score in reporting Piper's study in 1963.

(C) **Testing** - The practice effects of administering the same or equivalent test within a short time span will elevate test results. This effect must be accounted for in any tests of ability. If, in order to control for this effect, the experimenter introduces (4) Changes in Instruments of testing, care must be taken to ensure the equivalence of such measures. In an experiment by Kabot (in Delacato, 1966) reading achievement was measured initially by the Stanford Elementary Reading test and post-tested via the California Achievement Test. Glass and Robbins (1967, pp. 29-30) reviewed the two tests and found them to be substantially different in content and style.

5. Statistical Regression Effect - It is an artifact of random fluctuation that persons who score extreme on one testing will tend to be less extreme upon second measurement. If one selects the lowest part of a distribution to apply a treatment, there will be a significant improvement due to the fact that the initial and final measures are not perfectly correlated (test-retest reliability ranges from 5 to .95). On retesting, extreme scores move closer to the population mean. In Glass and Robbins view (1967, 17) "Delacato chose the method most biased in his favour" when selecting his experimental sample. That is, in many cases he chose the lowest ability readers to administer treatment to, and those above that ability level as controls. Regression effect would account for a significant amount of observed improvement.

Another way to approach this phenomenon is to look at extreme scores as having a greater error component - some of those scoring lowest had 'bad luck' that day. By removing the highest scores from the vast of the population, you eliminate the opportunity of those who had 'good luck' on initial testing to score lower on second testing, and bias your sample in favour of improvement.

6. Grouping and Selection - Systematic differences between groups not controlled by the experimenter in his design or statistical computations have unknown effects on results. Some examples are: experimental groups meeting at a set time

different from the control groups, teacher differences, and personality differences between groups. Masterman and Glaeser (in Delacato, 1966) studied reading improvement during summer remedial programs. Experimental groups met from 8 to 10 a.m., controls from 10 to 12 a.m. Systematic differences are likely between students who would sign for the early morning classes and those who preferred the later time To control for teacher differences (experience, rapport with students), the same teacher would have to be responsible for both an experimental and a control group. This was done in only one study reported by Doman and Delacato (Masterman, 1966). Glass and

Robbins (1967) commented that experimental design problems related to the six variables just discussed may be rectified by the use of properly assigned control groups against whose results treatment effects may be isolated.

7. Experimental Mortality - Loss of students from experimental and control groups may bias results. In Doman-Delacato treatment, experimental groups generally were involved in a more complex and more time-consuming program. One would expect more dropouts due to lack of motivation among experimental rather than control subjects, thus introducing motivation bias - because the program is more rigorous, the lower ability subjects may also be partialed out due to frustration and lack of success. On reviewing some of the reported experiments (Delacato, 1966) Glass and Robbins (1967) indicated excessive experimental mortality which is not accounted for: 22% (Edwin), 33% (Masterman), 36% (Kabot), and approximately 43% (Glaeser).

8. Experimenter Bias - According to Glass and Robbins (1967, pp. 11-12), "several of the studies reported by Delacato (1966) lack objectivity in reporting findings. In some cases, it appeared that the effectiveness of Delacato's theory had been prejudged." MacDonald (1963) noted that the enthusiasm of an experimenter and the effects of novel experimental atmosphere in reading research often produce a bogus improvement. With the exception of the study by Miracle (in Delacato 1966) the possibility of a Hawthorne or novelty effect was not acknowledged.

Glass and Robbins (1967, p. 49) concluding statement concerning the research reported by Doman and Delacato is of some interest.

> Without exception, these experiments contained major faults in design and analysis. About half of the experiments were so inadequate that they were not acceptable as evidence by the standards against which educational research is presently evaluated.

Conclusion

This paper has looked at one therapy aimed at assisting educators and parents in providing for the growth and development of their charges. Research has turned up myriad professional reactions which are negative. Why do parents and educators not ask critical questions concerning new ideas and techniques? There are many answers.

Some may be unaware of research which contradicts that quoted by Doman and Delacato and popular magazines. Certainly many people, even those with considerable training, are uncritical in evaluating research.

Unlike new drugs, ideas coming onto the market are not subjected to rigorous quality control. The Doman Delacato therapy offers hope to the families of children whose prognosis is otherwise bleak. People want to believe theories which offer comfort and hope; thus they often blind themselves to criticisms. As a consequence, belief in a treatment is not necessarily based upon cognitive rationale.

According to Freeman (1967), literature distributed by the institutes dramatizes the hope that slow development may become better than average development as soon as Doman-Delacato procedures commence.

Such statements are even more intriguing when one considers that detailed and independent analysis of the support studies cited by Doman and Delacato have been criticized as "exemplary only for their faults ... naively designed and clumsily analyzed (Glass, 1966)."

As educators we have a responsibility to assess critically new developments and programs as they are proposed. We must sift through utopian predictions before accepting new methods in a wholesale fashion.

Selected References

Beck, J. **Unlocking the secrets of the brain**. Chicago: Chicago Tribune, 1964.

Bird, J. When kids can't learn. **Saturday Evening Post**, 1967, 240 (15), 27-31; 72-74.

Brossard, C. A boy who would not die. **Look**, 1962, 26 (16), 60-66.

Brown, J. Review of **Diagnosis and treatment of speech and reading problems** by Carl H. Delacato. Neurology, 1964, 14 (6), 599-600.

Campbell, D.J., & Stanley, J.C. Experimental and quasi-experimental designs for research. In N.L. Gage (Ed.), **Handbook of research on teaching**. Chicago: Rand McNally, 1963.

Cole, E. Review of **The diagnosis and treatment of speech and reading problems by C.H. Delacato.** Harvard Educational Review, 1964, 34 (2), 342-345.

Dearborn, W., & Rothney, J. **Predicting the child's development**. Cambridge, Mass.: Sci-art Publishers, 1941.

Delacato, C.H. **The treatment and prevention of reading problems: neuro-psychological approach**. Springfield, Ill.: Charles C. Thomas, 1959a.

Delacato, C.H. **The diagnosis and treatment of speech and reading problems**. Springfield, Ill.: Charles C. Thomas, 1969b.

Delacato, C.H. **The diagnosis and treatment of speech and reading problems**. Springfield, III.: Charles C. Thomas, 1963.

Delacato, C.H. **Neurological organization and reading**. Springfield, III.: Charles C. Thomas, 1966.

Delacato, C.H. **A new start for the child with reading problems**. New York: Van Rees, 1970.

Doman, G., & Dalacato, C. Train your baby to be a genius. **McCalls**, 1965, 92 (6), 65ff.

Doman, G., Stevens, G., & Orem, R. You can teach your baby to read. **Ladies Home Journal**, 1963, 80 (40), 62ff.

Executive Board - American Academy of Pediatrics. Doman Delacato treatment of neurologically handicapped children. **Newsletter of the American Academy of Peidatrics**, 1965,16 (11), 1

Ernest, P. Miracle in Pennsylvania. **Good Housekeeping**, 1962, 55 (32), 32-36.

Fernald, G. **Remedial techniques in basic school subjects**. New York: McGraw Hill, 1943.

Freeman, R.D. Controversy over 'Patterning' as a treatment for brain damaged children. **Journal of the American Medical Association**, 1967, 202 (5), 385-388.

Gardner, E. **Fundamentals of neurology**. Philadelphia: W.B. Saunders, 1963.

Glass, G.V. **A critique of experiments on the role of neurological organization in reading performance**. Urbana, 111.: University of Illinois College of Education, Oct. 1966.

Glass, G.V. Educational Piltdown men. **Phi Delta Kappan**, 1968, pp. 148-151.

Goodglass, H. & Quadfasel, F. Language laterality of left-handed aphasics. **Brain**, 1954, 77, 521-548.

Hecaen, H., & Ajuriaguerra, J. **Left handedness: manual superiority and cerebral dominance**. New York: Grune and Stratton, 1964.

