ILLITERACY: IS IT THE ONLY ISSUE?

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A thesis submitted to the School of Graduate
Studies in partial fulfillment of the
requirements for the degree of
Master of Education

Department of Curriculum and Instruction
Faculty of Education
Memorial University of Newfoundland

July 1991

St. John's Newfoundland

ISBN 0-315-68234-5

ABSTRACT

The Department of Education in the Province of Newfoundland and Labrador has set a planning target of a 100% increase in the number of literacy trainees over a five-year period. This researcher examined the statistical data used to assess the prevalence of illiteracy in the province and evaluated the effectiveness of one guiding definition as an indicator of illiteracy. Specifically, the indicator "15 years of age and above with less than Grade Nine" was evaluated in the context of results attained on the Vocabulary and Comprehension components of the Canadian Adult Achievement Test by 237 prospective students at Western Community College.

The results of this analysis suggest that caution must be exercised when employing this indicator as the sole means of assessing the prevalence of adult illiteracy. The data indicates that reading prowess does increase with years of schooling, but the correlations observed between age and years of schooling with reading scores attained on the C.A.A.T. are too weak to permit definitive inferences.

These findings support an Adult Learning Centre model which is based on the premise that while illiteracy

is a significant issue, it is part of a much larger problem of undereducation that must be addressed as well.

ACKNOWLEDGEMENTS

Dr. Frank Wolfe has been an invaluable guide through the entire process of preparing this thesis. While Dr. Wolfe pointed the way, my wife, Mary, and three children, Catherine, Michael and Andrew, provided the encouragement I needed to follow the project through to its completion. Many thanks are also due to my employer, Western Community College, for providing a professional environment that cannot be matched.

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INTRODUCTION

> Finally, in demonstration of the commitment which is required in the literacy field, a planning target of a 100% increase in the number of literacy trainees is being set for the post-secondary system. In attempting to meet this target, additional funds through grants in aid or new initiatives will not necessarily be forthcoming. Institutions will have to redeploy funds into the literacy area. Literacy must become a core program, as central to the college as skills programs are now, and this means a financial shift as well. (Shaping Our Future: A Five-Year Strategic Plan For The Postsecondary Education System In Newfoundland And Labrador, 1990, p. 61)

This, the concluding statement on literacy in Shaping Our Future, set the tone for this writer's professional endeavours in the next five years and influences this thesis to a large degree. In my capacity as Program

Development Officer (A.B.E. Specialist) at Western Community College, I serve in:

> a responsible instructional leadership and support position co-ordinating program and professional development activities and projects conducted by the College. Under the general direction of the Vice-President at the Headquarters level, the incumbent is reponsible for assisting Campus Principals, Supervisors of Instruction, and faculty with identification of program and professional needs within the College; developing guidelines and objectives for program and professional development projects to meet those needs; and coordinating the projects by facilitating the work of all those assigned to it to ensure that each project is successfully completed. (Position Description, Program Development Officer, Western Community College)

In this capacity, and in the context of the priority apparently to be placed upon literacy in this province in the coming years, this writer will be engaged in the implementation and maintenance of new literacy initiatives in the College region.

Currently, demand for literacy programming is at a higher level than ever as a consequence of a number of factors. First, the designation of 1990 as International Literacy Year has greatly enhanced public awareness of the issue of illiteracy and has done much to ameliorate the stigma which has traditionally been associated with the issue. Second, the Province is currently embroiled in a recession which is resulting in a significant displacement of workers, many of whom need retraining. Third, field workers with the various Community Education Departments of the College have done an effective job of promoting the availability of literacy programming in areas which had previously not been served.

The Adult Basic Education (A.B.E.) Level I program is the mainstay of the College's literacy agenda. Offered on a full-time/daytime basis at Stephenville and a part-time/night-time basis throughout the College region, A.B.E. Level I prescribes instruction in the basic skills of literacy and numeracy and places these skills in a societal context by exploring themes related to everyday life. Delivery of the program features a low instuctor/student ratio (typically, 1/5) in settings

ranging from a kitchen in Red Brook to a traditional classroom in the College campus at Stephenville. Particularly in the smaller centers, instruction is delivered by local residents who are aware of the prevailing economic, societal and educational restraints of the students and the area generally, and the result is instruction tailored to each locale.

However, while A.B.E. Level I is the mainstay, the College maintains a close liaison with other agencies offering literacy instruction and assists these agencies as required. For instance, Laubach Literacy operates in close harmony with the College, albeit at arm's length, in its efforts to deliver programming throughout the region. Many College personnel serve at the executive level in local, provincial and national Laubach Literacy Coucils and the Field Officer for the organization is housed at the Corner Brook Campus of the College. The program, with its innovative "each one teach one" approach delivered by trained volunteer tutors, is seen to offer instruction that is complementary to, rather than in conflict with, the A.B.E. Level I program. Indeed, the program is very attractive particularly to adult learners who are reluctant to pursue training

through an institution until their literacy skills improve. Subsequently, many of these learners then enter the College in pursuit of higher level training with a greatly enhanced level of confidence. As such, the Laubach program serves as a feeder program for the College.

In addition, the College actively seeks to offer innovative literacy programming in concert with various community-based groups. Funding was recently announced for the establishment of a program at the Stephenville Crossing Campus which will use the interactive video program, PALS, as the principal mode of instruction.

However, the task of enhancing the levels of access would be immensely easier if abundant funding were to be made available for literacy programming, but the Five-Year Plan specifically points to an alternative scenario. Consequently, the challenge for this writer and Western Community College is to effectively identify target groups and to provide needed literacy programming in a fiscally prudent fashion. Additionally, the College must be cognizant of the fact that literacy demands may vary in terms of scope as well as prevalence, thus imposing

the need for diverse curricular approaches to the remediating of the issue.

This thesis marks this writer's attempts to come to grips with the issue of adult illiteracy at a personal and professional level, and seeks to arrive at an effective means of defining adult illiteracy and assessing its prevalence for purposes of program planning. It is hoped that the outcome will provide a focus for action as the College attempts to meet its objectives.

BARRIERS TO ACCESS

The current emphasis on enhanced levels of literacy programming assumes that past literacy efforts were not addressing the real needs of adult illiterates. The review of related literature in this thesis is meant to illustrate that a variety of definitions and assessment procedures have been used to provide a measure of the prevalence of adult illiteracy in this province and the results have suggested a 'problem' of staggering proportions. Yet, the number of literacy students in this province has essentially remained stagnant at a level far below that one would expect given the reported

prevalence of illiteracy. This paper will argue that part of the problem may reside in the definitions and assessment procedures used to quantify the number of adult illiterates, but it would be negligent to ignore the notion of barriers which impede access to literacy programs.

