

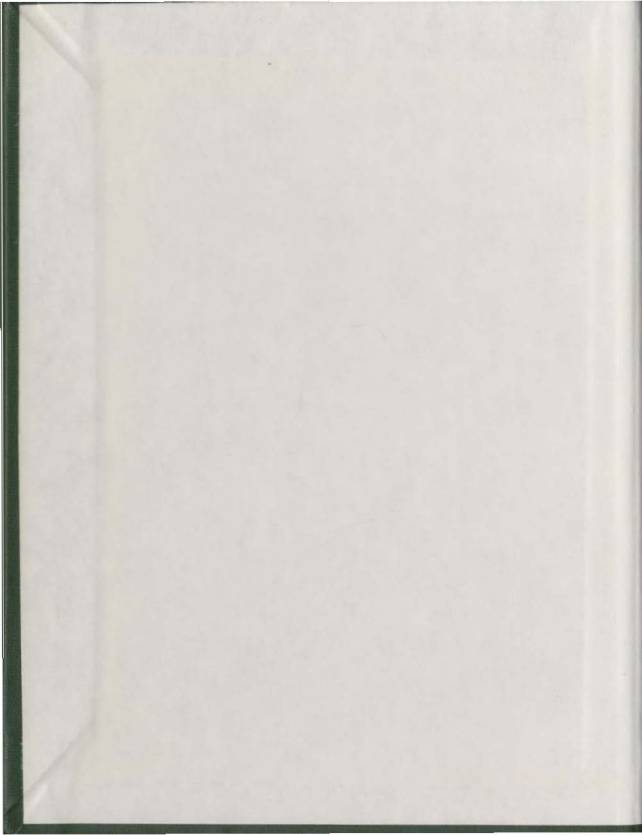
THE INFLUENCE OF HIGH- AND LOW-LEVEL QUESTIONS  
ON CRITICAL THINKING ABILITY AND THE RETENTION  
OF GAINS IN CRITICAL THINKING ABILITY  
EFFECTED BY QUESTION TYPES

CENTRE FOR NEWFOUNDLAND STUDIES

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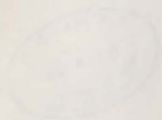
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THE INFLUENCE OF HIGH- AND LOW-LEVEL QUESTIONS ON  
CRITICAL THINKING ABILITY AND THE RETENTION  
OF GAINS IN CRITICAL THINKING ABILITY  
EFFECTED BY QUESTION TYPES

by

© David Caravan, B.A., B.Ed.

A Thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Education

Department of Curriculum and Instruction  
Memorial University of Newfoundland  
March, 1979

St. John's

Newfoundland

TO SADIE,  
WHOSE PATIENCE AND QUIET CONCERN  
GAVE PERSPECTIVE TO WHAT  
SEEMED AN ENDLESS TASK

#### ABSTRACT

The purpose of this study was to determine the effects of low- and high-level questions on critical thinking ability and the retention of gains in critical thinking ability effected by question types.

In cooperation with the principal and staff of Ascension Collegiate, Bay Roberts, Newfoundland, and by permission of the Avalon North Integrated School Board, five grade ten classes in social studies, comprising 155 students, were made available for the experimental group.

Following random assignment of students to treatments, each class used the same material but differed with respect to teaching procedure. Treatment material consisted of two sets of questions as determined by the criteria for high-level and low-level types identified in Bloom's Taxonomy of Educational Objectives: Cognitive Domain. Treatment 1 used a teaching procedure which stressed low-level questions emphasizing responses indicative of learning outcomes representative of the lowest level of understanding. Treatment 2 employed a teaching procedure which stressed high-level questions and emphasized learning outcomes as defined for analysis, synthesis, and evaluation. Treatment 3 consisted of a control group which received no supporting learning experiences based on questioning strategy.



The Watson-Glaser Critical Thinking Appraisal, Form Ym, was used on two occasions: as a post-test immediately following the experimental procedure of 21 days, and as a delayed post-test one month after the post-test. A one-way ANOVA with two measures of effect was used to analyze the data. Anticipated use of the Scheffe Method of Multiple Comparisons intended for further interpretation of data, was not conducted since no significant differences between treatments were found.

Analysis of the data revealed that low- and high-level questions had no influence on critical thinking ability of students in social studies at the grade ten level.

#### ACKNOWLEDGEMENTS

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Appreciation is expressed for assistance given by the six judges who provided validation of question classification, and to the two teachers, Mrs. Margaret Ayyad and Mr. Lorne Moores, whose interest and efforts contributed greatly to the success of the experimental procedure. Also in this regard, a special thank you must be reserved for Mrs. Ruth Cornish of the Computer Center.

Finally, commendation is forthcoming to the principal and staff of Ascension Collegiate, Bay Roberts, the Superintendent and members of the District Office for the Avalon North Integrated School Board, who, by word and deeds, helped in the preparation of this study.

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## CHAPTER I

### BACKGROUND TO THE STUDY

The relationship between knowledge and the means of attaining it has been a concern of educators throughout the ages. The wisdom of Confucius admonition that "learning without thinking is labor lost; thinking without learning is perilous," is evident in the questioning technique of Socrates, and is reasserted in the Medieval Period in the doubts of Abelard and his search for truth through inquiry.

In recent times, the outstanding work of John Dewey's (1933) How We Think: A Restatement of the Relations of Reflective Thinking to the Educative Process has motivated interest and research in the field of inquiry and related areas.

There is general agreement among educators that such concepts as "scientific method," "scientific thinking," "reflective thinking," "deductive thinking," and "critical thinking" have the same meaning. Such varied terminology is, however, indicative of the difficulty of agreement upon a single, concise definition of this concept. Skinner (1975) summarized the views of most writers when he stated that the initial step in the process of critical thinking was the recognition of an existing problem. Thereafter, careful

judgement should be used in weighing the relevant evidence and considering the alternatives. Freedom of choice among alternatives is a prerequisite, but the drawn conclusions are based upon logic. Embedded in every definition are the following steps: (1) recognizing a problem; (2) forming a hypothesis; (3) gathering pertinent facts or data; (4) testing the hypothesis; and (5) drawing conclusions.

Despite the tradition of an essential connection between process and learning, there has inevitably been a tendency to regulate knowledge and to indoctrinate ideas. Davis and Hunkins (1966) indicated that part of the problem was a teacher reliance on textbook information and untested competency for textbook questions to stimulate the higher intellectual processes of students. Pfeiffer and Davis (1965) used Bloom's Taxonomy of Educational Objectives: Cognitive Domain to analyze test questions in all grade nine courses in a junior high school in northeastern Ohio. Their findings showed that in all subject areas at least half of the questions required memory only. Related research by Gall (1970), and Decaroli (1971) disclosed that teachers asked significantly more low-level questions, requiring recall, than high-level questions demanding greater degrees of thought and understanding.

The pitfalls inherent in an indiscriminate textbook approach have led to new concerns in curriculum development and a continuing appraisal of questioning strategy. Foremost

among those in curriculum research has been the National Council for the Social Studies. In its Position Statement on Social Studies Guidelines (1971), it states in part:

Social studies education has a twofold purpose: enhancement of human dignity through learning and commitment to rational processes as principal means of attaining that end. (p. 7)

It asserts that the essence of human dignity must include the right of each person to have an opportunity to know, to choose, and to act. Rational processes denote a critical and questioning approach to knowledge so that each person may eventually make decisions in accord with the evidence available, the values that he has chosen, and the rules of logic.

The application of these Guidelines makes it incumbent upon social studies teachers to ask whether the mastery of content is sufficient, or if teaching may not also necessitate the encouragement of a critical thinking ability in addition to the acquisition of specific knowledge. Hullfish (1964) supports this latter view. He contends that thinking is developing a plan and a capability to believe, believing signifies a willingness to act, and in acting one examines information and questions the alternatives. To develop the inclination and skills of students to think independently is a major purpose of the school. Questions should be used to stimulate thinking, and critical thinking in particular. Hunkins (1968) stated that there is general agreement among social scientists and educators that the ability to think



about social, political, and economic issues, clearly and critically, and with regard to the most appropriate information, constitutes a desirable educational objective. If social studies is to consider the social nature and problems of man, it cannot exclude critical ability.

The implicit need for the development of critical thinking ability in the classroom raises a number of questions: To what extent are these skills presently developed by students in social studies? At which stages of intellectual maturation is such skill development most readily accomplished? What learning materials and instructional techniques support the acquisition of these skills? What is the effect of instructional technique on critical thinking retention?

The paucity of valid research findings dealing with the relationship between types of questions and the acquisition of critical thinking ability presently constitutes a serious handicap to the teaching of social studies. Skinner's (1975) assessment that continuous, rapid, all-pervading change is now an accepted part of life in America's society, is no less applicable to the Canadian way of life. The proliferation of new knowledge, doubling every decade or so, and the daily marshalling of facts via the mass media exert a constant pressure upon the individual to make decisions concerning complex personal and social issues. Social studies teachers must be aware of how effectively questioning strategies enable students to deal with their world and the

intelligent ordering of their lives when confronted with changing social values. This awareness can be attained by analyzing the impact of questioning technique upon critical thinking ability, and how, and to what extent, the residual affects of critical thinking ability are continued over a period of time.

The translation of this knowledge into classroom practice would therefore have specific benefits. For the teacher, it would afford a means of resolving any conflict over the teaching of content vis-à-vis an emphasis on critical thinking ability; for the student, the acquisition and retention of critical thinking skills would make school-based instruction more meaningful, and relevant to situations at home, in the community, the nation, and the world. It is in this context that research may supply appropriate information and thereby promote desirable educational objectives.

#### Statement of the Problem

The purpose of this study is to determine whether the acquisition and retention of critical thinking can be induced by exposure to three different mental process levels of questions.

The following research questions were specifically addressed:

1. Was there a significant difference in critical thinking ability among three groups of students: those involved in low-level questioning, those involved

in high-level questioning, and those receiving identical materials followed by an absence of questions?

2. Was acquisition of critical thinking ability retained over a period of one month?

#### Definition of Terms

Since the following terms have a technical meaning in relation to this study, they are defined to ensure accuracy of understanding:

- (i) Taxonomy: the framework used by Bloom in classifying educational objectives in the cognitive domain.
- (ii) Cognitive Domain: includes those objectives which deal with the recall or recognition of knowledge and the development of intellectual skills and abilities. According to Bloom, the cognitive domain is the domain in which most of the work in curriculum development has taken place and where the clearest definitions of objectives are to be found, phrased as descriptions of student behavior (Bloom, 1956, p. 7).
- (iii) Subcategories of the Cognitive Domain
  - Knowledge: involves the recall of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the

bringing to mind of the appropriate information.

Comprehension: is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (e.g., words to numbers), by interpreting material (e.g., explaining or summarizing), and by estimating future trends.

Application: refers to the ability to use learned material in new and concrete situations. This may be in the form of such things as rules, methods, concepts, laws and theories.

Analysis: refers to the ability to break down material into its component parts so that its organizational structure may be understood.

Synthesis: the putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, and elements; then arranging them in such a way as to constitute a pattern of structure not clearly there before.

Evaluation: is concerned with the ability to judge the value of material for a given purpose. It implies the use of standards of appraisal, but the criteria may be those determined by the pupil or those which are given to him.

- (iv) Low-level Questions: these include questions such as elicit responses based on knowledge and comprehension which rank lowest on the Taxonomy. Such question types, therefore, represent the lowest level of learning and/or understanding within the Cognitive Domain (Gronlund, 1970, p. 20).
- (v) High-level Questions: these include questions based upon analysis, synthesis and evaluation which rank high on Bloom's six questions hierarchy. Inherent in this Taxonomy is the concept that the higher levels subsume the lower ones. For example, objectives and supporting questions at the analysis level will not only guide students in analysis, but will also require them to function at the levels of application, comprehension and knowledge.
- (vi) Critical Thinking Ability: as defined by Watson and Glaser, a critical thinking ability would encompass the following sub-abilities: (1) inference, (2) recognition of assumptions, (3) deductions, (4) interpretations, and (5) evaluation of arguments. In concert, such abilities would enable the student to recognize an existing problem, make careful judgements by weighing the relevant evidence and considering the alternatives, choosing among alternatives and arriving at conclusions that are based upon logic.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

The purpose of this review is twofold: to examine specific aspects of questions and questioning strategies as applied to classroom situations, and to define critical thinking ability within the context of social studies, and the extent to which critical thinking ability may be retained.

#### Questions and Questioning Strategy

Aschner (1961) stated that questions should stimulate four main types of thinking activities: (1) questions should call for memory of facts and generalizations; (2) they should prompt reasoning; (3) they should demand judgement so that students are invited to think and rely upon their own knowledge and resources to propose solutions to problems; and (4) invent ways of doing things for themselves. Affirmation of this position is contained in Eullie's (1968) statement that, ". . . a good question arouses interest, develops logical thinking and the ability to handle problems, and leads to understanding." According to Loughlin (1961) effective questioning is effective teaching. His list of principles for questions includes: (1) distribution so that the whole class is involved; (2) have a balance between factual and thought-provoking questions; (3) utilization of both simple

and exacting questions; (4) encouragement for responses; and (5) stimulate critical thinking by enquiring "To what extent? How? Why? and Compare." In somewhat the same vein, Carner (1965) stressed that teachers must be aware of types of thinking required before they can ask effective questions. He concluded that the teacher must be cognizant of the level (concrete, abstract) of questions that is most appropriate to a particular learning situation.

Improved methods of teaching based on the foregoing philosophical and pedagogical words must, however, be tested on the results of empirically derived evidence. The formulation of questions designed to do more than obtain a recall of facts is relatively simple; the formulation of questions designed for other purposes, requiring reasoning or evaluation, is much more difficult. In order to meet this need, there have been schemes proposed to classify question types appropriate for specific purposes of instruction. Gall (1970), in reviewing the work that has been done in this area of questioning, stated that Bloom's Taxonomy of Educational Objectives best represents the commonalities that exist among the schemes. A summary of principles that Bloom uses to provide information regarding the intellectual objectives that questions can be designed to attain are as follows:

1. Knowledge: The student recalls or recognizes information.
2. Comprehension: This represents the lowest level of understanding. The student knows what is being communicated and can make use of the material or ideas.