Hudspeth, W. Delacato in review: the neurobehavioral implausability of the Delacato theory. In M. Douglass (Ed.), **Claremont Reading Conference 28th Yearbook**. Claremont, Calif.: Claremont Graduate School and Curriculum Laboratory, 1964, pp. 126-131.

Kraus, B. **The basis of human evolution**. New York: Harper Row, 1964.

Lerner, J.W. **Children with learning disabilities**. Boston: Houghton Mifflin, 1971.

Maisil, A. Hope for brain-injured children. **Reader's Digest**, 1964, 85 (510), 135-140.

McDonald, A.S. The placebo response in reading research. In new developments in programs and procedures for college-adult reading. **12th Yearbook of the National Reading Conference**, 1963, 12, 220-229.

Moody, P. **Introduction to evolution**. New York: Harper Row, 1962.

Mulligan, W.P. Patterning treatment for brain damage. **Journal of the American Medical Association**, 1968, 203 (7), 527.

Oettinger, L. Delacato in review: the theory from the standpoint of pediatrics. In M. Douglass (Ed.) **Claremont Reading Conference: 28th Yearbook**. Claremont, Calif.: Claremont Graduate School and Curriculum Laboratory, 1964, pp. 123-126.

Peiper, A. **Cerebral function in infancy and childhood**. New York: Consultants Bureau, 1963.

Perkins, F. Delacato in review: problems arising from assutations or assumptions of Delacato. In M. Douglass (Ed.) **Claremont Reading Conference: 28th Yearbook**. Claremont, Calif.: Claremont Graduate School and Curriculum Laboratory, 1964, pp. 110-123.

Robbins, M. **Influence of special programs on the development of mental age and reading**. Report of Project No. S-349. Washington, D.C.: Cooperative Research Branch, Office of Education, United States Department of Health, Education and Welfare, 1965.

Robbins, M. The Delacato interpretation of neurological organization. **Reading Research Quarterly**, 1966, 1 (3), 57-78.

Robbins, M. est of the Doman-Delacato rationale with retarded readers. **Journal of the American Medical Association**, 1967, 202 (5), 389-393.

Robbins, M., & Glass, G.V. The Doman-Delacato rationale: a critical analysis. In J. Hellmuth (Ed.), **Educational Therapy**, 1969, 2, 323-377.

Shirley, M. The first two years: a study of twenty-five babies, Vol. II: intellectual development. **Institute of Child Monograph Series**, 1. Minneapolis, Minn.: University of Minnesota Press, 1933.

Wepman, J. On claim and evidence. **Contemporary Psychology**, 1964, 9 (9), 351-352. (A review of Celacato, 1963).

'The nucleus of this paper is based upon Grimsrud, K„ Nesbit, W. & Peel, J. A critical review of Doman and Delacato theory and research. Unpublished paper, University of Alberta, 1971.

PART VI

Emerging Issues and Continuing Education (528-554)

THEORIES OF SOCIAL GERONTOLOGY

Amarjit Singh[1]
Educational Foundations

Introduction

What do we know about growing "old" in societies like Newfoundland and Canada? Population projections in Canada and other countries indicate that the number of persons over the age of 65 will increase substantially during the balance of this century. It has only recently been realized by many that the number of persons over the age of 65 is already impressive. This is clear from the following two tables:[2]

Table 1

Present and Future Proportions of Canadian Population Beyond Specific Ages

	Present (1971)	Estimated Future (2001)
Over 60 years	1:8 (12½%)	1:5 (20%)
Over 65 years	1:12 (8½%)	1:9 (11%)
Over 70 years	1:20 (5%)	1:13 (7½%)

Source: Census of 1971 for the Present; Population Projections for Canada and the Provinces, 1972-2001, Statistics Canada, Catalogue 491-514 (Ottawa, Information Canada, June 1974), passim.

Table 2

Canada's Population 65 years and over, 1971-2031 ("Projection B")

Year	Population 65+	Percentage of Total Population
1971	1,744,400	8.1
1981	2,272,300	9.3
1991	2,916,000	10.5
2001	3,341,800	10.9
2011	3,793,800	11.4
2021	4,984,500	13.9
2031	6,142,700	16.1

Source: "Health Services for the Elderly, Final Report of a Working Group of the Federal-Provincial Advisory Committee on Community Health (Ottawa, Health and Welfare Canada, August 1976), Appendix B, p. 8.

Projection B: Fertility Rate 2.2, Immigration 60,000, Interprovincial Migration 435,000.

In 1971 there were 32,075 persons of age sixty-five in Newfoundland. In 1977 (February) the number of pensioners in the Province was 37,500, i.e., 6.8 percent of the total population (548,789).[3]

The 1981 census for Canada is expected to show further increase in the population of people who are sixty and over; also the number of the elderly will increase in each of the provinces. It should be noted that total numbers are only one aspect of the situation; further aspects include breakdowns of data by sex, race, ethnicity, nationality, and social class. When this is done, the situation becomes more complex.

It is obvious that more and more people in Canada and elsewhere are living longer (i.e., are "old").° Thus, the important question is: What do we know about growing old in modern societies?

There are many prejudices and stereotypes about old age in our society because of the ideology of ageism - the prejudice or discrimination of one age group against another solely on the basis of age.

In all cultures people rely on chronological age to call someone old but, in fact, becoming old is a process involving the complex interweaving of biological, psychological, and social elements. Aging is a natural process starting at conception and ending with death. In each culture, stages of human development (childhood, adolescence, adulthood, and old age) acquire certain meanings and socially defined characteristics. That is, at each stage, an individual is looked at by others in certain ways, each stage carries certain images associated with preconceived roles and expectations.[5]

Gerontology is a field of study which focuses on the aged. It is a broad term and encompasses the study of the aged by many disciplines and professions and is derived from the logic of aging. Gerontologists are concerned with the well-being of the elderly.

Gerontology is not to be confused with geriatrics - the study of the medical aspects of old age.

The Ontario Council of Health in its report, Health Care for the Aged, 1978, notes twelve gerontological principles which we should all know. These are:[6]

1. The elderly are a heterogeneous group with a variety of lifestyles and needs. They differ from one another more than they do from the young and even more than the young do from each other.

2. As far as possible elderly people should have a choice in determining their living arrangements as they grow older. They should be afforded an opportunity to plan ahead, with the assistance of adequate counselling for those periods in life when major change may be required.

3. The great majority of older people are relatively healthy and are living at home. Most of them are not disabled, dependent or depressed.

4. Most older people have the desire and the potential to be productive, contributing members of society.

5. Human potential is not necessarily related to chronological age but much more related to such things as income, occupation. education and health.

6. There are different needs for health and social services between the "young-old" and the "old-old" and between elderly men and women.

7. Prevention of illnesses and accidents is always preferable to treatment and rehabilitation. It is not too late to begin to practice good health habits after the age of 65.

8. Most older people would prefer to be independent and to live in their own homes as long as possible.

9. Relocation of the elderly should be considered only when necessary and desirable and if required should be accompanied by social and psychological counselling and support.

10. Family support, accommodation and socio-economic factors are more important than health services in keeping the elderly independent.

11. Most older people feel that their condition in life is better than the greater public believes it to be.

12. Older people should always be given the opportunity of participating in- decisions affecting themselves.

Also, the Council in its report discusses the problem of education related to the elderly. The topics covered are: professional; education for secondary and post-secondary schools; education for para-professional; and continuing education and consultation.

The Council recommends among many things that available information regarding aging and the health problems of the aged "should be included in course material for all students, where appropriate, beginning with secondary schools and including colleges and universities. Such subjects as cell biology, growth and development, health and hygiene, sociology and social aspects of aging and development, demography and geography, appear particularly important" (p. 92).

With regard to continuing education and consultation, the Council notes that "There are already a good many persons in the health services professions and in the social services, working with elderly people or interested in doing so. Educational opportunities and specific information must be made readily available to such persons - who are already practising professionals - through courses, lectures, workshops, audiovisual materials, books and lectures by informed specialists, as well as access to informed consultants" (p. 93).