Any effort to enhance the level of literacy programming must reflect the fact that barriers, both real and perceived, exist which conspire to prevent many adult illiterates from obtaining literacy training. Hayes (1988) identified five factors; low-self-confidence, social disapproval, situational barriers, negative attitudes to classes and low personal priority as typifying the rationale given by adults who could not or would not access programs to upgrade their skills. (p. 4) These factors are described by Hayes as:

> Factor One: Low Self-Confidence. The items loaded on this factor reflected feelings of low self-esteem in general, and specifically in regard to academic ability. Certain items suggested a fear of specific tasks required in the educational process. The high means of a number of these items indicated that such

deterrents are perceived as particularly important by this population.

Factor Two: Social Disapproval. This factor was comprised of items that suggest the existence of a social environment in which education is not perceived as helpful or important. The highest loading variables specifically referred to the disapproval of family and friends as barriers to participation.

Factor Three: Situational Barriers. This factor, similar to the category of situatonal barriers described by Cross (1981), consisted of items such as costs, lack of transportation, and family problems.

Factor Four: Negative Attitude to Classes. The items loading on this factor indicated a dislike of schoolwork or classes, or of an aspect of participation in classes, such as going to a school building. Unlike Cross's Institutional Barriers, these items generally represented a personal evaluation rather than a barrier erected by the institution.

> Factor Five: Low Personal Priority. This factor was defined by two marker variables: "It was more important to get a job than to go to school," and "I don't have time to go to school." They both indicate a situation in which other activities take precedence over education. (p. 3)

Literacy In A Changing Society: Policies, Perspectives, And Strategies For Newfoundland And Labrador, the Report of The Ministerial Advisory Committee On Literacy, 1989, reports that similar barriers exist in the Newfoundland context. Following a province-wide round of consultations, the Committee listed:

> difficulty of learners to articulate needs; social stigma of illiteracy; lack of support systems (i.e. day/night care); tuition costs, insufficient funding programs; cultural barriers; lack of relevant information; adults do not have basic right to education (p. 8)

as the most significant barriers faced by learners in this province.

It must be noted that many of these barriers identified in both sources are self-imposed, (i.e., low self-confidence, social disapproval, negative attitude to

classes and low personal priority are personal barriers as opposed to institutional barriers), suggesting that recruitment policies must be geared toward overcoming anxieties about returning to an educational setting. However, situational barriers such as lack of financial resources for tuition, daycare and transportation are very real barriers for the person who has a genuine desire to attend classes but cannot in the absence of some form of financial support. These barriers are institutional or societal in nature and are beyond the control of the learner.

Consider the following scenario (a composite of actual incidents) as an example of the very real effect of these barriers for adult learners.

A divorced mother of two pre-school children has a genuine desire to obtain Beauty Culture training as a means of attaining gainful employment and approaches Canadian Employment and Immigration about the possibility of receiving a training allowance to attend the program. At present, she receives child support and alimony payments which are just barely sufficient to provide for basic living expenses. In the absence of additional financial support, she cannot possibly enrol in a

program, given the added expenses of daycare and transportation. The employment counsellor at C.E.I.C. recognizes the woman's genuine interest but suggests that in view of the fact that she left school while in Grade 9, academic upgrading will be needed prior to her acceptance into a Beauty Culture program. However, she is assured that training allowances are available for A.B.E. Level II and III students, so she is advised to apply for entry into an A.B.E. class at the local community college. Upon completion of this program, she will be able to enter a Beauty Culture program and receive a training allowance to complete that program as well.

Prior to acceptance into the A.B.E. program at the college, she completes relevant portions of the Canadian Adult Achievement Test and is advised that her scores are such as to require her placement in A.B.E. Level I, the literacy component of the program. She is quite prepared to enter this program but is shocked to discover that training allowances are not available to students enrolled in Level I. She learns that literacy is viewed by C.E.I.C. to be the attainment of basic skills, which is viewed as a function of education. Education, of

course, is a provincial responsibility, and since C.E.I.C. is a federal agency, there are jurisdictional issues to consider. The Province, given its mandate for education, does not pay training allowances, but does pay any tuition fees that the woman might incur. However, the tuition fees themselves are not her greatest concern because the issues of daycare and transportation pose her most daunting challenges. Consequently, she has no choice but to shelve her plans.

This scenario, one which is all too common, points to barriers that exist today in this province. Each of the governmental agencies involved can be absolved of any blame in this issue because jurisdictional boundaries are clearly defined, and in the case of the community college, the student was simply being counselled into the training that was required. Even so, a highly motivated student seeking to improve herself was denied access to a program for reasons that she could not control.

It must be emphasized that the individual described in this scenario had willingly made a decision to return to an educational setting and had presumably put aside the personal barriers that Hayes describes. She had not viewed herself as being illiterate, because she had coped

with the reading demands of her life situations to date, and it was only upon seeking entry to a more advanced training program that she learned of her deficient reading skills. Statistically, as will be demonstrated in the review of related literature, and in terms of a placement test at a community college, she was classified as an illiterate adult, yet her self-perception suggested otherwise.

Experience supports a contention that many people learn of their reading deficiencies in this manner and that this realization forces such adults to rethink the plans that they had formulated. The individualized and self-paced delivery system used in its pre-employment programs enables Western Community College to utilize a continuous intake policy which allows a new student to occupy a vacant training position as soon as it becomes available. New students are routinely processed on Monday mornings; part of this process includes the administration of the C.A.A.T. and other standardized tests as required. Many students enter the building believing that they are about to enter the trade of their choice as mature students, only to find that their reading deficiencies require remediation, a process that

might take two or three years. This must be accomplished before they can cope with the academic components of the trade. Consequently, these students must deal with their frustrated ambitions and with the realization that they are illiterate at the same time.