3. Application: The use of general ideas, rules of procedure, or generalized methods. It may also include technical principles, ideas, and theories which must be remembered and applied.
4. Analysis: The student solves a problem in the light of conscious knowledge of the parts and forms of thinking.
5. Synthesis: The student solves a problem that requires original, creative thinking.
6. Evaluation: The student must make judgements of good or bad, right or wrong, according to his designated standards. (Berman, 1970, p. 449)

In using the Taxonomy of Educational Objectives:

Cognitive Domain, Sanders (1972) suggests that sometimes there may be confusion regarding classification of questions, but points out that this is not a problem since the teacher will be aware of the possible thinking processes that the question might induce. Another point that must be understood is that the higher levels subsume the lower levels. For example, evaluation subsumes synthesis, analysis, application, comprehension, and knowledge. The assumption should not be made that questions differ in the demands that are made upon students. Intellectual maturation should be considered only insofar as there are simple and difficult questions in all categories. The categories themselves may be used at all grade levels and for all levels of intelligence.

#### Research Studies Utilizing High- and Low-Level Questions

Important research has been conducted into the frequency and effects of high-level and low-level questioning.



Pfeiffer and Davis (1965) used Bloom's Taxonomy of Educational Objectives: Cognitive Domain to analyze test questions in all grade nine courses in a junior high school in northeastern Ohio. In order to establish reliability of the classification process, the scorers separately classified each question. The correlation between the classification of the two scorers was 0.87. A further check was made to establish reliability some three weeks after the original classification. The findings of this study indicated that in all subjects at least half of the questions required memory only. In social studies, it was found that 100 per cent of the questions on civics required knowledge of specific information. In world history, which was a course required in a college preparatory program, 74 per cent of the questions stressed knowledge, 20 per cent synthesis, and 4 per cent comprehension. The college preparatory students were supposed to be given an enriched program to meet their levels of intelligence but, obviously, emphasis remained on the lower levels of thinking. The foregoing, and subsequent, research studies utilizing questioning types are summarized in Table 1.

Davis and Tinsley (1967, 1971) undertook two studies dealing with student teachers in social studies at the University of Texas. The first study investigated 44 student teachers as they taught various classes. The teachers were observed by two professional judges and their questions were

TABLE 1  
RESEARCH STUDIES UTILIZING QUESTIONING TYPES

Author (Year)	Grade Level	Content Area	Treatment Comparison	Statistic Used	Outcome
Hunkins	6	Social Studies	The effects of high-level questioning on student achievement and critical thinking ability.	Analysis of Covariance	Significant improvement with high cognitive level questioning. Better readers in both categories achieved better than poor readers. No significant difference in critical thinking ability.
Cohen (1973)	10-11	English, Science, and Social Studies	The relationship between frequency and types of questions to changes in critical thinking ability.	Regression Analysis	High-level questions had negligible effects on pupils' critical thinking ability, but was not statistically significant.
Beseda (1973)	Secondary	Social Studies	The relationship between high-level questioning and critical thinking ability.	Analysis of Covariance	No significant difference between the two treatments with regard to achievement, but students taught by teachers using high-level questions were inferior in critical thinking ability as compared with students taught by teachers using low-level questions ( $p = .05$ ).

TABLE 1 (Continued)

Author (Year)	Grade Level	Content Area	Treatment Comparison	Statistic Used	Outcome
Pfeiffer and Davis (1965)	9	History, Civics	Classification of questions used in teaching according to Bloom's <u>Taxonomy</u> .	Percentage	Overall half of the questions required memory only. One hundred per cent of questions in civics required specific information. In History, 74 per cent of questions stressed knowledge, 20 per cent synthesis, and 4 per cent comprehension.
Davis and Tinsley (1971)	Senior and Junior	Social Studies	Classification of questions used by student teachers according to Guilford's tasks.	Analysis of Variance	Emphasis on memory with no provision for an opportunity to develop thinking. This finding was evident in two studies dealing with questions asked by both students and teachers.
Ryan (1971)	5-6	Social Studies	The relationship between levels of questioning and student achievement.	Analysis of Variance	Both low-level and high-level questions provide for low-level achievement equally, but both significantly more than the control group. High-level questioning was superior to the control group in high-level achievement ( $p = .01$ ). Low-level questioning was not significant.

classified according to Bloom's Taxonomy of Educational Objectives: Cognitive Domain. The results of this study revealed that both student teachers and pupils asked more memory questions than all other kinds of questions combined. Over half of the student teachers asked no questions categorized as application, analysis or synthesis. The second study was based on a stronger design in which 67 student teachers in social studies were randomly assigned to one of four groups. The questions composed by the groups were analyzed by two trained judges. The judges rated the questions individually to establish reliability. A 90 per cent agreement was found in their ratings. The data were subjected to analysis of variance. Overall, it was found that all questions, for tests and discussions, planned by these student teachers for junior and senior school students, emphasized memory and provided little opportunity for developing thinking processes.

Gall (1970), reporting on the research relating to questioning from 1912 to 1967, indicated that teachers' questioning practices have remained unchanged throughout the years, and that they have primarily emphasized low-level recall. Support for this view is also provided by Decaroli (1970) and Jarhorick (1971).

Research has been helpful, if somewhat less definite, in determining the effects of low-level and high-level questioning upon students. Ryan (1973) studied the relationship

of levels of questioning to student achievement. He randomly assigned 104 fifth and sixth graders to three treatments: high-level questioning where 75 per cent of the questions were above the knowledge level; low-level questions where 95 per cent of the questions were from the knowledge level; and a control group who did another unit. An analysis of variance on the post-test results showed that treatments emphasizing low-level and high-level questioning were not significantly different for low-level achievement. Both groups, however, were significantly better in this respect than the control group. The group subjected to high-level questioning was superior to the control group in high-level achievement at the .01 level of significance, but the low-level questioning group was not significantly different.

In the late 1960's, Hunkins (1968) conducted a similar study with a group of 260 sixth grade pupils in social studies from a large suburban public school system. Eleven classes were randomly assigned to the following experimental treatment: Condition A, which contained 47.55 per cent analysis and evaluation questions; and condition B, which contained 87.38 per cent knowledge questions. Bloom's Taxonomy of Educational Objectives: Cognitive Domain was used to determine the levels of questioning, and a multiple choice test of 42 questions corresponding to the designated levels comprised the achievement rating instrument. Students were pre-tested, given the program of instruction which they did independently for 30 minutes daily for a month, then they

were post-tested. The data were subjected to an analysis of covariance, and resulted in the following conclusions: the employment of high-cognitive level questions produced significantly greater scores in social studies achievement than did low-cognitive level questions. Better readers in both conditions achieved higher than poor readers.

The second phase of the research, a further analysis of data, determined the effects of questions on various levels of achievement. The results of this study indicated that there were no significant differences at any level except for "evaluation." The pupils working with high-level questions did significantly better on "evaluation" than those working with "knowledge" questions.

The third phase sought to determine whether the use of high-level questions would effectively stimulate the development of critical thinking. The data were subjected to an analysis of covariance. The results indicated that pupils using questions with a dominant emphasis on analysis and evaluation did not differ significantly with respect to critical thinking from those pupils using questions predominantly of the knowledge type.

The relationship between questioning strategy and critical thinking has been further explored by Cohen (1973). He investigated the classroom questions of teachers of tenth

and eleventh grade science, English and social studies to determine whether the frequency and types of questions related to changes in critical thinking ability.

During the first 20 weeks, five 40-minute audio tapes were gathered from each teacher. These tapes were analyzed and questions were categorized by the classification scheme designed by Davis and Tinsley. Pupils' critical thinking ability was measured by the Cornell Critical Thinking Test, Level X at the beginning and again at the end of the observation period. A t-test analysis was used to determine the difference in questioning behavior between science and non-science teachers. By combining the data from the tapes with changes in pupils' critical thinking scores, a regression analysis was used to indicate whether or not a relationship existed between the independent variable, teacher questioning behavior, and the dependent variable, changes in critical thinking ability.

These analyses indicated that science and English teachers asked significantly more questions than social studies teachers but no difference was found in the number of high-level questions asked. Of specific importance to this study was the finding that high-level questioning had negligible effects on pupils' critical thinking ability.

Beseda (1973) found similar negative effects of high-level questioning upon critical thinking ability. He studied 521 public school students and 16 student teachers. The

students and student teachers were divided into two groups by random assignment. The eight teachers in the experimental group were instructed in questioning behavior. It was found that those teachers subsequently asked significantly more high-level questions than teachers in the control group.

To determine the effects upon critical thinking, students were pre- and post-tested by the Watson-Glaser Critical Appraisal. An analysis of covariance was used to analyze the data. The students taught by the teachers doing high-level questioning were inferior in critical thinking ability as compared with the students taught by teachers not using high-level questions. The difference was significant at the .05 level.

Achievement levels were also investigated in this study. Students were pre- and post-tested by two standardized achievement tests. An analysis of covariance indicated no significant difference between the two treatments.

The foregoing research dealing with the relationship between instructional technique and critical thinking ability has yielded indefinite results when applied to questioning strategy. Cohen (1973) found in his study that a limited amount of high-level questioning existed; and on the basis of the few groups that were involved in this type, he concluded that such questioning had a detrimental effect upon critical thinking. The limitation with regard to numbers must restrict the generalizability of this study. Beseda (1973) also-



concluded that high-level questioning had a negligible effect upon critical thinking ability. This conclusion must be challenged on the basis that the student teachers involved were trained for the experiment. The methods of training and lack of experience in asking questions might have been intervening variables. An additional variable which may further impair the validity of these findings is teacher attitude. Puetz (1969) did an examination of teacher questionnaires in an attempt to measure teacher attitude toward the teaching of a Consumer Education unit. Her examination showed that teachers of those classes which improved significantly in critical thinking ability scored relatively highly in favorable attitudes when compared with all teachers who responded to the questionnaire.

#### Summary

While it is unwise to make precise statements concerning research findings outside the context of the study, certain overall generalizations are possible based upon a commonality of results. These are as follows:

1. Teachers appear to ask low-level questions significantly more than high-level questions.
2. Most studies indicated that high-level questioning leads to high levels of achievement in both low-level thinking and high-level thinking. However, the research is not conclusive and further studies are advised in order to present a more definite hypothesis

with regard to specific learning materials and instructional technique.

3. The hypothesis that high-level questioning leads to greater critical thinking ability was not supported, and indeed, Cohen and Beseda found the opposite effect. Here again there are intervening variables which, combined with the expressed limitations of each study, suggest that further research be conducted.

Critical Thinking Ability: Definition,  
Development, and Retention

Critical thinking ability has been commented upon by scholars in a variety of ways. There is, however, an underlying similarity in the views expressed by each. According to Dressel and Mahew (1954), it is the process of analyzing a problem, examining its logical and factual basis, and arriving at warranted conclusions. Russell (1960) speaks of the process of evaluation or categorization consistent with some previously selected and accepted standard. Ennis (1962) contends that in order to exhibit critical thinking ability, pupils must have grasped the meaning of statements, must be able to recognize ambiguity in reasoning, and must recognize contradictions in statements, and must recognize acceptable authority. Finally, pupils must judge whether a conclusion follows necessarily from the available facts.

Perhaps the most inclusive listing of critical thinking attributes is presented by Gross and Muessing (1971). It

contains the following:

1. recognizing the existence of problems,
2. defining problems clearly, precisely, and carefully,
3. framing understandable, useful, testable hypotheses germane to problems,
4. locating data related to particular hypotheses,
5. separating facts from opinions,
6. distinguishing between relevant and irrelevant data,
7. holding reservations or doubts about statements that are unsupported,
8. perceiving that there may be a number of tenable or acceptable ideas and opinions associated with a particular problem,
9. identifying differing frames of reference regarding problems and stating these viewpoints in an objective, unbiased fashion,
10. inviting and considering thoughts, beliefs, and evidence contrary to one's own predispositions and data,
11. reaching tentative conclusions and realizing that many significant problems cannot be solved for all time,
12. questioning simple solutions to complex problems and taking a long view on difficult, perplexing, personal and social issues,
13. anticipating some consequences that may grow out of one's commitments and decisions,
14. spotting contradictions in statements, data, and solutions,
15. discriminating between problems that can be handled in a factual, objective fashion and those that are involved with impressions, feelings, and a priori learnings,

16. and revising, altering or abandoning ideas, opinions, beliefs, attitudes, and values that are unsupportable, unworkable, or lacking in human and humane satisfactions or that fail to serve one in new circumstances.

Research aimed at promoting a critical thinking ability within the social studies context has been conducted relative to a variety of teaching methods.

Cox (1963) utilized a critical thinking model consisting of (1) orientation, (2) hypothesis formulation, (3) definition of terms, (4) exploration, (5) evidence, and (6) generalization. Method A involved the use of "springboards" into open-ended discussion leading to the conceptualization of an hypothesis. Method B involved basically factual recall. His findings revealed no significant difference in critical thinking between the methods employed. This conclusion was not supported by tape recordings which by analysis showed that the group in Method A possessed greater facility in reproducing the critical thinking model.

Rothstein (1960) emphasized thinking in presenting a course in American History. He found that students reflected increased ability to apply techniques of critical thinking without impairing the acquisition of knowledge. A similar outcome was achieved by Hunkins and Shapiro (1963) who demonstrated a gain in critical thinking ability among fifth graders by employing a case method technique in school studies instruction.

Table 2 summarizes the research studies aimed at promoting critical thinking ability.