It is with these purposes in mind that this article is written. It is hoped that discussion of theories of social gerontology will be useful to teachers, social workers, nurses, doctors, medical students, continuing educators, families, policy makers, the elderly, and other people who are concerned with their well-being.

Theories of Social Gerontology

It is only recently that theories of social gerontology have been developed in certain industrialized societies and now are being transported and transplanted to other parts of the world, including Canada and Newfoundland. Ancient cultures like India and China have over the years produced elaborated theories of aging, death and dying. In many ways those ancient perspectives provide viable alternatives to modern gerontological thinking, in other ways complementing them. However, discussion of them is beyond the scope of this article.

Since the early 1960's, four major social theories of aging have become well known. In order of their development, they are: (1) disengagement theory, (2) activity theory, (3) developmental theory, and (4) symbolic interactionist theory.

1. **Disengagement Theory**

This theory was developed by Cumming and Henry (1961), Cumming (1974), and Henry (1964). The theory points out that it is mutually beneficial for the aging individual and society to withdraw from each other. Withdrawal is seen as intrinsic to the process of aging. Disengagement serves certain functions in society; it prepares society for the replacement of its members when they die in old age. On the other hand, the process of disengagement is said to be helpful to individuals in preparing for his or her own death (Cumming and Henry, 1961).

In other words, the underlying idea is that in his/her early years of life an individual is involved in productive and useful social roles, thus serving the need of society. There are limited roles and positions in society which serve certain functions. These roles and positions must be allocated to the most suitable individuals in society. It is believed that in the later years of life the individual is unable to perform those roles in a productive and efficient way owing to various physiological, psychological and social reasons. Therefore, he should willingly move away from those roles so that others, who are more productive and efficient, could replace him or her. This would be good for the elderly, as well as for the young and the society as a whole.

The proposition of mutual disengagement was based on a cross-sectional survey analysis of 275 people ranging in age from 50 to 90, all of whom resided in Kansas City and were physically and financially self-sufficient. The authors (Cumming and Henry, 1961) refer to the aging process as:

> ... an inevitable mutual withdrawal or disengagement, resulting in decreased interaction between the aging person and others in the social system he belongs to. The process may be initiated by the individual or by others in the situation. The aging person may withdraw more markedly from some classes of people while remaining relatively close to others. His withdrawal may be accompanied from the outset by a preoccupation with himself; certain institutions in society may make this withdrawal easy for him. When the aging process is complete, the equilibrium which existed in middle life between the individual and his society has given way to a new equilibrium characterized by a greater distance and an altered type of relationship.

Disengagement theory has many social implications. For example, mandatory retirement (Cohen, 1976) and other government policies that encourage disengagement by restricting the involvement of the elderly in society draw their rationale from this theory. The same rationale is used to exclude "the elderly from the mainstream of society by arguing that mutual withdrawal benefits both the individual and society and that society should not intervene in the aging process and thereby inhibit the natural disengagement of the individual from society (Estes, 1980, p. 8)."

What implications does this kind of thinking have for social services? The implications are that social services to the elderly should not be provided automatically; that if they are provided at all, they should encourage the elderly to withdraw from society rather than seek to revitalize them.

From the onset, disengagement theory generated controversy among social gerontologists and since then has been criticized on various grounds. First of all, the critics pointed out that the processes that are considered intrinsic and inevitable to the aging processes are also a consequence of the social and normative aspects of aging (Maddox, 1972; Hochschild, 1975; 1976). Maddox (1964), and Atchley (1971) raised questions about the functionality of withdrawal from either the individual or societal standpoint. They pointed out that the theory pays inadequate attention to personality factors and their effect on the whole process of aging. No relationship between the following variables were found: age and disengagement when such variables as involuntary role loss through widowhood, retirement, and poor health were controlled (Tallmer and Kutner, 1969); age and high morale or life satisfaction when disengagement occurred through loss of roles (Havighurst, 1963; Neugarten, Havighurst, and Tobin, 1963). Hochschild (1975, 1976) and Cutler (1976) contend that engagement/disengagement patterns of the elderly can best be explained by taking into account the "opportunity structure" for participation, and other noncronological, social aspects of aging. Their views are supported by studies carried out by Carp (1968), and Roman and Taietz (1967).

2. **Activity Theory**

Old age is a socially prescribed stage of life. Older people are expected to experience a narrowing of the social roles and activities which have been central to their lives for years. Losses of previous roles, positions, and status are usually accompanied, at least in an adjustment period, by varying levels of anxiety, confusion, and fear. This transitional state is often threatening to one's self-concept; one's previous ways of legitimating and validating day-to-day life is questioned in this period.

In view of these observations, activity theory proposes just the opposite of disengagement theory to offset these losses in morale, self-concept, roles, status and positions.

It holds that a high level of social activity results in high morale, well-being and life satisfaction (Havighurst and Albrecht, 1953; Havighurst, 1963; Havighurst et al., 1969; Maddox, 1970; Palmore, 1970). Like middle age activity patterns, activity in one's old age is essential to successful aging (Schooler and Estes, 1972). It is presumed that older people are aging successfully if they continue or replace their social involvement - in their later years of life. Blau (1973) summarizes the central thesis of activity theory as: "...the greater the number of optional role resources with which the individual enters old age, the better he or she will withstand the demoralizing effects of exit from the obligatory

roles ordinarily given priority in adulthood." Hendricks and Hendricks (1977, p. 111 -12) isolate four postulates central to activity theory. These are: "First, the greater the role loss, the less the participation in activity. Second, as activity levels remain high, the greater the availability of role support for role identities claimed by older persons. Third, the stability of role support insures a stable self-concept. Finally, the more positive one's self-concept, the greater the degree of life satisfaction."

What are social and policy implications of this kind of thinking? One implication is that, to be adjusted, one should keep trying to maintain middle-age life-styles as long as possible and deny the existence of old age. In the realm of policies, the theory calls for policies that focus on socialization and social integration of older people, suggesting that recreational programs and other such activities will accomplish these goals.

The criticism of activity theory is that "it says nothing about what happens to people who cannot maintain the standards of middle age" (Atchley, 1972, p. 35). It treats older people as a homogeneous group, ignoring the fact that older people belong to various social groups and classes. Data show that those people who remain active and healthy are also better educated and have more money and alternatives than those who are less active and unhealthy. Also, not all passive, disengaged older people are unhappy; some other people who maintain a high activity level are unhappy. The theory is further criticized because it does not pay enough attention to various combinations of factors in the larger social environment that condition activity patterns in old age. Some of these factors are social structure, historical context, interactional encounters, and opportunity structure.

3. **The Developmental or Life Cycle Theory**

This theory emphasizes the psychological or personality aspects of the aging process. One of its basic assumptions is that people are different and have their own personalities and styles of living (Neugarten, et al., 1964; Lowenthal, 1975). Growing old successfully means that one is able to maintain a mature and integrated personality. The adaptability of older people to the situations faced in later life is the basis of life satisfaction. Personality theorists assert that:

> There is considerable evidence that, in normal men and women, there is no sharp discontinuity of personality with age, but instead an increasing consistency. Those characteristics that have been central to the personality seem to become even more clearly delineated, and those values the individual has been cherishing become even more salient. in the personality that remains integrated - and in the environment that permits - patterns of overt behavior are likely to become increasingly consonant with the individual's underlying personality needs and his desires. (Newgarten, Havighurst and Tobin, 1968)

Some adherents of the theory argue that there are no common normative standards to grow old; that individuals gain a greater sense of freedom as they grow old; that older people do what they want and care less about what others think, and therefore that there are many ways of growing old.

What are the policy implications of this kind of thinking? Estes (1980, p. 8) points out that policy based on this theory "...could rationalize the continuance of laissez-faire approaches to problem solving. A logical extension of this idea might be that concerted

policy interventions are unnecessary or not feasible because of the multiple variations in the aging processes of different individuals."

One of the criticisms of this theory is that it places little emphasis on the role of external social factors in modifying the aging process; it focuses primarily on the individual as the unit of analysis (Atchley, 1972).