These points are raised to highlight an issue that is central to the current efforts to enhance the level of literacy programming. Definitions can be coined and the prevalence of adult illiteracy can be extrapolated, but any effort to enhance enrollment in literacy training must be cognizant of the real and perceived barriers that exist, and recruitment policies must be formulated to reflect these barriers. Hayes (1988) neatly summarizes the issue in her assertion that:

> Attempts to recruit greater numbers of the low-literate population in the past, while numerous, frequently have not met with great success (Hunter and Harman, 1979). One factor contributing to the failure of past efforts is a lack of knowledge about systematic differences among the low-literate population that might make differential recruitment strategies necessary. Limited previous

> research has indicated that the low-literate population does not form a heterogeneous group. Fingeret (1983) characterized illiterates along a continuum, ranging from the "cosmopolitans", who are often economically successful, often pass as literate, and have heterogeneous, extended social networks, to the "locals", who belong to low socioeconomic, often subcultural or ethnic groups, and have homogeneous social networks. Hunter and Harman (1979) propose four groups of low-literate adults, based on certain social and economic characteristics, and suggest that the most disadvantaged are almost impossible to serve in traditional literacy programs. (p. 2)

This writer would suggest that enhanced levels of literacy programming can occur only in a context of a valid operational definition of literacy, given reliable information as to the prevalence of illiteracy in an area, and given a thorough knowledge of the barriers to access in that area. Thus, the following discussion features as a recurring theme analysis of the consequences of the findings for recruitment.

Finally, an Adult Learning Centre Model will be proposed as a means of incorporating the findings of this paper into a concrete plan of attack for Western Community College.

CHAPTER 2

REVIEW OF RELATED LITERATURE

It would seem that a definition of illiteracy should be relatively easy to stipulate. Essentially, literacy is widely understood to be the ability to read or write, therefore illiteracy must of necessity mean the opposite - namely, the inability to read and write. However, while this definition is elegant in its simplicity, it leads this writer to recall an expression coined by an author unknown, "For every human problem, there is a solution that is neat, simple and wrong". This definition may not be wrong, but it does beg the very questions that this review of related literature seeks to answer.

Thomas (1989) provides a useful starting point in her excellent treatise, "Definitions and Evolution of the Concepts" , and raises many of the questions that have been begged by the opening definition:

> Problems begin to surface, however, when literacy purposes are discussed. The answers to the question "Literacy for what?", determine how a literacy program is designed, implemented

> and evaluated. The underlying assumptions and values of the definers shape the practice. Results determine the success or failure of a program and experience may modify the initial assumptions and ultimately help change the definitions. (p.3)

Thomas (1989) acknowledges the fact that the quest for a definition is one that is fraught with difficulty, but leaves no doubt about her conviction that a definition is essential, as evidenced by her assertion that:

> Coming to grips with definitions of "literacy" has become something of a preoccupation for many scholars, especially in the last decade. Technological change and human resources development policies are factors contributing to the heightened visibility of "literacy" in the public consciousness and the efforts of governments at various levels to understand "the problem". One's understanding of what "literacy" or "illiteracy" is shapes policies and funding provisions. Thus, definitions become critical. (p.4)

The problem, however, is that there are perhaps too many definitions, and as Thomas has pointed out, these definitions are largely influenced by the values and assumptions of the definers. Additionally, many existing definitions are subject to the vagaries that Clark (1984) poses in his assertion that:

> A definition communicates some sense of meaning from someone to someone, and in so far as it does that it is useful. When a definition no longer properly defines what is or no longer is understood by the audience for whom it is written, it ceases to be useful. Definitions tend to be temporal and not universal. So it is expected that they will change or evolve as a reflection to the existence of new knowledge or new audiences with new perceptions. On the other hand, it also happens that definitions may persist beyond their temporal boundary and may continue to be used even though they no longer reflect either existing knowledge or people's perception of that knowledge. (p. 133)

Harman (1987) responds to the notion of values and assumptions in his observation that:

> More than a set of skills, literacy is a value. Societies that place an important value on being literate actively seek to inculcate it and provide rewards to those who are literate. In other societies, literacy is viewed as a less important value and is less avidly pursued. In such societies, even if literacy is firmly embedded in the schools' curriculum, literacy cannot properly take hold. (p.11)

Given the necessity of definitions that reflect the values of the group for whom literacy is defined, and further, given the varying level of value assigned to literacy in different societies, it seems reasonable to speculate that no single definition of literacy can be developed to accommodate all societies.

To place these different values in an appropriate context, it can be a useful exercise to trace, however briefly, the evolution of literacy throughout the ages. Harman assists in this endeavour, and suggests that the greatest single proponent (and beneficiary) of literacy has been the monotheistic religions:

> The spread of monotheistic religions- first Judaism, then Christianity, and finally Islam-

> was made possible by the use of written texts. By no means a rapid development, more than a millenium elapsed in the process. For all three religions the ability to commit words to writing was an essential ingredient in their becoming widely disseminated and adopted. The Old Testament, the New Testament, and the Koran are indeed, the quintessential example of the great power of the written word. (p.15)

Draper (1989) suggests after an historical review of literacy that this power was not lost on leaders who sought to exert influence through the written word. He concluded that:

> The history of literacy reveals different responses to the question, "To what end?", including the promotion of materialism, dependency, independence, religion, morality, family, migration, immigration, survival, preservation, change, urbanization, a welfare state, cultural pluralism, indoctrination, leisure, liberation, and depersonalization. The list goes on. The words express values and goals which, in turn, determine action (p. 74).

Consider the example of Lenin, whom Harman describes in his observation that:

> In the aftermath of the Russian Revolution the first of the modern literacy campaigns was launched by the new Soviet regime. Lenin, arguing that "an illiterate man is nonpolitical; first he must be taught how to read", placed this effort high on his agenda of national priorities. (p.21)

Lenin, however, might have been concerned had he discussed the issue with Dauzat and Dauzat (1977) who suggest that:

> Literacy has political value. The literate person has greater options to fully participate in political affairs than does the illiterate. The literate person is more likely to have access to a variety of viewpoints related to political policies, political candidates' qualifications, etc., than is the illiterate. He is more likely to make reasonable decisions than is the illiterate. (p. 4)

Clearly, Lenin wanted only to instill in his countrymen an appreciation for the Communist Manifesto, not an

appreciation for conflicting ideologies.