TABLE 2

## RESEARCH STUDIES AIMED AT PROMOTING CRITICAL THINKING ABILITY

Author (Year)	Grade Level	Content Area	Treatment Comparison	Statistic Used	Outcome
Cox (1963)	Secondary	History	Compared group taught with a reflective thinking model to one taught in a more traditional manner.	t-test	Standardized tests failed to show any difference between two matched groups. Analysis of classroom tapes seemed to indicate superiority for the reflective thinking class.
Rodnunsky (1968)	10	History	Changes in critical thinking effected by a Fenton Inquiry Sequence.	t-test	Improved critical ability ( $p = .05$ ). Especially useful with students lowest in this ability.
Bate (1969)	11	Social Studies	To determine if improvements in critical thinking ability continued for a one year period.	t-test	Critical thinking in the Fenton group did persist for a period of one year. Those most deficient in critical thinking exhibited highly significant increase in this ability.

TABLE 2 (Continued).

Author (Year)	Grade Level	Content Area	Treatment Comparison	Statistic Used	Outcome
Rothstein (1960)	College	History	Emphasized critical think- ing skills while teaching a course in American History.	unavailable	Increased ability to apply techniques of critical thinking without impairing the acquisition of knowledge.
Hunkins and Shapiro (1960)	5	Social Studies	A case method technique was used in Social Studies instruction.	t-test	This method demon- strated a gain in critical thinking ability over the lecture-test book method. Significance at the .001 level.

Rodnunsky (1968) studied changes in critical thinking affected by a Fenton Inquiry sequence. Three groups of social studies students were established by random assignment of teachers. One group was taught by teachers using the Fenton material, a second group was taught by teachers given the same objectives but not the materials, and the third group was taught as usual thereby constituting a control group. The Watson-Glaser Appraisal was used to measure critical thinking ability of the students on three occasions: the pre-test, the post-test, and two weeks after the second test. An analysis using t-tests was used to determine significance at the .05 level. It was established that the Fenton sequence of instruction developed critical thinking in grade ten students, and that it was especially useful with those students who were originally lowest in this ability.

A follow-up to the Rodnunsky study was conducted by Bate (1969). An attempt was made to determine whether the improvement in students' critical thinking persisted for a one-year period. The Watson-Glaser Critical Thinking Appraisal was again used to assess the critical thinking ability of the three groups of the Rodnunsky study. Comparisons of Rodnunsky's pre-test and retention test of 1968 with the final follow-up test scores of 1969 showed that critical thinking ability in the Fenton group did continue for a period of one year. It was also found that those students of the Fenton group most deficient in critical

thinking exhibited a highly significant increase in this ability from the pre-test to the final follow-up test.

#### Summary

Although a variety of definitions for critical thinking ability have been formulated, a consensus of opinion holds that in order to exhibit this ability, pupils must have grasped the meaning of statements, must be able to recognize ambiguity in reasoning, must recognize contradictions in statements, and must recognize acceptable authority. Finally, in this regard, pupils must judge whether a conclusion follows necessarily from the available facts.

Empirical research has indicated that the ability to think critically can be improved upon by applying appropriate learning materials and instructional techniques. It has also been shown that development of critical thinking ability could be retained for up to one year following treatments.

Similar research dealing with the relationship between instructional technique and critical thinking ability has, however, yielded indefinite results when applied to questioning strategy. Because questioning is one of the basic ways by which the teacher stimulates student thinking and learning (Aschner, 1961), it is essential that such a relationship be more clearly defined. This is particularly important when one considers the general objectives stated in the Newfoundland Department of Education Curriculum Bulletin for 1976. Emphasis is placed on the need to develop



in students an awareness of values and of value alternatives. It specifies the development of an ability to distinguish fact from opinion, to detect bias, to formulate an hypothesis, to evaluate and interpret evidence, and to draw conclusions based on logical judgements. Obviously, such objectives envision not only the attainment of knowledge but also an ability to think critically. In achieving this goal, social studies teachers must continue to ask questions and possibly to revise teaching methods in the light of empirically derived data. It is towards this goal that these research findings may provide both direction and purpose.

## CHAPTER III

### DEVELOPMENT OF MATERIALS AND METHODOLOGY

This chapter delineates the procedures used in conducting the research. It is divided into the following main headings: (1) Instrumentation, Treatment and Sample Selection, (2) the Experimental Design and the Contextual Variables, and (3) Statistical Procedures, Hypotheses, and Limitations of the Study.

#### Instrumentation, Treatment, and Sample Selection

##### Instrumentation

Publisher-produced instrumentation included the following:

The Watson-Glaser Critical Thinking Appraisal. Research has indicated that the choice of tests for problem-solving or critical thinking is quite limited. Although the predictive validity of the Watson-Glaser Critical Thinking Appraisal is undetermined, it is recognized that "data on the test justify as empirically useful" (Buros, 1972). It is further stated that the test appears to measure both general intelligence and certain logical reasoning abilities, and that, in general, it is quite adequate for the appraisal of critical thinking at the secondary school level. Published by Harcourt, Brace, and World, this test has been

widely used as a research instrument.

The material takes approximately an hour to administer, and provides a total score and five sub-scores which measure specific aspects of the ability to think critically. These include (1) drawing sound inferences from a summary of facts; (2) recognizing assumptions implied by a statement; (3) reasoning logically by deduction; (4) reasoning logically by interpretation, and (5) discriminating between strong and weak arguments. This test is recommended for students above the grade nine level.

Text. The students used the adopted grade ten Canadian Society: Issues and Concerns course materials. The specific booklet was from the Man in Society series entitled Minority Groups, published by Maclean-Hunter Learning Materials Company (1972). By examining a number of typical problems and accomplishments of representative minority groups in Canada, this topic attempts to broaden the student's awareness of the multiplicity of cultures in our society with a view to the consequent advantages and difficulties for the members of the minority groups and the rest of society. Although not highly structured, Minority Groups does examine the following; what is meant by a minority group, and the different kinds in Canada and Newfoundland; problems facing the Canadian Government in attempting to treat all segments of society fairly; the contributions

of minority groups to the culture and their value in keeping the culture growing; and the need for a fair hearing and treatment of all groups in society.

Due to the nature of the experimental program, it was also necessary to develop treatment materials and treatment procedures.

Construction and format of test-type materials. The treatment material consisted of two sets of questions as determined by criteria for high-level and low-level question types, two sets of corresponding teacher guidebooks, and an outline of the treatment followed by students in the control group.

A major concern in the compilation of question sheets was to define clearly the objectives, content, and teaching strategy. Treatment 1 (low-level questions) sheets contained low-level objectives as determined by Bloom's Taxonomy of Educational Objectives: Cognitive Domain. These learning outcomes included the remembering of factual material, and also represent the lowest level of understanding (see Appendix C). Treatment 2 (high-level questions) sheets contained questions formulated according to the objectives defined for analysis, synthesis, and evaluation in the Taxonomy of Educational Objectives: Cognitive Domain (see Appendix D).

Both sets of questions, high-level and low-level, were listed in random order under a summary of unit topic.

and submitted to a panel of six judges (see Appendix A). This panel consisted of two experienced teachers, two faculty members from the Department of Curriculum and Instruction of Memorial University of Newfoundland, and two graduate students in Education. All members of the panel were thoroughly familiar with Bloom's Taxonomy of Educational Objectives: Cognitive Domain and its applicability to questioning strategy.

Each judge identified question-type on the basis of low- or high-level. Of the 127 questions submitted, 71 were classified as low-level, and 56 were high-level questions. The percentage of unanimity on type selection was approximately 70 per cent, and where judges did not concur, a majority of opinion was accepted by the researcher. Because judges were evenly divided on the taxonomic classification for five items, these were assigned, for consistency, to the high-level category (see Table 3).

TABLE 3  
PERCENTAGE OF AGREEMENT ON TAXONOMIC CLASSIFICATION  
OF QUESTIONS BY THE JUDGES

No.	T <sub>1</sub> (low-level)	T <sub>2</sub> (high-level)	Total
All judges	41	27	68
Five judges	8	5	13
Four judges	7	6	13
Three judges	2	2	3

Figures are rounded to nearest per cent.

The taxonomic classification of questions by the six judges and the researcher was then used to compile appropriate question sheets for use in Treatment 1 (low-level) and Treatment 2 (high-level). Since both question types were premised upon the requirement that all students read and study each unit of the students' test, Minority Groups, a uniform procedure was followed for the construction of both Treatments 1 and 2. This procedure required that teachers describe the text content by following the summary which preceded each set of unit questions in the teachers' guidebook (see Appendices C and D). During the reading of the corresponding unit from Minority Groups, students were permitted to ask for, and receive, clarification of the content. Following the distribution of the questioning work sheets, each group worked independently on the assigned material.

Treatment 3 (control group) followed the identical procedure as the experimental groups up to, but excluding, the distribution of question sheets. Each student in Treatment 3 followed a prescribed program based upon extended readings in the topic area, and the writing of reports. These students were not subjected to questioning of any kind, and continued their program within the resource center (see Appendix E).

### Treatment

This study compared the effects of low-level and high-level questioning strategy and a control group, not subjected to questioning bias, in order to determine if there were differences in critical thinking ability.

Random assignment of individuals to treatment groups. Specific steps were conducted in the randomization process. Students from each class were randomly assigned to three different groups. Each group within the class was then randomly assigned to a treatment on the basis of low-level questions ( $T_1$ ), high-level questions ( $T_2$ ), and the control group ( $T_3$ ). The overall distribution of students according to treatments is shown in Table 4.

TABLE 4  
SAMPLE DISTRIBUTION BY TREATMENTS

Treatment	Class A	Class B	Class C	Class D	Class E	Total
$T_1$	10	10	10	10	12	52
$T_2$	10	10	12	10	10	52
$T_3$	10	10	11	10	10	51

Of the 155 students who participated in the experimental study, 142 completed both the post-test and the delayed post-test. This discrepancy resulted from a

failure of some students to complete both tests, or prolonged absences during the experimental period. Therefore, 13 students from the original sample did not provide data.

Orientation of teachers. Two other teachers participated with the researcher in conducting the study. The proximity of working conditions within the school made it possible to maintain a constant and personal contact with all aspects of the experimental study. In addition to an initial conference, and on-going discussions with the teachers involved in the study, a written statement of procedure was used to ensure uniformity of approach and thereby minimize the effects of extraneous variables. During the experimental period of 21 days, teachers refrained from actively engaging in traditional methods of teaching. Their function was to assist in coordinating the students' use of the materials, and to supervise independent group activity according to the treatment.

Treatment procedure. Specific treatment procedures were employed in the study. Due to randomization of students within classes, low-level and high-level treatments took place within the classroom. To avoid working within a restricted space, the control group ( $T_3$ ), was given access to the resource center. Although cooperation was permitted among students of the same treatment, no communication was allowed between treatment groups. In this



manner, the text materials used in the study remained the same for all three treatments. Emphasis was placed solely upon the manipulation of components within the teaching procedure according to the following conceptualized format, as outlined in Table 5.

TABLE 5  
MANIPULATION OF COMPONENTS WITHIN THE  
TEACHING PROCEDURE

	Treatment 1	Treatment 2	Treatment 3
<u>Presentation</u>			
Narrative in Text	X	X	X
Opportunity to clarify text material	X	X	X
<u>Diagnosis</u>			
Questions as teaching strategy	X <sub>1</sub>	X <sub>2</sub>	0
Feedback	X	X	0
Post-test	X	X	X
Delayed post-test	X	X	X

The X's indicate the components that were used in the procedure while the 0's indicate those components not used. X<sub>1</sub> indicates use of low-level questions, and X<sub>2</sub> indicates use of high-level questions.

### Sample Selection

In cooperation with the principal and staff of Ascension Collegiate, Bay Roberts, Newfoundland, and by permission of the Avalon North Integrated School Board, five grade ten classes in social studies were made available for the experimental program. The combined total was 155 students. Due to the constraints of time-tabling within the school, individual students had been assigned to groups for social studies. Hence, the students enrolled in the Man in Society series were drawn from a variety of grade ten classes and reflected no particular academic standard or intelligence level.

### The Experimental Design and the Contextual Variables

This study was a comparative analysis of grade ten students enrolled in the social studies courses Canadian Society: Issues and Concerns.

### The Experimental Design

Campbell and Stanley's (1966) Design 6 (Post-test-Only Control Group Design) was adopted according to the following form:

R	X	O <sub>1</sub>	O <sub>2</sub>
R	X	O <sub>1</sub>	O <sub>2</sub>
R	X	O <sub>1</sub>	O <sub>2</sub>

R represents the random assignment of students within five grade ten social studies classes to experimental and control groups on the basis of types of questions.

X represents the treatments.

$O_1$  and  $O_2$  represent the post-test and delayed post-test.

While stating that Design 6 (Post-test-Only Control Group) is greatly underused in educational and psychological research, Campbell and Stanley indicate that this is not due to an inadequacy of the design. They point out that the most adequate all-purpose assurance of lack of initial biases between groups is randomization. Hence, it is possible to omit the pre-test without jeopardizing the essentials of a true experimental design.

The use of partial random assignment in this study, as well as an emphasis on a method of teaching in a new subject area where prior knowledge was limited, suggested the appropriateness of this design. Moreover, the material could be presented to students so that the treatments and post-test formed a single natural package. The design also eliminated a majority of factors threatening the internal and external validity of the study. Since Design 6 controls for variables such as history, maturation, testing, instrumentation, regression, selection, mortality, and interaction of selection and maturation, internal validity is safeguarded. External validity, which asks the question of

generalizability of the study, is also partly maintained since this particular design controls the interaction of testing and treatment (Campbell and Stanley, 1966).

#### The Contextual Variables

Within the context of the experimental study, two variables must be considered. Those are concerned with the school and the teachers involved in the study.

The school. Ascension Collegiate, situated at Bay Roberts, Newfoundland, is a regional high school. It had, at the time of this study, an enrolment of 763 students, and a teaching staff of 34. Operationally, the school is divided into departments made up of English, mathematics, social studies, science, and French. Each department is under a Department Head, and has a teachers' preparation area adjacent to classrooms designed for its specialty. In addition to classroom facilities, there is a large, well-equipped resource center, a Home Economics center, a laboratory area, a gymnasium, and a cafeteria.