4. **Symbolic Interactionist View on Aging**

The symbolic Interactionist perspective emphasizes that people attach different meanings to old age; that they experiencee old age in varying ways depending upon their interactions with other people; and that the interactional context and process (the environment, the persons, and encounters in it) can significantly affect the kind of aging process a person will experience (Rose and Peterson, 1965; Trela, 1971; Gumbrium, 1973). Many of the changes which are attributed to inherent maturational changes may in fact be due to changes in the interactional variables. The importance of social context, cultural meanings, and values to aging process is emphasized. All these factors are seen as dynamic rather than universal or unchanging. Disengagement, low self-esteem, and dissatisfaction are seen as an outcome of the interpretation and meanings generated in interaction between the aged and others. Noting that participants vary in their commitments and the importance they attach to different issues and interactions, the symbolic interactionist perspective emphasizes the diversity of outcomes (Hall, 1973). For example, individuals of different social, economic, ethnic and racial backgrounds have different interests that may affect how they experience and react to aging.

Some of the criticisms of this perspective are that it does not adequately recognize that not all participants equally influence the encounter, and that there are social and structural constraints which impede interactional opportunities, affecting the content of interactional communication (Lichtman, 1980; Mueller, 1973; Colfax and Roach, 1971). With few exceptions, it is generally believed that interactionists have shown little interest in studying power as crucial variable in social interaction.

What are policy implications of this kind of perspective? This perspective paints an optimistic view of the aged. It emphasizes no rigid behavior, activity patterns, or experience. Instead, it focuses on the ability and imagination of people to negotiate new ways of coping with old age in the course of interactional encounters. The emphasis is both on environment and individual. Thus, one policy concern might be on interventions that seek to modify environmental constraints, e.g., the elimination of age discrimination in employment; another might be directed to the needs of the individual, such as old-age pension.

Emerging Theories

There are some other emerging theories in social gerontology. These are: age stratification theory, and theories developed within the frameworks of ecological and social environmental models (e.g., the social breakdown theory). I shall discuss them in another paper.

Policy Implications

There are many agencies and people who are interested in designing programs to help the elderly and their families. A program may have many objectives. For example, the main objectives of a program may be to: (1) provide information about aging in order that the family members of an older person can better understand him/her as well as gain insight into their own aging process, (2) provide mutual support and understanding through various intervention techniques, and (3) facilitate problem solving around issues in the relationship with an elderly member in the family.

In order to achieve various objectives different approaches can be combined. For example, educational and therapeutic approaches can be combined to achieve the above objectives.

The educational component may consist of providing basic information on aging; while the therapeutic component may include providing opportunity for family members to share their experiences with others in group settings.

I hope this paper can be used as an educational component to some programs designed to help the elderly.

NOTES

1. Dr. Amarjit Singh specializes in the areas of gerontology, health, sociology, education, and cross-cultural studies. He has been teaching at Memorial University, St. John's, Newfoundland, since 1970, and is now Associate Professor.

2. See, Health Care for the Aged, Report of the Ontario Council of Health, 1978.

3. See, Rowe, A.T. et.al. Assessment of Needs of the Elderly in the Province of Newfoundland. Department of Family Practice, Faculty of Medicine, Memorial University, June, 1977, p. 57.

4. There has emerged a simple series of terminology which indicates specific use of the term elderly. That is, people who are 65-74 years of age are labelled as "young old"; those who are 75-84 years of age as '"middle-old"; and those who are 85 years of age and over as "old-old". It is estimated that "During the balance of the century the percentage increase among persons 85 years of age and over will greatly exceed increases among those who are 75-84 years of age and those who are 65-75 years of age." (See, Health Care for the Aged..., Ibid., p. 1). This way of looking at the elderly will have profound implications for social policies in the future.

5. For example, young children are expected to sleep at certain time, parents expect teen-age boys and girls to return home at some fixed time, adults are expected to work hard and earn money, and older people are expected to be wise and compassionate.

6. Adapted from "Health Services for the Elderly'", Final Report of a Working Group of the Federal-Provincial Advisory Committee on Community Health, August 1976, p. 9.

BIBLIOGRAPHY

Atchley, R.C. **Social Forces in Later Life**. Belmont, Calif.: Wadsworth, 1972.

_____ "Disengagement Among Professors." **Journal of Gerontology**, XXVI, 4 (1971): 476-80.

Blau, Z S. **Old Age in a Changing Society**. New Yorker New Viewpoints a division of Franklin Watts, Inc., 1973.

Carp, F. M. "Person-Situation Congruence in Engagement." **Gerontologist**, 1968, 8, 184-188.

Cohen, E.S. "Comment on 'Aging in America: Toward the Year 2000.'" **Gerontologist**, 1976, 16, 270-275.

Colfax, J.D., and Roach, J.L. (Eds.). **Radical Sociology**. New York: Basic Books, 1971.

Cumming, E. "Further Thoughts on the Theory of Disengagement." United Nations Educational, Scientific, and Cultural Organization, **International Social Science Journal**, 1974, 15, 377-393.

Cumming, E., and Henry. W.E. **Growing Old: The Process of Disengagement**. New York: Basic Books, 1961.

Cutler, N.E. "Resources for Senior Advocacy: Political Behavior and Partisan Flexibility." In P.A. Kerschner (Ed.), **Advocacy and Age**. Los Angeles: University of Southern California Press, 1976.

Estes, C.L. **The Aging Enterprise: A Critical Examination of Social Policies and Services for the Aged**. San Francisco. Jossey-Bass Publishers, 1980.

Gubrium, J.F. (Ed.). **The Myth of the Golden Years**. Springfield, III.: Thomas, 1973.

Hall, P.M. "A Symbolic Interactionist Analysis of Politics." In A. Effrat (Ed.), **Perspectives in Political Sociology**. Indianapolis: Bobbs-Merrill, 1973.

Havighurst, R.J. "Successful Aging." In R. Williams, C. Tibbitts, and W. Donahue (Eds.), **Processes of Aging**. New York: Atherton, 1963.

Havighurst, R.J., and R. Albrecht. **Older People**. New York: Longmans, Green, 1953.

Havighurst, R.J., J.M.A. Munnichs, B. Neugarten and H. Thomae. **Adjustment to Retirement**. Assen, The Netherlands: Van Gorcum & Comp. N.V., 1969.

Health Care for the Aged. **A Report of the Ontario Council of Health**. Toronto, 1978.

Hendricks, J. and Hendricks, C.D. **Aging in Mass Society: Myths and Realities**. Cambridge, Massachusetts: Waithrop Publishers Inc., 1977.

Henry, W. "The Theory of Intrinsic Disengagement." In P.F. Hansen (Ed.), **Age with a Future**. Philadelphia: Davis, 1964.

Hochschild, A.R. "Disengagement Theory: A Logical, Empirical, and Phenomenological Critique." In J.F. Guberman (Ed.), **Time Roles and Self in Old Age**. New York: Human Sciences Press, 1976.

Lichtman, R. "Symbolic Interactionism and Social Reality: Some Marxist Queries. **Berkeley Journal of Sociology**, 1970, 15, 75-94.

Lowenthal, M.F. "Psychosocial Variations Across the Adult Life Course: Frontiers for Research and Policy." **Gerontologist**, 1975, 15 (1), 6-12.

Maddox, G.L. "Sociological Perspectives in Gerontology Research." In D. Kent, R. Kastenbaum, and S. Sherwood (Eds.), **Research, Planning, and Action for the Elderly**. New York: Behavioral Publications, 1972.

Maddox, G.L. "Disengagement Theory: A Critical Evaluation. **The Gerontologist** IV, 2 (1964): 80-82.

_____ "Themes and Issues in Sociological Theories of Human Aging." **Human Development**, XIII, 1 (1970): 17-27.

Mueller, C. **The Politics of Communication**. New York: Oxford University Press, 1973.

Neugarten, B.L., Havinghurst, R.J., and Tobin, S.S. "Personality and Patterns of Aging." **Geswin**, 1963, 13, 249-256.