In fact, it is intriguing to note Harman's observation that :

> Both coupled notions about reading with the texts to be read- the Bible and the Communist Manifesto. Beyond that, it does not appear that much attention was paid to the uses of literacy. (p.22)

Certainly, the intrinsic value of literacy as a means of attaining self-fulfillment or its entertainment potential was de-emphasized. Rather, literacy was construed as a means of attaining an end that someone else defined, a position that contrasts sharply with that of Dauzat and Dauzat who suggest :

> Literacy has personal-social value. The literate person is less handicapped in achieving self-esteem and feelings of inadequacy than is the illiterate. The literate person is not forced into maneuvers to camouflage and otherwise rationalize his reading and writing inadequacies. Literacy increases the potential for active involvement in society. It also increases the options for

> self-learning of satisfying skills, for discovering talent, and for recreation. (p. 4)

The personal-social value of literacy lends itself to other uses as well. The active involvement in society has increasingly adopted economic overtones which Harman suggests evolved as:

> In western countries workplaces became large, sophisticated, complex arenas no longer capable of sustaining themselves with word-of-mouth orientation and informal on-the-job training. It was found increasingly necessary to rely upon written materials as a central mode of communication and instruction. Written directions, manuals, descriptions of procedures- all of these made the workplace more reliant on print than ever before. Mere literacy, defined in nineteenth century terms as ability to sign one's name or recite the alphabet, was no longer adequate. Reading abilities had to be developed to levels that brought this new plethora of written matter within the purview of the people. Literacy itself became meaningful only when accompanied

> by a notation of standard or level, which in turn required definitions of functional literacy. (p. 22)

Indeed, a review of Literacy in an Achieving Society: A Policy Statement on Adult Literacy illustrates the link which the Province of Newfoundland perceives between economic performance and literacy:

> Among the several objectives for economic development is the reduction of the provincial unemployment rate to at least the national level. Currently, a significant proportion of the Province's unemployed have limited skills and low educational attainment. Occupational forecasts reveal that most new jobs require at least the completion of secondary education. If the undereducated are to have access to these jobs adult literacy programs will be required. Furthermore, workers will also be required to improve their literacy skills in order to maintain their present jobs and participate in ongoing education and training programs. Economic objectives are closely

It must be emphasized that the proponents of literacy within the respective spheres (religious, political and economic) advocated the attainment of literacy for purposes that are not readily reconcilable. For instance, if a meeting could be arranged between Martin Luther, Lenin and John Crow (the current governor of the Bank of Canada), it is difficult to imagine that they would agree upon a single definition of literacy. Yet it is literacy that is central to the attainment of their respective goals and it thus seems reasonable to postulate that literacy has generic elements and that this nature of literacy lends itself to definition.

Cervero (1985) explores the possibility of establishing a common definition and suggests that:

> Agreement on a principle that should be used in defining adult literacy is one thing. It is quite another matter to provide a definition that could be used in specifying goals for and evaluating literacy programs; specifying the appropriate content for literacy instruction; diagnosing, placing and assessing students; and determining how many adults are illiterate. The former may be thought of as a mission

intertwined with educational objectives in the area of literacy.

Dauzat and Dauzat (1977) would apparently agree with the Province's motivation in this respect. These authours argue that a significant property of literacy is based on the fact that:

> Literacy has economic value. The literate person is less likely to encounter difficulties in securing and maintaining jobs than is the illiterate. In spite of the fact that experts have been busy rewriting materials to attain lower reading levels, one must be able to read with understanding at the ninth or tenth level to deal with the simple documents of government bureaus, industry, business organizations, trade unions, etc. Literacy removes restrictions on job promotions since most jobs have entry level literacy requirements with increasing levels of literacy being required for advancement on the job. Literacy facilitates the economic dependence of its possessor. (p. 4)

> statement (something so general that almost everyone can agree to it) while the latter demands an operational definition. (p. 51)

Cervero's scepticism with respect to attaining a common operational definition arises from his observation that the value-laden implications of an operational definition cannot possibly accommodate the plethora of values in a pluralistic society. He argues that:

> The fundamental problem is that any definition of literacy specific enough to provide goals and content for programming is principally an expression of values. ... Thus, the major issue that would have to be addressed in formulating a common definition is whether there exists a set of values that is common to all people. (p. 52)

The challenge to this point appears to be one of meshing the generic processing skills of literacy with the generic values (if any) of the population. Cervero argues that while such a common definition is not feasible (at least in the American context), a common operational definition would provide the following benefits:

One group whose needs might be served by a common definition would be those centralized agencies, such as the federal and state governments, that provide funding for adult literacy programs. Imagine a system in which every person could clearly be identified as literate or illiterate along clearly specified dimensions. Literacy programs would be designed to help students to remedy their deficiencies along these dimensions and thus become literate. Accountability would be the trademark of this system. One could know exactly how many illiterates were in the target population, how many were served in programs, and how many became literate. There would be a number of benefits to this system. Among them would be: 1) these centralized bodies could fulfill their goal to provide statistics on adult literacy; 2) literacy programs and those who administer them could be much more accountable to funding agencies than they are now. (p. 53)

The rather Orwellian overtones of this piece with its implied notion of literacy programming being driven by Big Brother tends to obscure the fact that these benefits may not be all bad. In the provincial context of shrinking educational budgets, some measure of accountability is necessary when one considers the costs associated with program delivery. For instance, the cost of implementing a full-time literacy program for 15 students (assuming training allowances will be paid) exceeds $247,000. (Program Development Office, Western Community College). Similarly, Cervero downplays the fact that students would in fact benefit from clearly articulated policies guiding access to and progress within literacy programs.

Goodman (1985) presents arguments which tend to underscore Cervero's point that a common definition may not be possible in a pluralistic society. He suggests that:

> literacy programs must be rooted in the realities of the communities that they serve, and must relate to real opportunities to use literacy in improvement of the quality of life. (p. 389)

Goodman further argues that:

> Those functions of literacy that are most universal, needed for surviving, like dealing with logos, signs, labels, forms, directories, etc., are the ones to which children will respond most universally. Responses to book-based literacy are much less universal. (p. 390)

Ultimately, Goodman proposes that:

> Successful programs for literacy in an information age are expansionist, building out from where the pupils are in their literacy development. Successful programs are relevant both personally and socially. They are dynamic, keyed to social change and personal/social aspiration. They are holistic in the context of current functions and life experiences. (p. 392)

If this is what successful literacy programs are, then literacy must of necessity be defined in terms of the individual learner in the context of his current environment and personal/social aspirations. In essence,

Goodman has provided the mission statement that Cervero (1985) alluded to but failed to produce.