As a regional high school, Ascension Collegiate serves eight communities, each having a population of under 4,000. The socio-economic background is similar in all communities. The residents, of English, Irish, and Scottish ancestry, work in stores, garages, the civil service, and in labor and semi-skilled activities related to construction, farming or fishing industries.

Teachers involved in the experimental study.

Teacher A. This teacher had 10 years' experience at various levels of education. Presently holding a Graduate Diploma in Guidance, he has taught in adult education centers and at the Fisheries College in St. John's, Newfoundland. Although new to Ascension Collegiate, he held a similar position in social studies in a regional high school under the same Avalon North Integrated School Board.

Teacher B. Specializing in learning resources, this teacher has taught high and junior high classes in English, mathematics, and social studies. She has 12 years teaching experience, six at Ascension Collegiate and one in Lebanon. She was employed as a part-time librarian and director of the resource center, as well as teaching in social studies.

Teacher C. This teacher has taught social studies, primarily at the grade ten level, for the past eight years. Previous teaching experience included administration positions in all-grade and high schools, and as a staff teacher in various high schools in Newfoundland and Labrador.

Statistical Procedures, Hypotheses, and  
Limitations of the Study

Statistical Procedures

After the post-test and delayed post-test were completed and scored, the data were subjected to an analysis of variance. A one-way ANOVA with two measures of effect was used to test the hypotheses in this study. If significance was found at the .05 level, a Scheffe test was employed for further exploratory and interpretative purposes.

TABLE 6  
STATISTICAL LAYOUT

Critical Thinking Ability		
Low-level questions ( $T_1$ )	X 111 12 X n11 12	$\mu \cdot 1 \dots$
High-level questions ( $T_2$ )	X 121 12 X n21 12	$\mu \cdot 2 \dots$
Control ( $T_3$ )	X 131 12 X n31 12	$\mu \cdot 3 \dots$
	$\mu \cdot 112$	$\mu \cdot \dots$

Notation used in the diagram for statistical layout is as follows: Individual: 1 - n; level of questions: 1, 2, 3; post-test: 1; and delayed post-test: 2.

### Hypotheses

Following are the null and alternative hypotheses of this study:

1. There is no significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions, high-level questions and the control with no questioning bias.

$$H_0: \mu_{1.1.1} = \mu_{2.1.1} = \mu_{3.1.1}$$

There is a significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions, high-level questions and the control with no questioning bias.

$$H_1: \mu_{1.1.1} \neq \mu_{2.1.1} \neq \mu_{3.1.1}$$

The three hypotheses that follow are to be tested only if hypothesis 1 is rejected.

2. There is no significant difference in critical thinking ability as indicated by the means of the post-test scores, of students receiving materials followed by low-level questions and students receiving high-level questions with identical materials.

$$H_0: \mu_{1.1.1} = \mu_{2.1.1}$$

There is a significant difference in critical thinking ability as indicated by the means of the post-test scores, of students receiving materials followed by low-level questions and students receiving high-level questions with identical materials.

$$H_1: \mu_{1.1.1} \neq \mu_{2.1.1}$$

3. There is no significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions and students receiving identical materials followed by an absence of questioning bias.

$$H_0: \mu_{1.1.1} = \mu_{3.1.1}$$

There is significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions and students receiving identical materials followed by an absence of questioning bias.

$$H_1: \mu_{1.1.1} \neq \mu_{3.1.1}$$

4. There is no significant difference as indicated by the post-test scores of students receiving materials followed by high-level questions and students receiving identical materials followed by an absence of questioning bias.

$$H_0: \mu_{2.1.1} = \mu_{3.1.1}$$



There is significant difference as indicated by the post-test scores of students receiving materials followed by high-level questions and students receiving identical materials followed by an absence of questioning bias.

$$H_1: \mu_{2.1.1} \neq \mu_{3.1.1}$$

5. There is no significant difference in critical thinking ability as indicated by the delayed post-test scores of those students who received materials followed by low-level questions, high-level questions and the control with no questioning bias.

$$H_0: \mu_{1.1.2} = \mu_{2.2.2} = \mu_{3.3.2}$$

There is a significant difference in critical thinking ability as indicated by the delayed post-test scores of those students who received materials followed by low-level questions, high-level questions and the control with no questioning bias.

$$H_1: \mu_{1.1.2} \neq \mu_{2.2.2} \neq \mu_{3.3.2}$$

The three hypotheses that follow are to be tested only if hypothesis 5 is rejected.

6. There is no significant difference in critical thinking ability as indicated by the means of the delayed post-test scores of those students who received materials followed by low-level questions and students who received high-level questions with identical materials.

$$H_0: \mu_{1..2} = \mu_{2..2}$$

There is a significant difference in critical thinking ability as indicated by the means of the delayed post-test scores, of those students who received materials followed by low-level questions and students who received high-level questions with identical materials.

$$H_1: \mu_{1..2} \neq \mu_{2..2}$$

7. There is no significant difference in critical thinking ability as indicated by the delayed post-test scores of students who received materials followed by low-level questions and those students who received identical materials followed by an absence of questioning bias.

$$H_0: \mu_{1..2} = \mu_{3..2}$$

There is a significant difference in critical thinking ability as indicated by the delayed post-test scores of students who received materials followed by low-level questions and those students who received identical materials followed by an absence of questioning bias.

$$H_1: \mu_{1..2} \neq \mu_{3..2}$$

8. There is no significant difference as indicated by the delayed post-test scores of those students who received materials followed by high-level questions and those students who received identical materials followed by an absence of questioning bias.

$$H_0: \mu_{2..2} = \mu_{3..2}$$

There is a significant difference as indicated by the delayed post-test scores of those students who received materials followed by high-level questions and those students who received identical materials followed by an absence of questioning bias.

$$H_1: \mu_{2..2} \neq \mu_{3..2}$$

#### Limitations of the Study

Tangential to the central question of whether or not the treatments did have an effect are the following limitations:

Interaction outside the classroom. While there was considerable care taken to preclude communication of any kind between groups during the treatments, individual students were unsupervised in the time between treatments. Although students were grouped for social studies, other opportunities did exist for interaction under a variety of circumstances within the school. The degree to which students from treatment groups may have interacted must be taken into account and regarded as a confounding variable.

Standardization of treatment. The uniformity of the treatment procedure was facilitated by the proximity of the teachers involved in the study. However, regardless of close supervision, on-going discussion, and written directives, no precise certainty can be placed on the extent to which some deviation may have occurred.

The participation of three teachers in the treatment procedure is also a limitation. The absence of teacher intervention in students' work does not ensure that the presence of a particular teacher may have influenced students in some way.

Effectiveness of the test. The Watson-Glaser Critical Thinking Appraisal, Form Ym, was used in both the post-test and the delayed post-test. While the validity and reliability of the test has been verified, the degree of multiple treatment interference must be considered. In order to overcome this difficulty, the Design 6 (Post-test-Only Control Group) was used and a lapse of one month was allowed before repeating the test. However, it cannot be assumed that such a delay was sufficient to erase the effects of prior treatment.

A representative group. Another limitation of the study is that the sample lacked complete randomization. The study included partial random assignment, in that students within classes were randomly assigned to treatment groups, and the groups randomly assigned to treatment. The study may lack generalizability to the extent that randomization is qualified.

The length of the experimental period. It is not known if the time allotted to treatments was sufficient to enable students to become skilled in using analysis and

evaluation questions. It is possible that different levels of achievement with regard to high-level questions would require different time periods for mastery.

The effects of these limitations of the study, either singly or combined, cannot be precisely determined. However, in each case preventive measures were taken to diminish the effects of the confounding variables. This study is presented, therefore, with its limitations, in anticipation of continued research into the relationship between critical thinking and questioning types.

## CHAPTER IV

### PRESENTATION AND SUMMARY OF THE FINDINGS

This chapter is concerned with reporting, analyzing and discussing the data gathered in this study. It is therefore divided into two sections: (1) presentation of the findings for the post-test and the delayed post-test, and, (2) discussion of the findings.

#### Presentation of the Findings

Both the post-test and the delayed post-test data were subjected to a one-way analysis of variance with three treatment levels.

#### Post-test in Critical Thinking Ability

The cell means for critical thinking ability across each treatment level are presented in Table 7.

TABLE 7  
CELL MEANS FOR CRITICAL THINKING ABILITY  
FOR EACH TREATMENT LEVEL

Treatments	N	Means	S.D.	S.E.
1 low-level questions	50	54.5622	7.82	1.10
2 high-level questions	47	55.2128	7.74	1.13
3 control	45	56.1778	6.49	0.96

An examination of the differences between the means of the experimental groups reveals that the obtained difference in each case is not sufficiently greater than the standard error. This interpretation is confirmed in the statement on main effects.

#### Main Effects

$$H_0: \mu_{.1.1} = \mu_{.2.1} = \mu_{.3.1}$$

This statistical hypothesis, that there is no significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions, high-level questions and the control with no questioning bias, was tested against the alternative hypothesis that there is a significant difference in critical thinking ability as indicated by the post-test scores of students receiving materials followed by low-level questions, high-level questions, and the control with no questioning bias.

An analysis of variance indicated no significant difference at the .05 level. The null hypothesis was therefore accepted. These results are presented in Table 8.

TABLE 8

#### RESULTS OF THE ANOVA ANALYSIS (POST-TEST)

Source	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance
Bt.	62.3636	2	31.1818	0.571	N.S.
Wt.	7594.7566	139	54.6385		

Since significance was not determined at the .05 level, the Scheffe Multiple Comparison Test was not conducted.

### Simple Effects

According to the analysis above, that there was no significant difference between treatments, the null hypotheses must be accepted for each of the following:

- (1) Treatment 1 (low) and Treatment 2 (high)

$$H_0: \mu_{1.1.} = \mu_{2.1.}$$

- (2) Treatment 2 (high) and Treatment 3 (control)

$$H_0: \mu_{2.1.} = \mu_{3.1.}$$

- (3) Treatment 1 (low) and Treatment 3 (control)

$$H_0: \mu_{1.1.} = \mu_{3.1.}$$

### Delayed Post-test in Critical Thinking Ability

The cell means for critical thinking ability across each treatment level are presented in Table 9.

TABLE 9

CELL MEANS FOR CRITICAL THINKING ABILITY  
FOR EACH TREATMENT LEVEL

Treatments	N	Means	S.D.	S.E.
1 low-level questions	47	56.1489	7.37	1.07
2 high-level questions	51	56.3725	7.38	1.03
3 control	44	57.3636	6.19	0.93



An examination of the difference between the means of the experimental groups in the delayed post-test reveals that the obtained difference in each case is not sufficiently greater than the standard error. Hence, there is no significant difference. This analysis is confirmed in the statement on main effects.

#### Main Effects

$$H_0: \mu_{1..2} = \mu_{2..2} = \mu_{3..2}$$

This statistical hypothesis, that there is no significant difference in critical thinking ability as indicated by the delayed post-test scores of those students who received materials followed by low-level questions, high-level questions and the control with no questioning bias, was tested against the alternative hypothesis that there is a significant difference in critical thinking ability as indicated by the delayed post-test scores of those students who received materials followed by low-level questions, high-level questions and the control with no questioning bias.

An analysis of variance showed no significant difference at the .05 level. The null hypothesis was therefore accepted. These results are presented in Table 10.

Since significance was not found at the .05 level, the Scheffe Multiple Comparison Test was not conducted.

TABLE 10  
RESULTS OF THE ANOVA ANALYSIS (DELAYED POST-TEST)

Source	Sum of Squares	D.F.	Mean Squares	F Ratio	Significance
Bt.	37.9006	2	18.9503	0.383	N.S.
Wt.	6874.0476	139	49.4536		

Simple Effects.

According to the analysis above, that there is no significant difference between treatments, the null hypothesis must also be accepted for each of the following:

- (1) Treatment 1 (low) and Treatment 2 (high)

$$H_0: \mu_{1..2} = \mu_{2..2}$$

- (2) Treatment 2 (high) and Treatment 3 (control)

$$H_0: \mu_{2..2} = \mu_{3..2}$$

- (3) Treatment 1 (low) and Treatment 3 (control)

$$H_0: \mu_{1..2} = \mu_{3..2}$$

Summary of the Findings

The foregoing analyses of data showed no significant differences in acquisition of critical thinking ability among three groups of students: those involved in low-level type questioning, those involved in high-level type questioning, and those receiving identical materials followed by an absence of category questions. Anticipated use of

the Scheffe Method of Multiple Comparisons, intended for further analysis of data, was not justified on the basis of research findings.

Examination of the mean scores also indicate that the ability to think critically is not characteristic of the sample. Thus, not only is there no divergence between treatment groups, but all groups were somewhat deficient in skills essential for critical thinking. Trends towards an improved critical thinking ability suggested in the means for treatment groups in the delayed post-test may be ascribed to the repeated use of the Watson-Glaser Critical Thinking Appraisal, Form Ym.

It should also be noted that experimental mortality, or differential loss of respondents from the comparison groups, was encountered. This difficulty, though slight, occurred as a result of student absences at the time of testing, or elimination due to a prolonged absence during the period of treatment. Mortality occurred in the following groups: 1 low-level questions, 3; 2 high-level questions, 4; and 3 control, 1.

## CHAPTER V

### SUMMARY, DISCUSSION AND RECOMMENDATIONS

The purpose of this chapter is to present an overview of the study, and to define more clearly the educational implications inherent in the study. The chapter is divided, therefore, into three sections: the first, presents a summary of the study; the second, deals with a discussion of the findings; and the third, offers recommendations based upon information and observations arising from the study.

#### Summary

The purpose of this study was to determine the effects of low- and high-level questions on the acquisition of critical thinking ability and the retention of gains in critical thinking ability effected by question types.

In cooperation with the principal and staff of Ascension Collegiate, Bay Roberts, Newfoundland, and by permission of the Avalon North Integrated School Board, five grade ten classes in social studies were made available for the experimental program. Due to the constraints of time-tabling within the school, individual students had been assigned to groups for social studies. Hence, the

155 students enrolled in the Man in Society series, who took part in this study, were drawn from a variety of grade ten classes and reflected no particular academic standard or intelligence level.