Neugarten, B.L., and others (Eds.). **Personality in Middle and Late Life**. New York: Atherton, 1964.

Palmore, E., ed. **Normal Aging**. Durham, N.C.: Duke University Press, 1970.

Roman, P., and Taietz, P. "Organizational Structure and Disengagement: The Emeritus Professor." **Gerontologist**, 1967, 7, 147-152.

Rose, A.M., and Peterson, W.A.(Eds.). **Older People and Their Social World**. Philadelphia: Davis, 1965.

Schooler, K.K., and Estes, C.L. "Differences Between Current Gerontological Theories: Implications for Research Methodology." In D. Kent, R. Kastenbaum, and S. Sherwood (Eds.), **Research, Planning, and Action for the Elderly**. New York: Behavioral Publication, 1972.

Tallmer, M., and Kutern, B. "Disengagement and the Stresses of Aging." **Journal of Gerontology**, 1969, 24, 70-75.

Trela, J.E. "Some Political Consequences of Senior Center and Other Old Age Group Memberships." **Gerontologist**, 1971, 2, 118-123.

SOME DOMINANT VIEWS OF THE ELDERLY, THEIR FAMILIES AND CARING FOR THE AGED IN OUR SOCIETY

Amarjit Singh
Educational Foundations

INTRODUCTION

This paper is written within a social gerontological perspective. It is hoped that information provided here will be useful, especially to adult educators. Other people such as teachers, social workers, nurses, doctors, medical students, families, policy-makers, administrators, the elderly, and those who are concerned with their well-being may also find this article useful.

Gerontology is a broad term and encompasses the study of the aged by many disciplines and professions, and is derived from the logic of aging. Several theories of social gerontology were discussed by the author in the previous issue of **The Morning Watch**.'

In that paper, it was mentioned that there is growing consensus on the point that education related to the elderly "should be included in course material for all students, where appropriate, beginning with secondary schools and including colleges and universities.[2]

The reason behind this is that population projections in Canada and other countries indicate that the number of persons over the age of 65 will increase substantially during the balance of the century, and that this change in population structure will have serious implications for the economic, social, and political lives of people of all ages everywhere.

Also, in the previous paper, it was pointed out that there are many agencies and people who are interested in designing programs to help the elderly and their families. A program may have many objectives, and in order to achieve various objectives, different approaches can be combined, e.g., educational and therapeutic approaches. The educational component may consist of providing basic information on various topics related to aging, society, and the aged.

This paper, like the first one, can be used as an educational component. It is organized in the manner indicated below.

First, I present a general perspective which sheds light on issues such as the social construction of reality, labelling of the aged, resistance by the elderly to labels applied to them, and social policies designed to care for the elderly.

Secondly, some of the social myths pertaining to the relationship between the elderly and their families are briefly discussed. Within this context, community (e.g., homecare) and institutional care of the elderly is explored, especially as it relates to the role of families as care giving agents.

Finally, the main ideas are summarized and a conclusion is reached.

A GENERAL PERSPECTIVE

Social Construction of Reality

The success or failure of any social policy or program is socially constructed. What this means is that social definition of reality is an emerging process; it emerges from knowledge which is socially generated. Social generating of knowledge involves the ordering and interpretation of facts that are gathered by proclaimed experts and authorities who possess status and authority. Eventually, some aspects of socially produced knowledge become widely shared and are institutionalized as part of the "collective stock of knowledge." Definitions of realities are based upon this widely shared knowledge. Estes points out that "this knowledge", in turn, "heavily influences both the perception of social problems and ideas and how to deal with them. It is in this sense that the aged have only the social problems that have been 'given' them by society.[3] Essentially, then, socially constructed policies and programs are based on our attitude toward the aged, as well as our political, economic, and social structure.

If we assume that the above perspective is valid, then some important questions that should concern us are these: What are the dominant views of the aged in our society? What models have been developed to portray the elderly? What functions do these models serve? Do we need alternative ways of viewing the elderly? How do these models view the relationship between the elderly and their families?

Dominant Perspectives About the Aged

Kalish[4] talks about ageism, new ageism, and failure models. These terms give us some idea about dominant perspectives about the aged in our society.

According to Kalish, there are groups of people in our society who want to protect the elderly from the people (i.e., ageists) who believe in the ideology of ageism. However, in attempting to safeguard the elderly from the so called ageists, these groups produce their own ideology the new ageism, which is simply another form of ageism.

The term ageism is used as a counterpart to racism and sexism. The underlying idea in the application of the term ageist, "is that ageist individuals and ageist societies or communities or organizations exist," and therefore, the elderly need to be protected. Kalish summarizes the views of ageists as follows:

> Ageists...express overt and covert dislike and discrimination regarding the elderly. That is, they avoid older persons on an individual level, they discriminate against older persons in terms of jobs, other forms of access to financial support, utilization of social institutions, and so forth. Further, the ageist individual derides the elderly through hostile humor, through accusations that the elderly are largely responsible for their own plight, and through complaints that they are consuming more than their share of some particular resource. They may also contend that older people deserve what they get, are, in effect, a drain on society, are functionally incapable of change or improvement (or, conversely, are capable of change and improvement and should be required to do so with their present resources), and do not contribute adequately to the society from which they are taking

> resources. Ageism involves stereotyping, prejustice, discrimination, segregation, hostility ... the list can go on and on," (p. 398).

And the new ageism, Kalish points out, has the following characteristics:

(1) It stereotypes "the elderly" in terms of the characteristics of the least capable, least healthy, and least alert of the elderly, although its rhetoric is punctuated by insistence that "all elderly are not like."

(2) It perceives the older person as, in effect, a relatively helpless and dependent individual who requires the support service of agents and other organizations.

(3) It encourages the development of services without adequate concern as to whether the outcome of these services contributes to reduction of freedom for the participants to make decisions controlling their own lives.

(4) It produces an unrelenting stream of criticism against society in general, and certain individuals in society; for their mistreatment of the elderly, emphasizing the unpleasant existence faced by the elderly. (p. 398).

The New Ageism and the Failure Models

The new ageism ideology discussed above is reflected more pervasively in the Failure Models. In general, these models claim "that this or that older person has failed or is going to fail." This message is communicated through two related but very different models: (1) the Incompetence Model, and (2) the Geriactivist Model.

Kalish explains that the Incompetence Model is:

> ... an approach that constantly reminds older people how incompetent they are...
>
> [It] has been developed in part as a tactic to get funding from governmental and private agencies. In effect, it is the ability to say "those persons for whom I am advocate are greater failures than those persons for whom you are advocate. They are such great failures that the only solution to their failure is more money.- (p. 399).

On the other hand, within the framework of the Geriactivist Model, some older people are, themselves, active in the causes of the elderly. Kalish points out that:

> [the older people] develop a symbiotic relationship with younger advocates, and together they maintain the call for an active and involved old age. The Geriactivist needs the younger associates who have jobs in the community and who can participate in making decisions; the younger advocates - social workers, recreation workers, agency staff, politicians - need the activist older person as both a source of inexpensive support labor and to legitimize the activist position. (p. 399).

There are other existing models in our society that have been used to describe the nature of aging. These are the Pathology Model, The Decremental Model, The Minimal Change Models, The Normal Person Model, and a Personal Growth Model.[5]

Resisting the Label or the Attribute "Old"

Although social gerontologists and social geriatricians have made considerable use of the term ageism, there is growing resistance in certain segments of society and the scientific community to messages contained in the failure models discussed on the previous page and to the ageist's perception of older people, since these messages seem to have undesirable effects on the elderly, their families, and society at large.