However, Levine (1982), in a blistering attack on current notions of functional illiteracy, argues that such notions should be implemented cautiously. He states emphatically that:

> The heart of the case to be mounted against current notions of functional literacy is that they obscure the identification of appropriate targets, goals, and standards of achievement in the education of adults by promising, though failing to produce, a quantitatively precise, unitary standard of "survival" literacy. Further, these varying conceptions of functional literacy encourage the idea that relatively low levels of individual achievement- low in relation to the demands of typical literacy-mediated activities- will directly result in a set of universally desired outcomes, such as employment, personal and economic growth, job advancement, and social integration. I will argue, however, that the attainment of functional literacy rarely

> produces such outcomes, and that the elevation of literacy as a panacea for adults lacking basic skills is disingenuous, particularly with respect to the goal of employment in competitive labor markets. (p.250)

Levine seems to suggest that the fundamental problem with current notions of functional literacy is that they preclude the establishment of what Cervero (1985) would call an operational definition of literacy. However, Levine also points to the common values which Cervero argued were prerequisite to the establishment of an operational definition. Unfortunately, Levine's subsequent attempt to provide operational definitions:

> Literacy in general, therefore, becomes the exercised capacity to acquire and exchange information via the written word. Functional literacy is taken to be the possession of, or access to the competencies and information required to accomplish those transactions entailing reading or writing in which an individual wishes - or is compelled- to engage. (p. 264)

are perhaps best likened to the notion of mission statement as described by Cervero. As was the case with the opening definition in this chapter, questions are begged that render Levine's definition inadequate for operational purposes.

Valentine (1986) posits that:

> the major task confronting those who would offer functional literacy instruction is the operationalization of two constructs, literacy ability and literacy demands, and, as Knowles suggests in his definition of educational needs, this operationalization can occur on one of three levels: individual, organizational and societal. (p. 109)

Essentially, Valentine argues that definitions such as Levine's can be applied easily at an individual level and feasibly at the organizational level, but any effort to implement a consistent functional literacy curriculum across a country, for instance, is destined to fail. (p.109-110) Again, the problem may be traced to the sheer diversity of literacy values and uses. Valentine illustrates in his assertion that:

> it is remarkably difficult to arrive at more than a very short list of literacy tasks which are common to all Americans. Traffic signs are relevant only to drivers and urban pedestrians. Job application forms are relevant only to individuals who plan to seek a job. Recipes are relevant only to those who cook. Although it would be nice if everyone in society could read those things, even these fundamental tasks are not necessary tasks for functioning in society, and thus can hardly be considered universal literacy demands. Any uniform curriculum based on the specification of widespread (that is, common to most or many individuals in society) rather than universal literacy demands will be teaching functional literacy to some learners and useless literacy to others. (p. 110)

Literacy in an Achieving Society: A Policy Statement on Adult Literacy gives some insight into the Province's interpretation of universal literacy demands in its identification of the following skills:

> the ability to calculate at some minimal level, the ability to use cognitive skills for resolving day to day problems, the ability to communicate effectively within today's increasingly complex society, some level of computer or technical literacy.

These skills are embraced by UNESCO's definition of literacy which the Province has adopted as its working definition. This definition states that:

> a person is functionally literate "who can engage in all those activities in which literacy is required for effective functioning of his/her group and community and also for enabling him/her to continue to use reading, writing and calculation for his/her own and the community's development".

Again, this definition is best described as a mission statement in that translation is required to transform the elements of the definition into an operational plan. Indeed, the skills presented above are used in the policy statement to respond to some of the questions that this definition begs.

Clark (1984), in an analysis of four types of literacy definitions, suggests that this definition rests on four assumptions:

> (a) literacy is a prerequisite for effective functioning in a society; (b) literacy is a prerequisite for development; (c) literacy still appears to be unitary in that there is no clear definition of levels of literacy; (d) literacy is not an end in itself. (p. 140)

Additionally, Clark argues that the adoption of this definition:

> allows policy makers to decide just what constitutes functionality and, thus, to be able to establish content guidelines for literacy activities. This provides them with a means of controlling the eventual range of programs which can be offered. Because the outcomes are tied to specific functions within a societal context, it is possible to measure in a quantifiable fashion the result of any program. Because the skills are related to the overall participation of an individual in the society, this definition provides a justification for

> tying literacy education with broader policies like political participation, economic development, and recovery or community development. (p. 140)

Clearly, Clark's arguments bolster the Province's arguments for the use of literacy as a means of stimulating enhanced levels of economic activity. Additionally, Clark points to significant benefits in terms of accountability and program efficiency which Cervero argues are the trademarks of an effective operational definition.

This writer suggests that the UNESCO definition is in fact inadequate in both respects in that the identification of appropriate skills is subject both 1) to the values and assumptions of the policy maker and 2) to the perils cited by Valentine regarding widespread skills. For instance, a review of the skills cited in Literacy in an Achieving Society suggests that these skills are subject to a great deal of interpretation if they are to serve as the basis for identifying appropriate content. " The ability to calculate at some minimum level" begs several questions, including: for what purpose?; in which context?; at what minimum level?

The answers to these questions must of necessity be tied to the locale in which the questions are being asked and to the interpretation applied to these skills by the person assigned to pen a program. Yet, if literacy is to be a provincial program and if institutions are to be evaluated in the context of this particular definition, the result may be chaotic. A person delivering a program in Flat Bay, for instance, might well be responding to the needs of a learner who will never leave Flat Bay. In that respect, the instructor and the program cannot be faulted, but it is when phrases such as "the ability to communicate effectively in today's increasingly complex society" are considered that problems emerge. How is society to be defined? Is it local, regional, provincial, national or global village? Competency within the boundaries of Flat Bay responds to satisfaction of a local obligation, but if a person wishes to adopt a more cosmopolitan lifestyle, then the literacy demands will of necessity change. If the Province is suggesting that this latter need must also be addressed, then program evaluation procedures must reflect the diversity of demands.

In addition, the definition leaves the door wide open for a variety of means of assessing the extent of functional illiteracy in the province. Program planning requires the effective targeting of the groups whose needs are most urgent, and currently cited measures are successful only to the extent that they paint a blurred portrait of illiteracy in this province. The Province acknowledges the inadequacy of current measures in its rationale in Literacy in an Achieving Society as evidenced in its assertion that "no comprehensive measure of the literacy problem in Newfoundland and Labrador exists at this time". However, the rationale does cite three surveys in its attempt to quantify the extent of the problem, all of which point to an issue of major proportions if the following claims are accepted:

> According to 1986 census data, 27 percent of the province's population fifteen years and older had less than a Grade 9 education. Areas with greater urban concentrations tend to have a much lower proportion of their population (20-24 percent) with less than Grade 9 education, while rural regions experienced a significantly higher proportion (up to 43

percent) of their population with low levels of educational attainment. By comparison the same statistics showed 19 percent of Canadians in the same category.