Following random assignment of students to treatments within classes, each class used the same materials but differed with respect to treatment procedure. Treatment material consisted of two sets of questions as determined by criteria for high-level and low-level types identified in Bloom's Taxonomy of Educational Objectives: Cognitive Domain. Treatment 1 used a teaching procedure which stressed low-level questions emphasizing responses indicative of learning outcomes representative of the lowest level of understanding. Treatment 2 employed a teaching procedure which stressed high-level questions and emphasized learning outcomes as defined for analysis, synthesis, and evaluation. Treatment 3 consisted of a control group which received no supporting learning experiences based on questioning strategy.

The Watson-Glaser Critical Thinking Appraisal, Form Ym, was used on two occasions: as a post-test immediately following the experimental procedure of 21 days, and as a delayed post-test one month after the post-test. A one-way ANOVA with two measures of effect was used to analyze the data.

Analysis of the data revealed that low- and high-level questions had no influence on critical thinking ability of students in social studies at the grade ten level.

#### Discussion of the Findings

Before discussing the results of this experiment, it should be pointed out that these findings are relative to the subject matter, grade level, and background of subjects utilized in this research. Findings were obtained in a study of the effects of questioning types on critical thinking ability of students in social studies. Subjects were 155 students regularly enrolled in one regional high school serving middle- to low-income families. Implications from this study are necessarily limited by these circumstances, and to the population of which this sample is representative.

The results of this research showed that there was no significant difference in the acquisition of critical thinking ability among three groups of students: those involved in high-level questioning, those involved in low-level type questioning, and those receiving identical materials followed by an absence of category questions.

Those findings are consistent with Hunkins' (1968) research which indicated that pupils using questions with a dominant emphasis on analysis and evaluation did not differ significantly with respect to critical thinking from those pupils using questions predominately of the knowledge type.

The results of this study do not, however, support the hypothesis suggested by Cohen (1973) that high-level questioning had a negative effect on critical thinking ability, or, as indicated by Beseda (1973), that high-level questions were inferior to low-level questions in promoting this ability. It should be noted that in both of those studies teacher-student interaction was a distinct possibility. In the present study such interaction, although a limitation, was much more closely controlled since teachers had no active participation but retained only a supervisory capacity.

Observations of student behavior during the study indicated that students, in general, were deficient in school experiences that would foster analysis skill development essential to high-level mental processes. Lack of student training in logical types of thinking meant that students were frustrated, and to some extent threatened by the experimental situation in which teacher guidance was omitted. This difficulty was likely compounded by the fact that students were randomly assigned to treatments.

It is logical to assume that homogeneous grouping of students according to prior norms such as high or low reading ability relative to questioning types could well have influenced differences in scores between treatments.

A further consideration must be made with regard to the time during which students were exposed to treatments. The time period for the experimental study was 21 days. Although intensive stimulation was provided by question types during this period, the treatment procedure may not have been sufficient to affect learning deficiencies in the area of critical thinking.

Finally, the specific skills requisite for increasing an ability to think critically were not taught in this study. The use of questioning types in the experimental procedure presupposed that such questioning strategy would stimulate, or reinforce, a critical thinking ability that, though latent, had as yet not developed as a conscious process in problem-solving. Comparison of the mean scores of the three treatment groups clearly indicated a low-level of ability in critical thinking for students at the grade ten level in social studies. It is logical to assume, therefore, that subjects confronted with analysis, synthesis, and evaluative questions lacked the competency to deal with such questions, and could not reasonably be expected to benefit from such experiences.



Interpretation of the results of this experiment suggests that critical thinking ability skills are not presently being developed by students in social studies. While stages of intellectual maturation at which such skills are most readily accomplished were not determined in this study, it is clear that learning material and instructional techniques based on questioning types do not support the acquisition of these skills. In order to answer effectively the questions raised in this discussion, it is necessary that further systematic research be conducted to verify, or reject, a relationship between questioning strategy and critical thinking ability.

#### Recommendations for Further Research

Based upon the findings and the conclusions of this study, the following specific recommendations are suggested for further systematic research relating to the effects of different levels of questioning on critical thinking ability:

1. This study should be replicated in its similar form using high and low critical thinking ability as a prior measure in determining treatment groups.
2. This study should be replicated in its similar form following the introduction of an instructional program designed to make students aware of critical thinking skills and the procedures implicit to

problem-solving.

3. Replication of this study according to the changes suggested above should not be less than one month in duration, and should involve more schools and grade levels.

The first two recommendations are based upon the finding of this present study that a low-level of critical thinking ability was found in all treatment groups. The first recommendation purports to show that students with a demonstrable competency in critical thinking would benefit from reinforcements derived from high-level questions, whereas students lacking these skills would fail to improve significantly. The second recommendation is based upon the observation that critical thinking ability skills have not been adequately developed among students in grade ten social studies. An instructional program emphasizing skills in solving problems in the social studies would provide a common experience against which specific learning outcomes could be matched. The explicit use of applying critical thinking skills to question type could offset learning deficiencies in critical thinking that presently persist.

The third recommendation acknowledges the fact that the sample used in this experiment was drawn from a population of tenth grade students from one regional high school. Thus, the findings of this study can only be generalized to similar populations that have similar characteristics.

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APPENDICES



## APPENDIX A

Treatment Questions Submitted to the  
Six Judges for Validation

The following text type materials will be used in conjunction with readings from the "Minority Groups" booklet in the Canadian Society: Issues and Concerns series for grade ten social studies. The salient points of each reading are briefly summarized in order to clarify relevancy of questions to text material.

The questions are based upon the criteria for classification as provided in Bloom's Taxonomy of Educational Objectives: Handbook 1, Cognitive Domain.

A brief introduction to the topic defines such terms as "melting pot," "salad bowl," and "mosaic." There is a reference to Canada's cultural diversity, with specific attention given to the two founding cultures, the absence of long-standing traditions, and the unique contributions of immigrants.

It emphasizes the problems and benefits that derive from a pluralistic society, and poses questions dealing with: the expectations of minority groups about life in Canada; the problems of adjustment that they have met; and the reaction of Canadians to the presence of newcomers.

Item	Classification
1. Explain why Canada has become a nation made up of diverse cultures.	_____
2. From your own experience or readings, give several examples of cultural or ethnic influence and describe each one.	_____
3. How have the presence of minority groups affected Canadian society?	_____
4. What is the difference between "melting pot" and "salad bowl" philosophy?	_____
5. What is a "minority group"?	_____
6. What is the difference between a pluralistic society and an homogeneous society?	_____
7. How would you identify the society within your classroom, your school, your community, your Province, Toronto?	_____
8. How would you defend one of the following statements?	_____

- (a) Canadians should be similar in outlook and customs.
- (b) Cultural diversity offers greater benefits for Canada than homogeneity.

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The Gallup Poll findings taken in 1970 indicated that Canadian views on immigration have not changed over the previous decade. Two-thirds of those polled did not want immigration.

The Poll is broken down to show regional and occupational percentages. Specific reasons are also given for and against immigration with percentage points showing relative support for each reason.

Item	Classification
1. Draw a bar graph to illustrate Gallup Poll results of Canadian attitudes towards immigration for 1970.	_____
2. How would you account for large differences in regional statistics?	_____
3. How would you account for large differences on the basis of occupation?	_____
4. Is the argument of "an empty country" consistent or inconsistent with the claim regarding the jobless situation? Explain.	_____
5. List the reasons that are given by those who do not wish increased immigration.	_____
6. List the reasons that are given by those who wish an increase in immigration.	_____
7. Which region shows greatest support for immigration? The least support?	_____
8. Which occupation shows greatest support for immigration? The least support?	_____
9. What does the Gallup Poll indicate about Canadian attitudes towards immigration?	_____

10. By taking a stand for or against increased immigration, comment on the reasons given and provide additional reasons, if possible.
-

A series of four articles discusses the origins of a variety of groups within Canadian society. The first three deal with the background of particular immigrants, suggesting their reasons for coming to Canada, their characteristics, and, to some extent, their expectations. The final article is a diverse collection of customs and traditions that reveal the cultural differences reflected in Canadian society as a whole.

Item	Classification
1. What is it that has attracted the Baergs to Canada, and how will they make a living?	_____
2. List the things around the Vanderbosch household that seem different.	_____
3. What is meant by the term "cultural baggage"?	_____
4. Identify examples of cultural baggage.	_____
5. What kind of activities did Seth get into in Canada?	_____
6. What expectations do the Vanderbosch's have about life in Canada?	_____
7. Complete a chart for each family and indicate clearly:	_____
(a) reasons for coming to Canada	_____
(b) characteristics of each group or person.	_____
8. From the characteristics listed above, select two or more which you consider most desirable and explain why.	_____

9. From the reason given above, select one or more which you consider most true for each group or individual. \_\_\_\_\_
10. Research the names of three well-known Canadians, not born in Canada, and briefly comment on their contribution to Canada. \_\_\_\_\_
11. How many "cultural baggage" sometimes benefit Canadian society? \_\_\_\_\_



An interview is presented in which Joan Kennit, Canada Census district commissioner in Spadina Riding in central Toronto, relates her experiences with minority groups.

She outlines the difficulties found in obtaining information from immigrant groups who speak neither English nor French. The interview provides an insight into the problems of language, adjustment, and outlook of minority groups in a large city. There is also a suggestion that political decisions regarding language are often inconsistent with reality, and that such decisions may in fact support a "melting pot" philosophy wherein immigrants must adopt one of the official languages.

Item	Classification
1. What language groups are found in Spadina Riding?	_____
2. What difficulties are met by those taking the census?	_____
3. What political decision has been made about language in Canada?	_____
4. What is the "reality of the situation" according to Joan Kennit?	_____
5. What characteristics of some immigrants are revealed to the census taker?	_____
6. Explain why you would, or would not, be likely to find as many immigrant groups in a rural area.	_____
7. Why can it be said that the school helps in the assimilation of newcomers into the majority society?	_____

8. Is there any evidence that Joan Kennit may not approve of the bilingual policy of the Federal Government? Explain.
- 
9. From the information given in this interview, can you support the view that Canada is a "melting pot" or "salad bowl"? Give reasons to support your view.
-

Two articles deal with housing, discrimination, and attitude. The first presents the situation in which residents of a town with an all-white, Anglo-Saxon background hesitate to sell their house to either a black family or an Italian family. Points of view are indicated, but no solution is presented.

In the second article, Toronto's Chinatown is discussed: its history, the threat to its existence, and the rôle that it plays in the life of the Chinese community at large. The article illustrates the dilemma of a minority group becoming dispersed and its identity endangered by assimilation into a larger society, or isolated and cut off from the mainstream of Canadian life.

Item	Classification
1. Compare the arguments for and against keeping Niceville unchanged.	_____
2. Compare the arguments for keeping Chinatown unchanged.	_____
3. Do the same arguments apply to Niceville as to Chinatown? Explain.	_____
4. Does Chinatown have a stronger case than Niceville? Explain.	_____
5. Is there discrimination in Niceville? In Chinatown? Give reasons to support your view.	_____
6. What kind of town is Niceville?	_____
7. How does Mrs. Walker feel about certain immigrants?	_____
8. How is Chinatown threatened?	_____

9. What is Mayor Dennison's view? \_\_\_\_\_
10. What are the two types of Chinese young people that Nancy speaks about? \_\_\_\_\_
11. What makes Chinatown different from other parts of Toronto? \_\_\_\_\_
12. Why does Nancy Woo wish Chinatown to remain? \_\_\_\_\_

The quality of education is considered with respect to the problems of cultural adjustment from the Canadian Indian point of view. The lack of educational opportunity in the community makes it necessary for young Indians to attend residential schools in the south, thereby imposing a new life style with conflicting values. Marjorie Cameron, 17, who is in grade ten, exemplifies the difficulties encountered in such cases.

Item	Classification
1. How is a "generation gap" being created between her (Marjorie) and her parents?	_____
2. How is Marjorie's education a disruptive experience for her?	_____
3. How do you think Marjorie's education will affect her relationship with the rest of the family?	_____
4. How is her education not preparing her well for work in the city?	_____
5. Working in small groups, prepare material for and against the following issues: The purpose of education for Indian children should be to integrate them more fully into white man's society.	_____
6. What is the policy for the education of most Treaty Indians beyond grade six?	_____
7. What reasons are given for Marjorie's difficulty in adjusting to life at school?	_____
8. What are the educational standards of Indian children?	_____
9. How does Indian educational attainment compare with the national standard?	_____
10. In general, what were the findings of the special Senate Committee on poverty concerning educational opportunity for Indians?	_____

Item

Classification

1. Working in small groups, prepare brief position papers on the following:
  - (a) Minority groups should be encouraged to preserve their own communities in Canadian cities. \_\_\_\_\_
  - (b) It is better for Canada if minority groups live amongst other Canadians rather than become isolated. \_\_\_\_\_
  - (c) Minority groups should be given financial aid from the Government to preserve and develop their communities. \_\_\_\_\_
2. Present reports to the class for discussion and comment. \_\_\_\_\_

An interview with Alex Andino, 28, a representative of the Filipino community in Toronto, emphasizes the problem of finding suitable employment for a minority group who are 80 per cent college educated and professionally oriented. The question of overqualifications is discussed, particularly as it is affected by Canadian standards and the pressures resulting from a depressed economy.

Item	Classification
1. Explain the basis for discrimination against Filipino workers.	_____
2. How does this create a problem for the Filipino to adjust to Canadian society?	_____
3. Explain why some unions and professional boards impose more difficult examination standards for foreign workers.	_____
4. How would you describe the effects of imposing such standards upon an immigrant group?	_____
5. Take a position for or against this practice and provide reasons for your decision.	_____
6. How would you define "underemployed"?	_____
7. In what way could Filipinos be described as an unusual group of immigrants?	_____
8. Why does Andino believe that he and many other Filipinos are underemployed?	_____
9. What is the attitude of most Filipinos regarding the problem of underemployment?	_____
10. According to Rev. H.J. Murphy, how are immigrant doctors discouraged from pursuing their careers in Canada?	_____

The struggle over language rights in education is presented in the description of clashes between the Italian community (45%) of St. Leonard, Quebec, who are demanding English language instruction for their children, and the French community (40%) whose representatives demand a French only instruction.