The criticism of the Failure Models that is often mentioned in social gerontological literature is that these models obscure individual and group differences in the elderly, and ignore the fact that most of the elderly are intact, functioning effectively on their own, and getting along adequately on what money they have. Further, the definition of "the elderly" implicit in these models is based on sickness and poverty, rather than on chronological age. Moreover, it is stressed that messages contained in these models are damaging to the self-esteem of older persons; that each older individual: takes the attitude that the attribute "old" describes "those old people over there," but not him or her; mat these models generate simultaneously anger among the elderly with their families, themselves, and society; that the older person comes to think of herself/himself as impotent, powerless, and victimized, and that he/she feels obliged to redouble his/her efforts which will lead to the assuaging of discomfort; that those older persons who desire to enjoy a passive entertainment, to respond to their inner worlds, to sit around and talk with elderly friends, to stay at home and read, to pray or jog by themselves, and who thoroughly enjoy television, are, by definition, considered unhealthy.

The conservative role of social sciences in gerontological theorizing has been recognized by the Gray Panthers who have often bitterly criticized the profession of gerontology: "Gerontology has assured the deterioration of the aged, and has attempted to describe it in terms which ignore the social and economic factors which, in large measure, precipitate that deterioration. By rectifying the attribute 'old', gerontology reinforces social attitudes which view older people as stuck in an inevitable, chronological destiny of decay and deterioration. When persons who are old, poor, and stigmatized by society become objects of gerontological research, they are seen as problems to society, rather than as persons experiencing problems created by the society. The natural result of such research is to suggest ways in which older people may adjust to society, rather than how society might be changed to adjust to the needs of older people.[6]

Social Policies For Caring For The Elderly

Much of the gerontological research has been done in the United States. Although the Canadian experience in this area is growing, many social policies and programs related to the care of the elderly are based on research done south of the Canadian border.

Estes[7] points out that much of the gerontological research done in the United States does not support social policies that might substantially change the distribution

of resources in favor of the aged. After an impressive review of gerontological literature, she arrived at the following conclusions regarding social policies for the care of the elderly:

1. America's social policies for the aged are structurally segregated particularistic policies that tend to separate the old from others in the society (p. 228).

2. Social policies for the aged in the United States are characterized by policy segmentation and organizational constraint (p. 231).

3. America's social policies for the aged predominantly fall into a services strategy that aids in the maintenance of social harmony and the preservation of existing social-class instructions (p. 233).

4. The services strategy has serious implications for America's aged because it fosters unequal power relationships between recipients and providers of services (p. 234).

5. Social policies under consideration for the 1980's will continue the trend toward indirect service (p. 236).

A review of the literature indicates that social policies reflect dominant perspectives about the aged discussed above. There are many factors affecting the role and status of the elderly in our society. Politics, economics, and social structure are among the most important factors, perhaps more important than the aging process and its effect on the individual older person. Economic policies relating to employment and retirement and the role of special interests in the policymaking process have tremendous influence on the life chances of an individual person. Further, extreme fragmentation of policy-making responsibilities are scattered among federal, provincial, county, city, regional, and special district jurisdictions and authorities. This fragmentation of policy-making also affects the role and status of the elderly in our society. Estes[8] points out "that aging is something that is done to the chronologically old." In Comfort's words, aging "is not a biological transformation ... it is a political transformation.[9]

In the gerontological literature, it is now widely recognized that these and other policies are largely symbolic, that they are not meeting the needs of the aged and their families, that they tend to segregate the aged, often with the poor as a special class within society, and that the policies are often more beneficial to the providers of services than to the aged. Within this context, many professionals, researchers, planners, policy-makers, politicians, and community groups are raising questions pertaining to the alternative ways for caring for the elderly in our society.

The role of the family as a social support system in old age is being reconsidered as a viable alternative to extensive institutionalization of the elderly in our society.

However, there are many social myths that serve to obstruct our understanding of old persons and their families. Some of these social myths are discussed next.

The Family is Still Important in Caring for the Elderly

Basic to the formulation of social policies and programs for the elderly,. has been the notion that they are in need of services.

Historically, in industrialized societies, institutionalization of the elderly emerged as a dominant way of meeting their various needs.

It is now being recognized in many industrialized countries (in less industrialized countries, institutionalizing any elderly person would be almost unthinkable) that the elderly have been over-institutionalized. Schwenger and Gross point out that "Canada has one of the highest rates of institutional care and institutionalization of its aged of any country in the world.[10]

The federal and provincial governments are very concerned about the future cost of institutional care. But merely curbing the supply of institutional services is not the full answer.

However, it remains true that for a small segment of the population, institutionalization contributes to the well-being of the residents (i.e., it serves positive welfare functions).

In view of these facts, the government, policy-makers, planners, and others are emphasizing the need to develop many more "alternative" or "complementary" services to supplement the institutional care of the elderly in our society. The dual approach - the reduction of institutional care and the promotion of alternative programs (e.g., periodic admission, vacation care day hospitals, day care, foster care, hostels, and home care, etc.) - are being considered as a realistic way to deal with this situation."

It is important to note that both institutional care and alternative care, e.g., home care, cannot be effective without the participation of the family; families are still responsible, care-giving agents, who provide substantial physical, emotional, and social support to their ill, elderly relations. Moreover, the home is cherished by most older persons because home familiarity helps them to maintain their autonomy, control, and identity.

However, there are some social myths which distort relationships between older persons and their families. According to Shanas,[12] one of the social myths widely held in American society (and, by implication, also in most industrialized societies, including Canada) is that "old people are alienated from their families, particularly from their children. All sorts of theories have been proposed to justify this myth, including those theories which stress the value of the nuclear family in industrial society. Proceeding from the assumption that this myth is 'true', there has also been a special emphasis on programs to meet the needs of the alienated aged, who, in keeping with the myth, are assumed to be the majority of the aged." Further, "the myth that old people are alienated from their families and children has guided much of social gerontological research about the elderly for the last 30 years" (p. 3). Based on their myths, many hypotheses have been drawn. Some of these are:

1. Because of the geographic mobility of the population of the U.S., most old people who have children live at great distances from their children;

2. Because of the alienation of old people from their children, most older parents rarely see their children;

3. Because of the predominance of the nuclear family in the U.S., most old people rarely see their siblings or other relatives; and

4. Because of the existence and availability of large human service bureaucracies, families are no longer important as a source of care for older people (p. 6).

Shanas points out that "these hypotheses all seem reasonable... [but] despite what everyone knows, each of the above hypotheses has been disproved. In the U.S., most old people with children live close to at least one of their children and see at least one child often. Most old people see their siblings and relatives often, and old people, when either bedfast or housebound because of ill health, are twice as likely to be living at home, as to be resident in an institution," (p. 6).

As mentioned earlier, there is no doubt that for a small segment of older persons, institutionalization contributes to their well-being. However, there are many negative images or myths that are associated with long-term. institutional care for the elderly. Smith, et. al.'[3] point out that "of these, perhaps none is more pervasive than institutionalization symbolizing the failure of family support to an aged member," and that "accompanying the negative images of long-term-care institutions is the negative image of the elderly persons who are residents or patients in these institutions." (p. 438).

Negative images of the elderly who are residents or patients in an institution characterize them as depressed, unhappy, intellectually ineffective, possessing a negative self-image, docile, submissive, and having low interest in their surroundings. Such images accompany negative images of tong-term-care institutions, which are generally viewed as "houses of death." Similarly, some elderly and their families come to believe in these negative images of institutions. Consequently, when an older person begins genuinely to require support and assistance, institutional care is often seen as the least desirable alternative by them. According to Smith, et. al.,[15] "it has become difficult to extract any positive aspects of long-term institutional care, especially when considering the family in relation to institutionalization of an older family member. It is frequently assumed that those in institutions have been abandoned by their families, or that the families failed in their role of service-provider; that the elderly who reside in long-term-care institutions have strained family ties then becomes a widespread notion that fits into the general area of negative attitudes about institutions and those they attempt to serve" (p. 438).