The results of the 1987 Southam Literacy Survey, a national test of literacy-related questions designed to assess an individual's ability to use printed and written information to function in society, estimated that as many as 44 percent of Newfoundland adults may be functionally illiterate. The national figure was estimated at 24 percent.

Analysis of the reading scores from the 1990 Statistics Canada Survey of Literacy Skills indicated that 24 percent of the province's adult population tested at levels 1 and 2, the two lowest levels of reading skills. Only 39 percent of the Newfoundland sample tested at level 4, considered to be a level at which an individual can meet most everyday reading

demands. This percentage is significantly lower than the Canadian average of 62 percent.

A review of these findings suggests that two conclusions are appropriate:

1. the illiteracy rate in this province ranges from 27 percent to 61 percent (assuming that levels 1-3 are levels at which one cannot cope with everyday reading demands), or:
2. the illiteracy rate in this province is being assessed with faulty instruments.

It must be emphasized that these surveys were conducted in statistically correct manners and all point to a measure of illiteracy in the province. However, it seems prudent, given the range in reported results, to scrutinize the guiding definitions that produced the results.

The Statistics Canada findings based on the 1986 Census rest on the assumption that literacy can be defined in terms of an individual's age and years of schooling completed. Dauzat and Dauzat (1977) challenge this assumption in their argument:

> Can literacy be defined in terms of the number of years of school attendance? This too, must

> be rejected as a definition of literacy because of the faulty assumption that persons who complete four to eight years of school have the level of proficiency to confront most reading and writing tasks with ease. The errors in this statement are obvious. Furthermore, such a definition precludes a man's being literate without formal schooling. Many history and biographical accounts can attest to the numbers of self-educated and highly literate individuals who never attended school. Certainly, the number of years in school is a poor index of literacy, if an index at all. (p. 2)

With respect to the age component, the authors contend that:

> Should age be considered in a definition of literacy? Although it appears unfair to identify a child under ten or fourteen years of age as being illiterate, it does not appear that age would be of any significance in a definition of literacy. For if age were the factor here, then there could be no literate

> person under some established minimum age. (p. 3)

Graves and Kinsley (1983) also challenge definitions based on years of schooling. The authors set out to:

> demonstrate empirically the inadequacy of conventional operational definitions of illiteracy which rely on measures of educational attainment, most specifically those based on Grade 8 or less, as the criterion for functional illiteracy. Our data indicate that most individuals with an education at less than the Grade 9 level, do, in fact , engage in some reading activity. (p. 316)

Using data from the 1978 Canadian Readership Survey, the authors reported that over 78% of the group with less than Grade 9 engaged in reading as a leisure activity (p. 319). Notably, however, the authors make no claims about the quality of reading at this level.

Clark (1984), too, addresses the notion of years of schooling as an indicator of literacy and contends that the definition rests on the following assumptions:

> (a) Specific levels of education do equate with qualitative levels of literacy; (b) literacy is a direct result of schooling; (c) literacy is a binary state (either you have it or do not); (d) literacy is unitary (there is only one kind); (e) there exists a normative standard for literacy; (e) all points on the educational scale are of equivalent quality, i.e., every grade six graduate has equal literacy skills. (p. 138)

Cumulatively, these arguments undermine the credibility of years of schooling and age as indices of literacy; still, this writer contends that the definition is of some value in policy making. For instance, 28 of the province's 52 electoral districts report incidences of 30 percent or greater in terms of population aged 15 and over with less than Grade 9. (1986 Census Profiles For Provincial Electoral Districts, Newfoundland and Labrador, Newfoundland Statistics Agency, 1990) The range extends from 7 percent for the district of Menihek to a staggering 55 percent for Torngat Mountains. While these results may not convey an accurate portrayal of actual illiteracy rates in these districts, they clearly point

to a level of undereducation that seems inconsistent in the context of universal education. Significantly, at a subjective level, experience suggests that the persons most likely to experience the frustrations described in the scenario in Chapter One are those who completed less than Grade 9 in school.

The 1987 Southam News Survey raises significant issues as well. Essentially, this survey defined literacy in terms of a respondent's ability to perform the following tasks:

> read and understand the correct dosage from an ordinary bottle of cough syrup; from six road signs, pick out which one warns of a traffic light ahead; figure out the change from $3.00 if you ordered a soup and sandwich; sign your name in the correct spot on a social insurance card; circle the expiry date on a driver's license; answer four questions about a meeting arrangement, including the date, time and people involved; circle the long distance charges on a telephone bill. (p. 13)

A respondent was defined as functionally illiterate if he or she got three or more of these items wrong. In the

context of Valentine's earlier comments about the difficulty of identifying common tasks, it seems prudent to evaluate these items in terms of their usefulness.

Immediately, this writer questions the use of the meeting arrangement items as a consequence of his living in a small community. When a significant meeting is to be held, the medium of choice is the telephone and this arrangement works well. Consequently, an individual in this writer's community, when faced with a memo concerning a meeting to be held, might well stumble because it is a form of communication that is not widely used and the individual might be deemed functionally illiterate on the basis of inability to correctly respond to the questions related to the choice of this item. Clearly, competency in understanding memos is essential in large organizations, but this writer would suggest that the skill is one that is not essential in smaller (i.e., rural) areas. Newfoundland's performance in this survey was the worst in Canada, with 44.1% of the respondents deemed to be functionally illiterate.

At a national level, it is worth noting that the researchers found that the indicator of less than Grade 9 fared poorly as a means of identifying illiterate adults.

Extrapolating from the sample, the researchers claim that 1.7 million adults with less than Grade 9 passed the Southam Literacy Test while 2.4 million adults with Grade 9 or higher failed the test. The researchers concluded that:

> Using that arbitrary Grade 9 cutoff to label people meant that federal and provincial policies have been missing their targets by 4.1 million people- the total of the 1.7 million false illiterates and the 2.4 million false literates. (p. 10)

Statistics Canada adopted a similar approach in a 1989 study, "Survey Of Literacy Skills Used In Daily Activities". The researchers in this study adopted a definition that expressed literacy as :

> the information processing skills necessary to use the printed material commonly encountered at work, at home and in the community. (p. 1)

Using a much larger sample than the Southam Survey and a more detailed analysis of reading, writing and numeracy skill levels, the researchers then categorized Canadians in the following levels:

Level 1: Canadians at this level have difficulty dealing with printed materials. They most likely identify themselves as people who cannot read.