The issue is left unresolved, although subsequent steps by the Provincial Government have clarified the legal situation. Points of view are not explicitly given for any group, however the nature of the problem is evident from the actions taken.

Item	Classification
1. What conflict arose in St. Leonard between the French speaking and the Italian speaking residents?	_____
2. How did the Italian minority attempt to settle the problem?	_____
3. What was the reaction by many of those opposed to English language education?	_____
4. What was the effect of the 1970 Provincial law regarding language rights in Quebec?	_____
5. What is the present law in Quebec regarding language rights in education?	_____
6. How do you interpret the point of view of: <ul style="list-style-type: none"> <li data-bbox="277 984 570 1001">i. the Italian community?</li> <li data-bbox="277 1004 557 1021">ii. the French community?</li> <li data-bbox="277 1023 570 1040">iii. the English community?</li> </ul>	_____
7. Explain why there is a problem of language and culture in St. Leonard, Quebec.	_____



8. Explain why there is a problem of language and culture in Canada as a whole.
9. What justification is there for a separate Quebec?

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A group discussion by Brandon, Manitoba, secondary school students reflects their concerns about minority rights. The rights of this minority who are predominantly of Ukrainian descent are presented in the light of French aspirations for protection of their language and culture throughout Canada.

Item	Classification
1. Compare the Ukrainian community with the Italian community of St. Leonard with regard to language and cultural rights.	_____
2. On what basis would you be able to support:	_____
i. Mr. Pepin's decision. ii. Mr. Diefenbaker's claim that the Federal Government is hurrying the assimilation of Ukrainian language and culture.	_____
3. Outline an argument in favor of, or opposing, the limiting of an ethnic group's rights according to the numbers of people in the group, e.g., bilingual districts.	_____
4. Review earlier position papers (page 7) on this topic and note any additions or changes in your point of view.	_____
5. What is Mr. Diefenbaker's claim regarding the actions of the Federal Government?	_____
6. What is Mr. Pepin's reply to Mr. Diefenbaker's charge?	_____
7. What evidence is there of Anglo-Saxon prejudices in the discussion?	_____
8. List the efforts that the Manitoba Ukrainians are making to maintain their identity as a particular ethnic group.	_____
9. What group forms the majority in this part of Manitoba?	_____

A small group discussion in a Hamilton secondary school in which a report is presented on the integration of Indian, i.e., Bengalis, into Canadian society. Though retaining many customs and styles of dress, this group has no complaints concerning employment and do not tend to live in separate communities. The article explores, to some extent, the different views regarding integration and assimilation.

Item	Classification
1. How do the Bengalis appear to integrate into Canadian society?	_____
2. Why do the Bengalis not appear to share with other minority groups a fear of assimilation?	_____
3. Would the Bengali view of integration be shared by other minority groups, i.e., the French outside Quebec, the Ukrainians?	_____
4. Explain why you think integration would, or would not, prevent assimilation of minority groups.	_____
5. Review again your earlier position paper (page 7) and append any addition or change of view in the light of your new information.	_____
6. What specific "cultural baggage" is mentioned in this article?	_____
7. What do the Bengalis mean by the term "integration"?	_____
8. What is the difference between integration and assimilation?	_____
9. What sort of jobs do Bengalis seek?	_____

The "generation gap" is introduced by a discussion of the findings of a four year study of family conflict among Italian immigrants in Toronto. A series of three articles examines problems relating to schooling, dating, and income. The study discloses particular causes for tension within immigrant families resulting from cultural and language differences which are aggravated by the children adapting to the Canadian way of life more rapidly than their parents.

Item	Classification
1. What are the two main ways that schools contribute to the conflict between generations in immigrant families?	_____
2. In what ways do Filomena's parents limit their daughter's freedom?	_____
3. Why do they impose these restrictions?	_____
4. What custom is at the root of the conflict which is developing between Lou and his father?	_____
5. What does Lou want to do with his income?	_____
6. What does the father want for his family?	_____
7. How would you compare parent-children attitudes of immigrant families regarding:	
i. the role of the school?	
ii. social life of young people?	
iii. an independent income by older children?	
iv. parental control?	_____
8. Why do you think the generation gap affects relations within traditional Canadian families?	_____
9. Why does the generation gap hit immigrant families especially hard?	_____
10. As a social worker, what suggestions would you make to resolve the problem?	_____

11. Show how the expectations of the immigrant parents may limit the social and/or educational advancement of:
- i. the son
  - ii. the daughter
- 
12. What kinds of family conflict would you foresee in a traditional Canadian family moving from one Province to another?
-

Each of three reports deal with a specific situation in which immigrants find that their job applications are considered unacceptable on the basis of one or more of the following: overqualified, lack of Canadian experience, lack of Canadian citizenship, or underqualified according to Canadian standards. In addition the immigrant is often faced by the dilemma of having his professional or trade qualifications rejected, and therefore the necessity to write certification exams in English or French.

<u>Item</u>	<u>Classification</u>
1. What inconsistencies do you find in each case?	_____
2. Would you call this discrimination? Why, or why not?	_____
3. Where does the fault lie? Explain the reasons for your conclusion.	_____
4. What are Josef Meyer's qualifications?	_____
5. Why is he applying for jobs in Australia and New Zealand?	_____
6. Why were Susan Lee's qualifications not accepted in Quebec?	_____
7. Why is it particularly difficult for her to obtain Canadian certification as a dentist?	_____
8. Why did Karl Duzek decide to come to Canada?	_____
9. What difficulty does he have in obtaining his plumber's certificate?	_____

A general overview of Canadian government policy in screening immigrant applications is presented. It is suggested that the process of recruiting and determining standards for immigrants may unduly raise expectations that fail to materialize when matched with the reality of obtaining further certification and/or overcoming job restrictions due to discrimination or lack of full citizenship.

Item	Classification
1. Explain how immigrants are selected for entrance to Canada.	_____
2. What are the results of this selection?	_____
3. What restrictions does the Quebec College of Pharmacists place on immigrants in that profession?	_____
4. What restrictions do the Federal Government place upon immigrants seeking employment?	_____
5. Where do immigrants get their information about job and wage prospects in Canada?	_____
6. Suggest ways in which the reality of life in Canada may differ from an immigrant's expectations.	_____
7. On what basis would you support or reject the point system for choosing immigrants?	_____
8. Should certification procedures for skilled trades be changed? If so, how? If not, why?	_____
9. Do you think that citizenship clauses should be included as requirements for government or other jobs? Briefly explain.	_____

## APPENDIX B

Judges' Responses to Treatment  
Questions



	Judges						Researcher's Classification
	A	B	C	D	E	F	
1. Explain why Canada has become a nation made up of diverse cultures.	L	L	L	L	H	H	L
2. From your own experiences or readings, give several examples of cultural or ethnic influences and describe each.	L	H	H	L	D	H	H
3. How have the presence of minority groups affected Canadian society?	H	H	H	H	L	H	H
4. What is the difference between "melting pot" and "salad bowl" philosophy?	L	L	L	L	L	L	L
5. What is a "minority group"?	L	L	L	L	L	L	L
6. What is the difference between a pluralistic society and a homogeneous society?	L	L	L	L	L	L	L
7. How would you identify the society within your classroom, your community, your Province?	L	H	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
8. How would you defend one of the following statements?  (a) Canadians should be similar in outlook and customs.  (b) Cultural diversity offers greater benefits for Canada than homogeneity.	H	H	H	H	H	H	H
9. Draw a bar graph to illustrate Gallup Poll results of Canadian attitudes towards immigration for 1970.	L	H	L	H	L	L	L
10. How would you account for large differences in regional statistics concerning immigration?	H	H	L	L	H	H	H
11. How would you account for large differences on the basis of occupation?	H	H	H	L	H	H	H
12. Is the argument of "an empty country" consistent or inconsistent with the claim regarding the jobless situation? Explain.	H	H	H	H	H	H	H
13. List the reasons that are given by those who do not wish increased immigration.	L	L	L	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
14. List the reasons that are given by those who wish increased immigration.	L	L	L	L	L	L	L
15. Which region shows the greatest support for immigration? The least support?	L	L	L	L	L	L	L
16. Which occupation shows greatest support for immigration? The least support?	L	L	L	L	L	L	L
17. What does the Gallup Poll indicate about Canadian attitudes towards immigration?	L	L	L	L	L	H	L
18. By taking a stand for or against increased immigration, comment on the reasons given and provide additional reasons, if any.	H	H	H	H	H	H	H
19. What is it that has attracted the Baergs to Canada, and how will they make a living?	L	L	L	L	L	L	L
20. List the things around the Vandenbosch household that seem different.	L	L	L	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
21. What is meant by the term "cultural baggage"?	L	L	L	L	L	H	
22. Identify examples of "cultural baggage."	L	L	L	L	L	L	L
23. What kind of activities did Seth get into in Canada?	L	L	L	L	L	L	L
24. What expectations do the Vandenbosch's have about life in Canada?	L	L	L	L	L	L	L
25. Complete a chart for each family and indicate clearly:  (a) reasons for coming to Canada, and  (b) characteristics of each group.	L	H	L	H	L	L	L
26. From the characteristics listed (item 25), select two or more which you consider most desirable and explain why.	H	H	H	H	H	H	H
27. From the reasons listed (item 25), select one or more which you consider most true for each group or individual.	H	L	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
28. Research the names of three well-known Canadians not born in Canada, and briefly comment on their contribution to Canada.	L	H	H	H	L	H	H
29. How may "cultural baggage" sometimes benefit Canadian society?	H	H	H	H	H	H	H
30. What language groups are found in Spadina Riding?	L	L	L	L	L	L	L
31. What difficulties are met by those taking the census?	L	L	L	L	L	L	L
32. What political decision has been made about language in Canada?	L	L	L	L	L	L	L
33. What is the "reality of the situation" according to Joan Kennit?	L	L	L	L	L	L	L
34. What characteristics of some immigrants are revealed to the census taker?	L	H	L	L	L	H	L
35. Explain why you would, or would not, be likely to find as many immigrants in a rural area.	H	L	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
36. Why can it be said that the school helps in the assimilation of newcomers into the majority society?	L	L	H	H	H	H	H
37. Is there any evidence that Joan Kennit may not approve of the bilingual policy of the Federal Government? Explain.	L	L	H	H	H	H	H
38. From the information given in this interview can you support the view that Canada is a "melting pot" or "salad bowl" and give reasons to support your view?	H	H	H	H	H	H	H
39. Compare the arguments for and against keeping Niceville unchanged.	H	H	H	H	L	L	H
40. Compare the arguments for and against keeping Chinatown unchanged.	H	H	H	H	H	L	H
41. Do the same arguments apply to Niceville as to Chinatown? Explain.	H	H	H	H	H	H	H
42. Does Chinatown have a stronger case than Niceville? Explain.	H	H	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
43. Is there discrimination in Niceville, in Chinatown? Give reasons to support your view.	H	H	H	L	H	H	H
44. What kind of town is Niceville?	H	H	L	H	L	H	H
45. How does Mrs. Walker feel about certain immigrants?	L	L	L	L	L	L	L
46. How is Chinatown threatened?	L	L	L	L	L	L	L
47. What is Mayor Dennison's view?	L	L	L	L	L	L	L
48. What are the two types of Chinese young people that Nancy speaks about?	L	L	L	L	L	L	L
49. What makes Chinatown different from other parts of Toronto?	L	L	L	L	H	H	L
50. Why does Nancy Woo wish Chinatown to remain unchanged?	L	L	L	L	L	L	L
51. How is a "generation gap" being created between Marjorie and her parents?	L	L	L	H	H	L	L
52. How is Marjorie's education a disruptive experience for her?	L	L	L	L	H	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
53. How do you think Marjorie's education will affect her relationship with the rest of the family?	L	H	H	H	H	H	H
54. How is her education not preparing her well for work in the city?	L	L	H	H	H	H	H
55. Working in small groups, prepare material for and against the following issues:  The purpose of education for Indian children should be to integrate them more fully into a white man's society.	H	H	H	H	H	H	H
56. What is the policy for the education of most Treaty Indians?	L	L	L	L	L	L	L
57. What reasons are given for Marjorie's difficulty in adjusting to life at school?	L	L	L	L	L	L	L
58. What are the educational standards of Indian children?	L	L	L	L	L	L	L
59. How does Indian educational attainment compare with the national standard?	L	H	L	H	L	L	L