However, the recent research literature of the family does not seem to confirm the notion of family breakdown. On the contrary, there is evidence that the relationship between institutionalized elderly parents and their middle-aged children tends to improve following institutionalization of older parents. That is, "data suggest that institutional care can serve to enhance family relations, particularly when family ties have been strained by the needs of the older members.[16]

The negative images about the family, institutional care, and the elderly that are so prevalent in society, seem to be due to our failure to question assumptions underlying these images. Different ways of looking at institutional care may provide us with positive and balanced images of institutionalization. For example, using the bureaucratic and social-welfare models, Penning and Chappel[17] provide a critique of the assumption of

unidimensionality underlying these perspectives. They argue "that the complexity and variation among institutional settings for the elderly necessitate a multidimensional approach to adequately reflect the nature of their experience" (p. 269). Their way of looking at institutional care seems to be more positive and meaningful. Penning and Chappell sensitize us to the fact that "facilities for the aged ... vary widely in terms of the population which they are designed to serve.. [that] the service orientation of the various types of settings is more specific,.. .[that] the levels of care provided by institutions for the elderly also vary..." (p. 271). Further, their interpretation of research in their area suggests "that institutions for the elderly are not inherently 'good' or 'bad' in themselves. However, environments which do not maintain autonomy and social interaction for their residents will not provide accommodation satisfactory for well-being. A custodial and caring approach which develops dependence rather than independence will not achieve this goal either ...However, to the extent that institutions provide an environment which will maintain or enhance a high quality of life... data suggest they can be 'good' " (p. 279).

The main point is that the concern should be with "quality care" and not merely with the nature of institutional life as such. Moreover, it needs to be recognized that the search for alternatives to institutional care has been primarily motivated by a desire to save money. This overriding concern with saving money has meant, in reality, that there has been very little or no room left to talk meaningfully about 'good' nursing homes or 'bad' nursing homes.

As discussed earlier, the elderly are not a homogeneous group of people, and for some older persons, institutional care is extremely functional. Similarly, not all families want to get rid of their elderly, but for some families, institutionalization of their elderly does provide a realistic and legitimate way of obtaining relief. All this does not mean that family solidarity has been broken down, or that the elderly are alienated from their families.

Summary and Conclusion

This paper is written with the purpose of providing information about the elderly, their families, and the effective care of the elderly in our society. Thus, it can be used as an educational component in various kinds of programs, such as those in adult or continuing education. The paper points out that the definitions of the problems that have been associated with the elderly in our society are socially constructed. That is, these definitions are based on the ""collective stock of knowledge" which is widely shared. Further, this ""shared knowledge" heavily influences both the perception of social problems and ideas, and of methods of dealing with them. The dominant perspectives - Ageism and New Ageism - which emerge out of the existing "shared knowledge" view older people negatively. In general, older people are seen as stuck in an inevitable, chronological destiny of decay and deterioration and as doomed to fail. However, there is a growing resistance in certain segments of society and the scientific community to these negative images attributed to the elderly. It is now being increasingly realized that many older persons are intact, functioning effectively on their own, and getting along adequately on what money they have. Social policies designed to meet the needs of older persons reflect dominant perspectives about the aged. There are many other factors - politics, economics, social structure-affecting the role and status of the elderly in our society. Current policies in the United States and Canada do not seem to be able to change substantially the distribution of resources in favor of the aged. It is now widely recognized that many policies dealing with the problems of the elderly are largely

symbolic and are inadequate to meet the needs of the aged and their families. Moreover, it is being said that the policies are costly and often more beneficial to the providers of services than to the aged. This has led many professionals, planners, politicians, etc., to raise questions pertaining to alternative ways of caring for the elderly in our society. The role of the family as a social-support system in old age is being reconsidered as a viable alternative to extensive institutionalization of the elderly in Canada and the United States. However, it is also recognized that for a small segment of the older population, institutionalization contributes to their well-being and thus is a realistic and viable alternative. The important point is that both institutional care and alternative care, e.g., home care, cannot be effective without the participation of the family. There are many negative images about the family, institutional care, and the elderly that are prevalent in our society. Among the most prevalent images in our society are that old people are alienated from their families and children, and that institutions for the care of the elderly are nothing but "houses of death". These negative images are offset by recent research which indicates that most old people with children live close to at least one of their children and see at least one child often, that the relationship between institutionalized elderly parents and their middle-aged children tends to improve following institutionalization of older parents, and that there are ""good" and "bad" institutions, depending upon the type of environment and social interaction they maintain. In conclusion, some of the most important points to remember are that the experience of old age depends largely upon how others react to the aged; that social context and cultural meanings are crucial influences on this experience, and that effective social policies cannot be developed without radically altering our perceptions of old age and aging in our society.

Bibliography

1. See, Amarjit Singh. "Theories of Social Gerontology," in Vol. 9, No. 1, 1981, pp. 34-43.

2. See, Health Care of the Aged. A Report of the Ontario Council of Health. Toronto, 1978, p. 92.

3. Estes, C.L. The Aging Enterprise: A Critical Examination of Social Policies and Services for the Aged. San Francisco. Jossey-Bass Publishers, 1980.

4. Kalish, R.A. "The New Ageism and the Failure Models: A Polemic," **The Gerontologist**, Vol. 19, No. 4, 1979, pp. 398-402.

5. These models are discussed by Kalish, **Ibid**.

6. Gray Panthers. Pamphlet distributed at the Annual Meeting of the Gerontological Society, San Francisco, November, 1977. Quoted in Estes, C.L., op. cit., p. 226.

7. Estes, C.L., op. cit.

8. **Ibid**., p. 227.

9. Comfort, A. "Age Prejudice in America." **Social Policy**, 1967a, Vol. 7, No. 3, pp. 38. Quoted in Estes, C.L., **Ibid**., p. 227.

10. Schwenger, C.W. and Gross, M.J. "Institutional Care and Institutionalization of The Elderly In Canada," in V.W. Marshall (ed). **Aging in Canada: Social Perspective**. Don Mills: Ontario. Fitzhenry and Whiteside Limited, 1980, p. 256.

11. See Schwenger and Gross. **Ibid.**, p. 255.

12. Shanas, E. "Social Myth as Hypothesis: The Case of the Family Relations of Old People," **The Gerontologist**, Vol. 19, No. 1, 1979, pp. 3-9.

13. Smith, K.F. and Bengtson, V.L. "Positive Consequences of Institutionalization: Solidarity Between Elderly Parents and Their Middle-Aged Children," **The Gerontologist**. Vol. 19, No. 5, 1979, p. 438.

14. Butler, R.N. **Why Survive? Being Old in America**. New York: Harper & Row, 1975.

15. Smith, **et. al.**, op. cit., p. 438.

16. **Ibid**.

17 Penning, M.J. and Chappell, N.L. "A Reformulation of Basic Assumptions About Institutions For The Elderly," in V.W. Marshall, op. cit., pp. 269-280.

PARTICIPATING IN CONTINUING EDUCATION

Donna M. Spalding
Division of Social Sciences, U.N.B.

Wilfred B.W. Martin
Institute for Research in Human Abilities
Department of Educational Foundations, M.U.N.

PARTICIPATING IN CONTINUING EDUCATION

Several reasons why adults continue their education have been addressed in the literature. For example, Beer (1980) focuses on the personal satisfaction derived from study and the practical benefits as measured in employment opportunities. Curiosity, interest, enjoyment, practical concerns and obtaining credit have been identified by Tough (1979) as important reasons for adult learning. This paper draws on data collected by means of a survey questionnaire completed by 643 participants in continuing education courses offered through the Extension Department of the University of New Brunswick and through the New Brunswick Community College. By isolating the reasons students give for their involvement in adult education, it becomes apparent that the phenomenon of education emerges as an important reference point in itself.

Reasons for Participating

Given the diversity of student interests it is not surprising that there are many reasons for their involvement in continuing education programmes. However, particular categories of reasons for participation can be identified and thereby add to our understanding of the complex decision-making processes which are at the core of individual involvement in the educational system. The present study has isolated five specific categories of reasons for deciding to take courses in continuing education programmes. Briefly, these reasons are (1) job-related, for example, requirements for a job, job promotion, and pressure from job; (2) acquisition of knowledge and development of ability; (3) social pressure, for example, maintaining and/or improving one's social status, changing demands in society, pressure from family and friends; (4) desire to meet people and relief from boredom; and (5) new interests and development of artistic pursuits. The respondents did not pinpoint any one overriding reason for their involvement in continuing education. Some 31 percent of them gave more than two reasons for their initial decision to enrol in such courses. Those who gave two reasons often combined their desire for knowledge with either the development of a new interest, or increased social pressure, or their perceptions of their job requirements.