Level 2: Canadians at this level can use printed materials only for limited purposes such as finding a familiar word in a simple text. They would likely recognize themselves as having difficulties with common reading materials.

Level 3: Canadians at this level can use reading materials in a variety of situations provided the material is simple, clearly laid out and the tasks involved are not too complex. While these people generally do not see themselves as having major reading difficulties, they tend to avoid situations requiring reading.

Level 4: Canadians at this level meet most everyday reading demands. This is a large and diverse group which exhibits a wide range of reading skills. (p. 2)

As cited earlier, 24% of the Newfoundland sample tested at Levels 1 and 2, with only 39% functioning at the level deemed to be necessary to function in contemporary society. Given the larger sample and more detailed analysis of reading, writing and numeracy skills, this writer would argue that this survey is more credible than the Southam News Survey.

Conclusions

The quest for an operational definition has by no means ended. The discussion to this point has focused on the diversity of views surrounding literacy, and a variety of definitions has been presented. At this point, it seems appropriate to set the tone for the rest of this thesis; accordingly, this writer poses Thomas' (1989) observations:

a. that the grade-level completion measure is inadequate for definitional purposes;

b. that adult literacy is concerned with the abilities of individuals to function within specific social contexts;

c. that there is a literacy continuum ranging from the mechanics of learning how to decode

and encode through any number of "specific literacies" to the mature utilization of literacy skills and processes for informed action and aesthetic appreciation;

d. that language precedes literacy and how one uses language should be taken into account in literacy instruction;

e. that common operational definitions in a pluralistic society are unlikely because of the underlying values and assumptions of the definers and the very varied environments which exist;

f. that literacy may indeed be empowering for some individuals and groups of people, but many seek the safer haven of adaptation to our contemporary society which process can, nevertheless, be self-enhancing for those individuals involved;

g. that the demands of contemporary North American society are ever changing and at a faster pace, so that literacy "thresholds" are likely to be in a continuing state of flux, and as long as some people have superior literacy

> skills, others who have limited skills will remain vulnerable;
>
> h. that even people with superior literacy skills are at risk in today's labour market where more and more people are becoming unemployed and finding that their literacy levels either exceed the requirements for a large part of the economy or are not specialized enough, thus forcing a rethinking of many of the assumptions underlying literacy definitions and programs. (p. 10-11)

as guiding statements.

However, this writer would append another observation to those expressed by Thomas; indeed, the writer is somewhat surprised that this point is notably absent from the literature. In the first instance, literacy training <u>does not occur in isolation</u>. Each training situation involves at least one instructor and at least one student who are engaged in the fulfillment of a contract. The instructor has as his task the responsibility of raising the level of a student's reading, writing and numeracy skills to the point where the student can then realize his or her ambitions. The

task of the student is to attend to the instructor's efforts and to ensure that he has clearly articulated his ambitions to that instructor.

The instructor enters the relationship with a thorough knowledge of those basic skills which, when mastered, constitute literacy in a rudimentary sense. In other words, the student will learn to read, write and perform basic calculations. The instructor then sets the student on a path of reading to learn, or as Thomas says, "to the mature utilization of literacy skills and processes for informed action and aesthetic appreciation". (p. 11)

Note that the identification of the student's ambitions, interests, experiences, etc. is a function of the instructor-student contract, a variable that is not evident in the literature. The skills mastered in all cases is the same, but it is the application of these skills in an instructional setting that is determined by the instructor and student, and this seems to be the sticking point in any effort to establish an operational definition because it is simply not amenable to definition.

Nevertheless, it is this writer's contention that it need not be defined; i.e., it is the skills that are the constant and which need to be defined. The successful application of these skills is a function of good teaching, which is another matter altogether. The challenge is to identify the skills.

This writer would suggest that that has already been done, and further, that the A.B.E. Levels I and II programs are the manifestations of these defined skills. Simply put, mastery of the skills and content of these programs provides the learner with the ability to cope with the demands of everyday life and of higher level training which the learner wishes to pursue.

CHAPTER 3

PURPOSE OF THE STUDY

The present study was conducted as a means of refining data obtained from the 1986 Census to enable more informed use of this data in planning literacy programs in the province of Newfoundland and Labrador. Additionally, it is anticipated that the results of this study will be equally useful in the interpretation of data arising from the 1991 census. The Province has charged the community college system with the task of increasing enrollment in literacy programs by 100 percent over a five year time frame, this in a context of no new additional funding for this purpose. In order to achieve this goal, community colleges will have to simultaneously redeploy existing funding while implementing new prcgram initiatives for adult illiterates. Clearly, needs assessment procedures must be as precise as possible if new programs are to be effectively targeted and funded.

The preceding review of related literature suggests that caution must be exercised when interpreting data

based upon years of schooling and age as indicators of illiteracy. Traditionally, functional illiteracy in this province has been assessed in terms of census data describing the educational attainment of the populace. Specifically, a person in Newfoundland was deemed to be functionally illiterate if that person was 15 years of age or older and had completed less than Grade 9. Statistics Canada reported that 26.6 percent (n=110,940) of the Newfoundland population met these criteria, and this figure has been widely cited as the extent of functional illiteracy in this province.

This study seeks to answer the following questions:

1. Does a correlation exist between years of schooling and literacy skills?
2. Does a correlation exist between age and literacy skills?
3. Is it possible to refine statistical data to obtain a more valid assessment of the level and extent of functional illiteracy in this province?
4. What programming implications arise from a more refined use of statistical data?

Significance of the Study

This study was conducted in order to establish a more refined literacy needs assessment procedure to guide decision-making in establishing and funding adult literacy programs in this province. The results should be of interest to community college administrators and instructors and the provincial Department of Education or any other individuals or agencies with an interest in adult literacy.

Design of the Study

This section describes the procedure used to obtain data for the study.

The Survey Instrument

Two instruments were used in this study. First, 1986 Census Profiles For Provincial Electoral Districts, Newfoundland and Labrador yielded pertinent data regarding age and educational attainment for each of the province's 52 electoral districts and for the province as a whole. Second, Canadian Adult Achievement Test

(C.A.A.T.) results, specifically, attainment on the Vocabulary and Comprehension Components, were obtained for 237 adults as a means of evaluating the indicator 15 years of age or above with less than Grade 9.