	Judges						Researcher's Classification
	A	B	C	D	E	F	
60. In general, what were the findings of the special Senate Committee on poverty concerning educational opportunities for Indian children?	L	L	L	L	L	H	L
61. Working in small groups prepare brief position papers on the following:							
(a) Minority groups should be encouraged to preserve their own communities in Canadian cities.	H	H	H	H	H	H	H
(b) It is better for Canada if minority groups live amongst other Canadians rather than become isolated.	H	H	H	H	H	H	H
(c) Minority groups should be given financial aid from the Government to preserve their communities.	H	H	H	H	H	H	H
62. Present reports to the class for discussion and comment.	H	H	H	H	H	H	H
63. Explain the basis for discrimination against Filipino workers.	L	L	L	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
64. How does this create a problem for the Filipino to adjust to Canadian society?	L	L	H	H	H	H	H
65. Explain why some unions and professional boards impose more difficult examination standards upon an immigrant group.	L	L	H	L	H	L	L
66. How would you describe the effects of imposing such standards upon an immigrant group?	H	H	H	H	H	H	H
67. Take a position for or against this practice and provide reasons for your decision.	H	H	H	H	H	H	H
68. How would you define "underemployed"?	L	L	H	H	L	L	L
69. In what way could Filipinos be described as an unusual group of immigrants?	L	L	H	L	H	H	H
70. Why does Andino believe that he and many other Filipinos are underemployed?	L	L	L	L	L	L	L
71. What is the attitude of most Filipinos regarding the problem of under-employment?	L	L	L	L	H	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
72. According to Rev. H.J. Murphy, how are immigrants (doctors) discouraged from pursuing their careers in Canada?	L	L	L	L	L	L	L
73. What conflict arose in St. Leonard between the French speaking and the Italian speaking residents?	L	L	L	L	L	L	L
74. How did the Italian minority attempt to settle the problem?	L	L	L	L	L	L	L
75. What was the reaction by many of those opposed to English language education?	L	L	L	L	L	L	L
76. What was the effect of the 1970 Provincial law regarding language rights in Quebec?	L	L	L	L	L	L	L
77. What is the present law in Quebec regarding language rights in education?	L	L	L	L	L	L	L
78. How do you interpret the point of view of:							
i. the Italian community?	H	H	H	H	H	H	H
ii. the French community?							
iii. the English community?	H	H	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
79. Explain why there is a problem of language and culture in St. Leonard; Quebec.	L	L	L	H	H	H	H
80. Explain why there is a problem of language and culture in Canada as a whole.	H	H	H	H	H	H	H
81. What justification is there for separatism in Quebec?	H	H	H	H	H	H	H
82. Compare the Ukrainian community with the Italian community of St. Leonard.	L	H	H	H	L	H	H
83. On what basis would you be able to support:  i. Mr. Pepin's decision. ii. Mr. Diefenbaker's claim that the Federal Government is hurrying assimilation of Ukrainian language and culture.	H	H	H	H	H	H	H
84. Outline an argument, in favor of, or opposing, the limiting of an ethnic group's rights according to the number of people in the group, e.g., bilingual districts.	H	H	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
85. Review earlier position papers, on this topic and note any additions or changes in your point of view.	H	L	H	H	H	H	H
86. What is Mr. Diefenbaker claiming regarding the actions of the Federal Government?	L	L	L	L	L	L	L
87. What is Mr. Pepin's reply to Mr. Diefenbaker?	L	L	L	L	L	L	L
88. What evidence is there of Anglo-Saxon prejudice in the discussion?	L	L	H	L	H	H	H
89. List the efforts that the Manitoba Ukrainians are making to maintain their identity as a particular ethnic group.	L	L	L	L	L	L	L
90. What group forms the majority in this part of Manitoba?	L	L	L	L	L	L	L
91. How do the Bengalis not appear to share with other minority groups a fear of assimilation?	L	L	H	L	L	L	L
92. How do the Bengalis seem to integrate into Canadian society?	L	L	H	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
93. Would the Bengali view of integration be shared by other minority groups, i.e., the French Outside Quebec, the Ukrainians? Explain.	H	H	H	H	H	H	H
94. Explain why you think integration would, or would not, prevent assimilation of minority groups.	H	H	H	H	H	H	H
95. Review again your earlier position paper and append any additional information or change of view in the light of your new information.	H	H	H	H	H	H	H
96. What specific "cultural baggage" is mentioned in this article?	L	L	L	L	L	L	L
97. What do the Bengalis mean by the term "integration"?	L	L	L	L	L	L	L
98. What is the difference between integration and assimilation?	H	L	H	L	L	H	H
99. What sort of jobs do Bengalis seek?	L	L	L	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
100. What are the two main ways that schools contribute to the conflict between generations in immigrant families?	L	L	L	L	H	L	L
101. In what ways do Filomena's parents limit their daughter's freedom?	L	L	L	L	L	L	L
102. What does Lou want to do with his income?	L	L	L	L	L	L	L
103. What custom is at the root of the conflict which is developing between Lou and his father?	L	L	L	L	L	L	L
104. What does the father want for his family?	L	L	L	L	L	L	L
105. How would you compare parent-child attitudes of immigrant families regarding:							
i. the role of the school?							
ii. social life of young people?							
iii. an independent income by older children?							
iv. parental control?	H	H	H	H	H	H	H

	Judges						Researcher's Classification
	A	B	C	D	E	F	
106. Why do you think the generation gap affects relations within traditional Canadian families?	H	H	H	H	H	H	H
107. Why does the generation gap affect immigrant families more than traditional Canadian families?	H	L	H	H	H	H	H
108. As a social worker, what suggestions would you make to resolve the problem?	H	H	H	H	H	H	H
109. Show how the expectations of the immigrant parents may be limiting the social life and educational advancement of:  i. the son ii. the daughter	H	H	H	H	H	H	H
110. What kinds of family conflict would you foresee in a traditional Canadian family moving from one Province to another?	H	H	H	H	H	H	H
111. What inconsistencies do you find in each case presented in this article?	H	H	H	H	L	H	H
112. Would you call this discrimination? Why, or why not?	H	H	H	H	H	H	H



	Judges						Researcher's Classification
	A	B	C	D	E	F	
113. Where does the fault lie and explain the reasons for your conclusion.	H	H	H	H	H	H	H
114. What are Josef Meyer's qualifications?	L	L	L	L	L	L	L
115. Why is he applying for jobs in Australia and New Zealand?	L	L	L	L	L	L	L
116. Why were Susan Lee's qualifications not accepted in Québec?	L	L	L	L	L	L	L
117. Why is it particularly difficult for her to obtain a Canadian certificate as a dentist?	L	L	L	L	L	L	L
118. Why did Karl Duzek decide to come to Canada?	L	L	L	L	L	L	L
119. What difficulty does he have in obtaining his plumber's certificate?	L	L	L	L	L	L	L
120. Explain how immigrants are selected for entrance into Canada.	L	L	L	L	L	L	L
121. What are the results of Canada's selection policy?	L	L	L	L	L	L	L

	Judges						Researcher's Classification
	A	B	C	D	E	F	
122. What restriction does the Quebec College of Pharmacists place upon immigrants in that profession?	L	L	L	L	L	L	L
123. What restrictions do the Federal Government place upon immigrants seeking employment?	L	L	L	L	L	L	L
124. Where do immigrants get their information about job and wage prospects in Canada?	L	L	L	L	L	L	L
125. On what basis would you support or reject the point system for choosing immigrants?	H	H	H	H	H	H	H
126. Suggest ways in which the reality of life in Canada may differ from an immigrant's expectations.	H	H	H	H	H	H	H
127. Should certification procedures for skilled trades be changed?  If so, how? If not, why not?	H	H	H	H	H	H	H
128. Do you think that citizenship clauses should be included as requirements for government or other jobs? Explain.	H	H	H	H	H	H	H

APPENDIX C  
Teacher's Guide to Questioning  
Types (Treatment 1)

TEACHER'S GUIDE TO QUESTIONING TYPESLow-Level Questions (T1)

The following text type materials will be used in conjunction with readings from the Minority Groups booklet in the Canadian Society: Issues and Concerns series. The salient points of each reading are briefly summarized in order to clarify relevancy of questions to test material.

The questions are based upon the criteria for knowledge and comprehension as provided in Bloom's Taxonomy of Educational Objectives: Cognitive Domain.

Topic: Minority Groups

1. Describe the text content by following, in general terms, the summary which precedes each set of questions.
2. Have students read the required text material.
3. During the reading, and immediately following, check to see if there are any difficulties.
4. Provide students with appropriate question sheets.
5. Encourage (T1) students to answer all questions as specifically and clearly as possible.
6. Encourage (T2) students to do as many questions as possible but not to substitute quantity for quality.
7. Where time permits, randomly select students to read back responses to questions.
8. Every five days collect student's notebooks and check contents for efficiency in work covered.
9. At the discretion of the teacher, students may work together within groups. Discourage any communication between groups.
10. On Sheet 6 (T2), omit question 3. Have students do question 4 as a compulsory question.

Day 1

A brief introduction to the topic defines such terms as "melting pot," "salad bowl," and "mosaic." There is a reference to Canada's cultural diversity, with specific attention given to the two founding cultures, the absence of long-standing traditions, and the unique contributions of immigrants.

It emphasizes the problems and benefits that derive from a pluralistic society, and poses questions dealing with: the expectations of minority groups about life in Canada; the problems of adjustment that they have met; and the reaction of Canadians to the presence of newcomers.

Sheet 1 (T1)

1. Explain why Canada has become a nation made up of different cultures.
2. What is the difference between "melting pot" and "salad bowl" philosophy?
3. What is a minority group?
4. What is the difference between a pluralistic society and a homogeneous society?
5. What is meant by the term "hyphenated Canadians"?

Day 2

The Gallup Poll findings taken in 1970 indicated that Canadian views on immigration have not changed over the previous decade. Two-thirds of those polled did not want immigration.

The Poll is broken down to show regional and occupational percentages. Specific reasons are also given for and against immigration, with percentage points showing relative support for each reason.

Sheet 2 (T1)

1. Draw a bar graph to illustrate Gallup Poll results of Canadian attitudes towards immigration for 1970.
2. List the reasons that are given by those who do not wish increased immigration.
3. List the reasons that are given by those who wish increased immigration.
4. Which region shows the greatest support for immigration? The least support?
5. Which occupation shows the greatest support for immigration? The least support?
6. What does the Gallup Poll indicate about Canadian attitudes towards immigration?

Day 3

A series of four articles discuss the origins of a variety of groups within Canadian society. The first three deal with the background of particular immigrants, suggesting their reasons for coming to Canada, their characteristics, and, to some extent, their expectations. The final article is a diverse collection of customs and traditions that reveal the cultural differences reflected in Canadian society as a whole.

Sheet 3 (T1)

1. What is it that has attracted the Baergs to Canada, and how will they make a living?
2. List the things around the Vandebosch household that seem different.
3. What is meant by the term "cultural baggage"?
4. Identify examples of "cultural baggage."
5. What kind of activities did Seth get into in Canada?
6. What expectations do the Vandebosch's have about life in Canada?
7. Complete a chart for each family and indicate clearly:
  - (a) reasons for coming to Canada, and
  - (b) characteristics of each group.



Day 4

An interview is presented in which Joan Kennit, Canada Census district commissioner in Spadina Riding in central Toronto, relates her experiences with minority groups.

She outlines the difficulties found in obtaining information from immigrant groups who speak neither English nor French. The interview provides an insight into the problems of language, adjustment, and outlook of minority groups in a large city. There is also a suggestion that political decisions regarding language are often inconsistent with the reality of the situation in many areas, and that such decisions may in fact support a "melting pot" philosophy wherein immigrants must adopt one of the official languages.

Sheet 4 (T1)

1. What language groups are found in Spadina Riding?
2. What difficulties are met by those taking the Census?
3. What political decision has been made about language in Canada?
4. What is the "reality of the situation" according to Joan Kennit?
5. What characteristics of some immigrants are revealed to the Census taker?

Day 5

Two articles deal with housing and discrimination. The first presents the situation in which residents of a town with an all-white Anglo-Saxon background hesitate to sell their house to either a black family or an Italian family. Points of view are indicated, but no solution is presented.

In the second article, Toronto's Chinatown is discussed: its history, the threat to its existence, and the role that it plays in the life of the Chinese community at large. The article illustrates the dilemma of a minority group becoming isolated and its identity endangered by assimilation into a larger society.

Sheet 5 (T1)

1. How does Mrs. Walker feel about certain immigrants?
2. How is Chinatown threatened?
3. What is Mayor Dennison's view?
4. What are the two types of Chinese young people that Nancy speaks about?
5. What makes Chinatown different from other parts of Toronto?
6. Why does Nancy Woo wish Chinatown to remain unchanged?

Day 6

The quality of education is considered with respect to the problems of cultural adjustment from the native Indian point of view. The lack of educational opportunity in the community makes it necessary for young Indians to attend residential schools in the south, thereby imposing a new life style with conflicting values. Marjorie Cameron, 17, who is in grade ten, exemplifies the difficulties encountered in such cases.

Sheet 6 (T1)

1. How is a "generation gap" being created between Marjorie and her parents?
2. How is Marjorie's education a disruptive experience for her?
3. What is the policy for the education of most Treaty Canadians?
4. What reasons are given for Marjorie's difficulty in adjusting to life at school?
5. What are the educational standards of Indian children?
6. How does Indian educational attainment compare with the national standard?
7. In general, what were the findings of the special Senate Committee on poverty concerning educational opportunity for Indians?

Day 7

An interview with Alex Andino, 28, a representative of the Filipino community in Toronto, emphasizes the problem of finding suitable employment for a minority group who are 80 per cent college educated and professionally oriented. The question of overqualification is discussed, particularly as it is affected by Canadian standards and the pressures resulting from a depressed economy.

Sheet 7 (T1)

1. Explain the basis for discrimination against Filipino workers.
2. Explain why some unions and professional boards impose more difficult examination standards for foreign workers.
3. How would you define "underemployed"?
4. Why does Andino believe that he and many other Filipinos are underemployed?
5. What is the attitude of most Filipinos regarding the problem of underemployment?
6. According to Rev. H.J. Murphy, how are immigrant doctors discouraged from pursuing their careers in Canada?

Day B

The struggle over language rights in education is presented in the description of clashes between the Italian community (45%) of St. Leonard, Quebec, who are demanding English language instruction for their children, and the French community (40%) whose representatives demand a French only instruction.

The issue is left unresolved, although subsequent steps by the Provincial Government have clarified the legal situation. Points of view are not explicitly given for any group, however the nature of the problem is evident from the actions taken.

Sheet 8 (T1)

1. What conflict arose in St. Leonard between the French speaking and the Italian speaking residents?
2. How did the Italian minority attempt to settle the problem?
3. What was the reaction by many of those opposed to English language education?
4. What was the effect of the 1970 Provincial law regarding language rights in Quebec?
5. What is the present law in Quebec regarding language rights in education?
6. How has this law affected the situation in St. Leonard?

Day 9

A group discussion by Brandon, Manitoba, secondary school students reflects their concerns about minority rights. The rights of this minority, who are predominantly of Ukrainian descent are presented in the light of French aspirations for protection of their language and culture throughout Canada.