Moving beyond the five specific categories of reasons for participating in continuing education, the respondents point to the significance of technological change and the increase in leisure time, on the one hand, and the desire to get ahead and the importance of self-fulfillment, on the other, as factors contributing to their decisions to enrol in continuing education courses at both the university and community college levels.

Concerning technological changes, many of these students were seeking to improve their occupational skills, while others were trying to obtain higher qualifications in order to increase their chances for a career change. A new interest, a hobby, or

meeting new people provided the stimulation necessary for some individuals to continue their education. Indications are that most continuing education students believe that getting ahead means improving one's educational qualifications. A number of the older people felt that they had better do something about getting ahead before it was too late.

Our findings concerning self-fulfillment among female respondents are of interest. Two-thirds of the sample were women, and many of them were married and at home with children. Some of them were experiencing frustrations because of this confinement. One woman wrote that she saw continuing education courses as an outlet that "helps ease the frustrations of a house person's lifestyle." Staying at home to raise children was seen by some as stifling their abilities. For example, one individual claimed that continuing education courses gave her the opportunity to demonstrate her abilities outside of the family setting. Several women said that they were doing courses because of the need for mental stimulation. Concomitantly, some of these courses allowed the participants to improve their qualifications and, thereby, better their chances of getting back into the labour force.

Education as a Reference Point

Earlier research (Hyman and Singer, 1968) found a correlation between change in society and the formulation of new reference groups by individuals within the society under study. It has been observed that the individual latches onto a ready made perspective to give order to the distressing complexities of the environment during rapid social change. In other words, it is not uncommon for people to seek additional reference points to assist them in dealing with change. The research on which the present article is based indicates a general awareness of the significance of change as a part of contemporary society. Furthermore, continuing education is seen by the respondents as a way of dealing with personal changes encountered during the life process as well as providing the knowledge and skills necessary to cope with societal changes. Within a milieu of individual and social change it is desirable for individuals to seek new reference points as part of the process of developing and maintaining their identities, interactive roles and life courses. This is what seems to have happened to the respondents in the present study. Aside from the influences of one's job, one's desire to pursue artistic interests, and the social environment in general, the fact that education becomes a reference point in itself is an important ingredient in developing one's plans for continued participation in the educational system. While the involvement in formal educational pursuits may not become the sole, or even the dominating, force behind the aspiration of adult learners, it can give the participants a new lease on life opening up previously unknown avenues for developing future plans of action. It seems that when education become a common point of reference to the participants, they compared their achievements and considered different levels of aspiration.

In sum, while participation in continuing education courses was initially viewed as a vehicle for keeping up with the changes in both work and leisure time environments, these reference points did not account for the plans of the respondents in the present study to continue their participation over and above that which was initially planned. Continuing education itself became an important part of their lives. In fact, it became a new reference point in re-evaluating their achievements and in providing a different perspective on their levels of aspirations.

REFERENCES

Beer, A. 1980. "Adult Education: Why Adults Continue their Education in Ontario, with Particular Emphasis on the Experiences of Part-time Students at Atkinson College, York University." Unpublished Doctoral Dissertation, York University.

Hyman, H. and E. Singer (Eds.) 1968. **Readings in Reference Group Theory and Research**. New York: the Free Press.

Tough, A.M. 1979. **The Adult's Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning**. 2nd edition. Toronto, Ontario Institute for Studies in Education.

THE SOCIAL ORGANIZATION OF EDUCATION

Allan J. Macdonell
Department of Sociology, U.N.B.

Wilfred B.W. Martin
Institute for Research in Human Abilities
Department of Educational Foundations, M.U.N.

Ordinary approaches to the analysis of education emphasize the familiar role models of teacher and student, the familiar setting of the school classrooms and the university campus, and the regular rituals of grade promotion and graduation. The frame of activity is age-specific, family-centred, and group-oriented. Programmes followed by students are basically prepared for them by teachers, professors, curriculum committee, educational departments and other outside interest groups. Students engage in planned learning, but it is a programme that is planned for them in large measure. New developments in the pattern of educational activity do not fall easily into an accustomed way of viewing education. Not only are new developments hard to perceive, they are equally a problem when it comes to measuring their significance.

Institution-centred education has been undergoing significant changes, as the result of strains for recognizing the lifelong dimension of the process. The introduction of new learning systems which "stress learning at any place and time, emphasize credit for experience, work, and service as well as study, and utilize new forms of educational technology as well as traditional instruction" reflects the changing perspective of education (Hesburgh, Miller and Wharton, 1974: 53). In the domain of higher education, a "new flexibility" may be illustrated by the development of "external degrees, colleges without campuses, industrial training centers, open universities, schools without walls, and new consortia" (Hesburgh, Miller and Wharton, 1974:55). We have, for example, the concept of "middle range education" (Harvey, 1973), which concerns the opportunities for adult learners and learning outside of the regular programmes for the high school and university. Some of the areas involved are the offerings of vocational and technical programmes; of community colleges; of university extension departments; of departments handling adult education within provincial departments of education; of other government agencies (provincial, national and international); and of the voluntary or non-governmental sector.

New developments that focus on education as a way of life include the fact of a fast-growing educational participation of adults, the fact of an increased significance of part-time or extra-mural education, and the fact that these adult educational endeavours are truly planned learning. There is a growing awareness of adult, of life-long, of recurrent education, with a sense that education relates to the whole life-cycle rather than to particular, specific parts of such a cycle. This awareness is coupled with the realization that there are definite advantages to be gained from a disciplined or systematic approach to learning needs.

Recurrent education as a societal pattern in Canada has had a familiar profile with the cognizance of continuing education, sabbatical education leaves, or simply refresher courses, up-date seminars and the like, commonly taken advantage of by professionals. This view of recurrent education is generally skewed because it is applied to individuals and/or groups who have at some time earlier completed a higher education programme of studies.

Recurrent education is in reality a dimension of lifelong learning for the continuation of education beyond basic schooling (primary as well as secondary) as naturally as it is for education beyond higher education or beyond a level of further education that an individual has attained after basic schooling. In viewing the education system as a subsystem of the educative society, there is immediate recognition of a broad institutional spectrum that has important realities today. This spectrum, including traditional learning settings of family, school and church, has been broadened to include settings such as mass media, community, adult groups and new learning networks; this development has occurred within an atmosphere of the times that fundamentally accept that there is an educational vitality of the entire human life cycle (Richmond, 1975: 111).

New patterns of education, training and work are occurring in contradistinction to the traditional pattern of education followed by work and retirement. Innovation within education has been necessitated by changes in the information framework due to developments in science and technology, as well as changes in the nature and operation of economic systems. Both factors have created a demand and provided an impetus for recurrent education. The rationale for recurrent education is supported on both a societal and interpersonal basis. Such opportunities for education are clearly important.

The impetus for a concerted new look at what education may be offering people, as well as can and must offer, is multi-faceted. While perhaps the strongest factor is social, it is clear that economic and political considerations are also involved. Increasingly, we find a population that is not simply brushing absentmindedly against the spectre of the future, but one which is experiencing a head-on and clearly real measure of change.

REFERENCES

Harvey, R.F.E. 1973. **Middle Range Education in Canada**. Toronto: Gage Educational Publishing Limited.

Hesburgh, T.M., P.A. Miller, and C.R. Wharton, Jr. 1974. **Patterns of Lifelong Learning: A Report of Explorations Supported by the W.K. Kellogg Foundation**. San Francisco: Jossey-Bass, Inc., Publishers.

Richmond, W.K. 1975. **Education and Schooling**. London: Methuen & Co. Ltd.