Sheet 9 (T1)

1. What is Mr. Diefenbaker's claim regarding the actions of the Federal Government?
2. What is Mr. Pepin's reply to Mr. Diefenbaker's charge?
3. List the efforts that the Manitoba Ukrainians are making to maintain their identity as a particular ethnic group.
4. What group forms the majority in this part of Manitoba?
5. What evidence is there of Anglo-Saxon prejudice in this discussion?

Day 10

A small group discussion in a Hamilton secondary school in which a report is presented on the integration of Indian, i.e., Bengalis, into Canadian society. Though retaining many customs and style of dress, this group has no complaints concerning employment and do not tend to live in separate communities. The article explores, to some extent, the different views regarding integration and assimilation.

Sheet 10 (T1)

1. How do the Bengalis appear to integrate into Canadian society?
2. Why do the Bengalis not appear to share with other minority groups a fear of assimilation?
3. What specific "cultural baggage" is mentioned in this article?
4. What do the Bengalis mean by the term "integration"?
5. What sort of jobs do Bengalis seek?

Day 11

The "generation gap" is introduced by a discussion of the findings of a four-year study of family conflict among Italian immigrants in Toronto. A series of three articles examines problems relating to schooling, dating, and income. The study discloses particular causes for tension within immigrant families resulting from cultural and language differences aggravated by the children adapting to the Canadian way of life more rapidly than their parents.

Sheet 11 (T1)

1. What are the two main ways that schools contribute to the conflict between generations in immigrant families?
2. In what ways do Filomena's parents limit their daughter's freedom?
3. What custom is at the root of the conflicts which are developing between Lou and his father?
4. What does Lou want to do with his income?
5. What does the father want for his family?
6. What part of Europe did those immigrant families come from?



Day 12

Each of three reports deal with a specific situation in which immigrants find that their job applications are considered unacceptable on the basis of one or more of the following: overqualified, lack of Canadian experience, lack of Canadian citizenship, or underqualified according to Canadian standards. In addition, the immigrant is often faced by the dilemma of having his professional or trade qualifications rejected, and therefore the necessity to write certification exams in English or French.

Sheet 12 (T1)

1. What are Josef Meyer's qualifications?
2. Why is he applying for jobs in Australia and New Zealand?
3. Why were Susan Lee's qualifications not accepted in Quebec?
4. Why is it particularly difficult for her to obtain Canadian certification as a dentist?
5. Why did Karl Duzek decide to come to Canada?
6. What difficulty does he have in obtaining his plumber's certificate?

Day 13

A general overview of Canadian government policy in screening immigrant applications is presented. It is suggested that the process of recruiting and determining standards for immigrants may unduly raise expectations that fail to materialize when matched with the reality of obtaining further certification and/or overcoming job restrictions due to discrimination or lack of full citizenship status.

Sheet 13 (T1)

1. Explain how immigrants are selected for entrance into Canada.
2. What are the results of Canada's selection policy?
3. What restrictions do the Quebec College of Pharmacists place upon immigrants in that profession?
4. What restrictions do the Federal Government place upon immigrants seeking employment?
5. In what ways do immigrants get their information about job and wage prospects in Canada?

## APPENDIX D.

Teacher's Guide to Questioning  
Types (Treatment 2)

**Topic: Minority Groups**

1. Describe the text content by following, in general terms, the summary which precedes each set of questions.
2. Have students read the required text material.
3. During the reading, and immediately following, check to see if there is any difficulty.
4. Provide students with appropriate question sheets.
5. Encourage (T1) students to answer all questions as specifically and clearly as possible.
6. Encourage (T2) students to do as many questions as possible but not to substitute quantity for quality.
7. Where time permits, randomly select students to read back responses to questions.
8. Every five days collect students' notebooks and check contents for efficiency in work covered.
9. At the discretion of the teacher, students may work together within groups. Discourage any communication between groups.
10. On Sheet 6 (T2), omit question 3. Have students do question 4 as a compulsory question.

Sheet 1 (T2)

1. From your own experience or reading, give several examples of cultural or ethnic influence and describe each.
2. How have the presence of minority groups affected Canadian society?
3. How would you identify the society within your classroom, your school, your community, your Province, Toronto?
4. How would you defend one of the following statements?
  - (a) Canadians should be similar in outlook and customs.
  - (b) Cultural diversity offers greater benefits for Canada than homogeneity.

Sheet 2 (T2)

1. How would you account for large differences in regional statistics concerning immigration?
2. Is the argument of "an empty country" consistent or inconsistent with the claim regarding the jobless situation? Explain.
3. How would you account for large differences on the basis of occupational statistics?
4. By taking a stand for or against increased immigration, comment on the reasons given and provide additional reasons, if any.

Sheet 3 (T2)

1. From your reading or experience, show how "cultural baggage" may sometimes benefit Canadian society.
2. Complete a chart for each family and indicate clearly:
  - (a) reasons for coming to Canada, and
  - (b) characteristics of each group.
3. From the characteristics listed above, select two or more which you consider most desirable and explain why.
4. From the reasons listed above (Question 2), select one or more which you consider most true for each group or individual.
5. Research the names of three well-known Canadians, not born in Canada, and briefly comment on their contribution to Canada.

Sheet 4 (T2)

1. Explain why you would, or would not, be likely to find as many immigrant groups in a rural area?
2. Why can it be said that the school helps in the assimilation of newcomers into the majority society?
3. Is there any evidence that Joan Kennit may not approve of the bilingual policy of the Federal Government? Explain.
4. From the information given in this interview, can you support the view that Canada is a "melting pot" or "salad bowl"? Give reasons to support your view.



Sheet 5 (T2)

1. Compare the arguments for and against keeping Niceville unchanged.
2. Compare the arguments for keeping Chinatown unchanged.
3. Do the same arguments apply to Niceville as to Chinatown? Explain.
4. Does Chinatown have a stronger case than Niceville? Explain.
5. Is there discrimination in Niceville? In Chinatown? Give reasons to support your view.

Sheet 6. (T2)

1. How do you think Marjorie's education will affect her relationship with the rest of her family?
2. How is her education not preparing her well for work in the city?
3. Working in small groups, prepare material for and against the following issues:
  - (a) The purpose of education for Indian children should be to integrate them more fully into white man's society.
  - (b) Minority groups should be encouraged to preserve their own communities in Canadian cities.
  - (c) It is better for Canada if minority groups live amongst other Canadians rather than become isolated.
  - (d) Minority groups should be given financial aid from the Government to preserve and develop their communities.
5. If time permits present reports to the class for discussion.

Sheet 7 (T2)

1. How does discrimination create problems for the Filipino to adjust to Canadian society?
2. How would you describe the effects of imposing such standards as higher examinations upon an immigrant group?
3. Take a position for or against this practice and provide reasons for your decision. (Note remarks of Rev. H.J. Murphy).
4. In what way could Filipinos be described as an unusual group of immigrants?

Sheet 8 (T2)

1. How do you interpret the point of view of:
  - i. the Italian community?
  - ii. the French community?
  - iii. the English community?
2. Explain why there is a problem of language and culture in St. Leonard, Quebec.
3. Explain why there is a problem of language and culture in Canada as a whole.
4. What justification is there for a feeling of separation in Quebec?

Sheet 9 (T2)

1. Compare the Ukrainian community with the Italian community of St. Leonard.
2. On what basis would you be able to support:
  - i. Mr. Pepin's decision?
  - ii. Mr. Diefenbaker's claim that the Federal Government is hurrying the assimilation of Ukrainian language and culture?
3. Outline an argument in favor of, or opposing, the limiting of an ethnic group's rights according to the numbers of people in the group, e.g., bilingual districts.
4. Review earlier position papers on this topic and note (write down) any additions or changes in your point of view.
5. What evidence is there of Anglo-Saxon prejudices in this discussion?

Sheet 10 (T2)

1. Would the Bengali view of integration be shared by other minority groups, i.e., the French outside Quebec, the Ukrainians? Explain.
2. Explain why you think integration would, or would not, prevent assimilation of minority groups.
3. Review again your earlier position paper and append any addition or change of view in the light of your new information.
4. What is the difference between integration and assimilation?

Sheet 11 (T2)

1. How would you compare parent-children attitudes of immigrant families regarding:
  - i. the role of the school?
  - ii. social life of young people?
  - iii. an independent income by older children?
  - iv. parental control?
2. Why do you think the generation gap affects relations within traditional Canadian families?
3. Why does the generation gap affect immigrant families more than traditional Canadian families?
4. As a social worker, what suggestions would you make to resolve the problem?
5. Show how the expectations of the immigrant parents may be limiting to the social and educational advancement of:
  - i. the son,
  - ii. the daughter.
6. What kinds of family conflict would you foresee in a traditional Canadian family moving from one Province to another?

Sheet 12 (T2)

1. What inconsistencies do you find in each case presented in this article?
2. Would you call this discrimination? Why, or why not?
3. Where does the fault lie? Explain the reasons for your conclusion.
4. What steps, do you think, could be taken to overcome these problems?



Sheet 13 (T2)

1. On what basis would you support or reject the point system for choosing immigrants?
2. Suggest ways in which the reality of life in Canada may differ from an immigrant's expectations.
3. Should certification procedures for skilled trades be changed? If so, how? If not, why?
4. Do you think that citizenship clauses should be included as requirements for government or other jobs? Explain.

## APPENDIX E

Outline of Treatment Followed  
by Control Group Students

Group (T3)

Assignment: To be completed by November 5, 1978.

1. All Minority Groups (Text) readings are compulsory.
2. Study two additional items listed under each section.
3. Read or view extra material if necessary.
4. Write a three hundred word essay under the topic for the section. This essay must contain:
  - (a) a cover page on which is written the title, name of the teacher, and student's name,
  - (b) a quotation from one of the articles used,
  - (c) a bibliography.
5. There are four essays in all. They may be done in any order. If you find that the material in one section is not available, use another section.
6. Students may share material for taking notes, or exchange ideas, but essays must be done independently.

Section A: Canada's Cultural BackgroundReferences:

1. Minority Groups (Text), pp. 1-8.
2. Mosaic Canada (filmstrip).
3. Anatomy of Racism, "People of Canada Today."
4. Glass House of Prejudice, pp. 158-183.
5. Anthropology, pp. 13-33.
6. World Cultures, "Canada and the World" (March, 1978), pp. 12-23.

Section B: Native Peoples of Canada

## References:

1. Minority Groups (Text), pp. 15-16.
2. Native Canadians (filmstrip).
3. The Unbelievable Land, pp. 1-11.
4. Issues for the Seventies, pp. 5-225.
5. Native Peoples (filmstrip).

Section C: Our French Heritage

## References:

1. Minority Groups (Text), pp. 17-18.
2. French Canadians (filmstrip).
3. Canada--A House Divided (filmstrip).
4. White Niggers of America, pp. 21-49.
5. Quebec States Her Case, any two selections.

Section D: Other Cultures Within Canada

1. Black Canadians
  - (a) Minority Groups (Text), pp. 11-12.
  - (b) Black Canadians (filmstrip).
  - (c) Black Canadians, pp. 13-46.
2. Chinese and Japanese Canadians
  - (a) Minority Groups (Text), pp. 12-13.
  - (b) Japanese Canadians (filmstrip).
  - (c) Cultures in the Canadian Scene, pp. 119-124.
  - (d) Canada and the World (December, 1977), pp. 16-17.

3. European Canadians

- (a) Minority Groups (Text), pp. 28-31, 33.
- (b) European Canadians (filmstrip).
- (c) Canada and the World (December, 1977), pp. 13-19.
- (d) Issues in Cultural Diversity, pp. 87-117.

Section E: Immigration

- 1. Minority Groups (Text), pp. 35-36, 33-34.
- 2. Canadian Society, pp. 629-642.
- 3. Canada and the World (September, 1977), pp. 10-11, 13-23.

## APPENDIX F

Letters from the Offices of the  
Superintendent for the Avalon  
North Integrated School District,  
and from the Principal of Ascension  
Collegiate, Bay Roberts, Newfoundland

# Avalon North Integrated School District

Telephone 738-2580, 738-2585

P. O. Box 70

Bay Roberts, Newfoundland.

ADA 100

C. Mendy, Board Chairman

C. M. Smith, B.A.(Ed.), M.Ed.,  
Superintendent

April 25, 1978

Mr. David Caravan  
Ascension Collegiate  
Bay Roberts  
Conception Bay, NF  
ADA 100

Dear Mr. Caravan:

In response to your letter of April 10, 1978 requesting permission to undertake an experiment in, "The Influence of High and Low Level Questions on Critical Thinking Ability and the Retention of Gains in Critical Thinking Ability Effected by Question Types", approval is granted for you to proceed—provided your experiment does not interfere with the examining and evaluating of those students involved.

I am sure you understand that the above condition is regular and normal with any approval of this nature.

Personal good wishes!

Sincerely,

C.M. Smith  
District Superintendent

CMS:led

# ASCENSION COLLEGIATE

P. O. Box 370  
BAY ROBERTS, NEWFOUNDLAND, CANADA  
A0A 1G0

W. HEDDERSON, B.A. (Ed.), B.A., Grad. Dip.  
Principal

Telephone 786-3590; 786-3400

W. GOSSE, B.A., B.A. (Ed.), M.Ed.  
Vice Principal

April 14, 1978

Mr. David Caravan  
Teacher  
Ascension Collegiate

I am happy to grant you permission to proceed with your experimental program involving all Social Studies Students at Ascension Collegiate.

I feel that your topic for your Thesis, "The Influence of High and Low Level Questions on Critical Thinking Ability and the Retention of Gains in Critical Thinking Ability Effected by Question Types" is a timely one in view of the fact that evaluation is uppermost in our minds at this time.

I feel that the educational gain from this project will be our gain as well as yours.

I hope that you will be successful in your program and that you will get some pleasure from the work that's required to complete such a project.

Yours sincerely,

---

W. Hedderson  
Principal

WH/ec