The methodology employed in this study was inspired by Thomas (1983, 9.19) who suggests the following measurement techniques:

> Use a standardized test of literacy (or functional literacy) in a special survey. This method could be used to verify data obtained by other means or to correct bias in other returns.
>
> i) special censuses or sample surveys on the extent of school enrolment;
>
> ii) regular school statistics in relation to demographic data;
>
> iii) data on educational attainment of the population. (p. 6)

In this instance, the C.A.A.T functions as the test of functional literacy and serves as a counterweight to known data regarding the educational attainment of the Newfoundland population.

This researcher then used a commercially available statistics software package (Exploring Statistics On the IBM PC) to obtain Pearson Product-Moment Correlation Coefficients between the following variables:

1. Age and attainment on the Vocabulary component of C.A.A.T.
2. Age and attainment on the Comprehension component of C.A.A.T.
3. Last grade attained and attainment on the Vocabulary component of C.A.A.T.
4. Last grade attained and attainment on the Comprehension component of C.A.A.T.

Additionally, statistical data was compiled and analyzed in terms of the stanine scores attained by each student.

Analysis of the Data

This section has two components. The first presents a detailed demographic analysis of the sample in terms of age and last grade attained with partiular emphasis on gender differences. The second section focuses upon the performance of the sample on the Vocabulary and Comprehension components of the Canadian Adult Achievement Test.

The sample used in this study consisted of 237 adults who had been tested with the C.A.A.T. prior to acceptance into programs offered at Western Community College. The sample was composed of 97 females with a mean age of 28.4 years and 140 males with a mean age of 23.9 years. The mean age for the group as a whole was 25.7 years with a range of 15 years to 61 years. The median age was 22. (See Appendix A for a comprehensive profile of the entire sample.)

Delimitations

The delimitations of this study relate primarily to the sample and the use of the C.A.A.T. as the instrument of choice. In effect, any conclusions drawn are most likely valid within the context of the community college system.

The sample primarily consists of individuals residing within the catchment area of Western Community College although other areas are represented to a lesser degree. Additionally, the sample consists of adults who were seeking entry to the College and as such is representative only of these students predisposed to attend community college programs. Representation from

university-bound students or the population at large might have influenced the results upward or downward. However, this writer contends that the group is sufficiently representative of the group aged 15 years or over so that the results are generalizeable to a larger population. This contention is reinforced by the observation that 24.05% of the sample are 15 years of age or above and had attained less than Grade 9, a finding that is only 1.55% less than that reported by Statistics Canada for the population as a whole. Furthermore, the sample is optimal from a community college planning standpoint in that it reflects actual experience in that setting.

The use of the C.A.A.T. prompts a number of cautionary observations as well. The C.A.A.T. is a Canadian-normed standardized test with reliable (r_tt= 0.87 Vocabulary, 0.94 Comprehension) and valid (0.64) Vocabulary and Comprehension components and as such provides a measure of the literacy skills of an adult. (Canadian Adult Achievement Test Norms Booklet, 1988, pp. 41-43) The test is primarily used as a placement and diagnostic instrument at Western Community College and the College has identified a number of cutoff points to

guide entry to its various programs. Smith (1984), in a statewide survey in Washington, reported that several colleges in that state:

> included cut-off scores used for placing students in reading courses. Although cut-off scores may be useful for placement purposes, they appear to be arbitrary in some cases. Caution must be exercised when using grade equivalency scores since they simply estimate grade level. Test results provide only an indication of a student's ability to learn from text. (p. 54)

Similarly, Dauzat and Dauzat (1977) suggest that:

> other problems implicit in a definition of literacy in terms of achievement in reading involve the skills measured by the test and the population on which the tests were standardized. A composite grade level score of six, seven or eight does NOT necessarily mean that the person possesses the reading skills necessary to cope with daily-life reading tasks. In fact, sometimes the skills measured by the test are not at all the same as those

needed in every day life situations. (p. 3)

However, the same authors do conclude that "it appears that some minimal level of achievement in reading could be one element of literacy" (p. 3)

Jones (1989) echoes these concerns and points to additional factors that suggest caution in relying solely on test scores. He argues that:

> the "score" a student achieves on the test is not very precise. Since the score an examinee gets on a single administration of a test is affected by many things in addition to the examinee's ability (attention that day, particular disturbances during the administration, the reliability and validity of the test) that score is only an estimate of the examinee's true 'score'. (p. 220)

However, he also argues that:

> these tests are useful when students are in programs designed to prepare them for further academic study. Because they are based on school curricula, they measure the kind of literacy and numeracy skills normally expected in academic programs. (p. 221)

It must be emphasized that College personnel are cognizant of these concerns and this concern is reflected in the fact that the cut-off points are subject to ongoing evaluation. Furthermore, the College is an academic institution, and as such, is concerned about students in programs designed to prepare them for further academic study. Thus, it seems likely that the findings will be most reliably interpreted by post-secondary intitutions that use the C.A.A.T. as a diagnostic and placement instrument.

Demographics

TABLE 3.1

DEMOGRAPHICS: GENDER

Gender	n	%
Male	140	59.07
Female	97	40.93
	237	100.00

Table 3.1 presents data pertaining to the gender composition of the sample. Males outnumber females in this sample by a margin of 43.

TABLE 3.2

DEMOGRAPHICS: AGE

GENERAL FACTS

1. Number of observations	237
2. Minimum age	15
3. Maximum age	61
4. Range	46

Table 3.2 presents general facts about the age composition of the group. The age range is typical of that one would expect to find in a community college setting.

TABLE 3.3

DEMOGRAPHICS: AGE

MEASURES OF CENTRAL TENDENCY

Test	Result
Mean	25.753
Median	22.000
Geometric Mean	24.445
First Quartile	19.000
Second Quartile	22.000
Third Quartile	30.500

Table 3.2 presents data for the measures of central tendency pertaining to the age composition of the sample. The group is generally youthful with a mean age of 25.753 years.

TABLE 3.4

DEMOGRAPHICS: AGE DISTRIBUTION

Age	n	%
15-19	62	26.16%
20-24	77	32.49%
25-29	36	15.19%
30-34	21	8.86%
35-39	17	7.18%
40-44	17	7.18%
45-49	3	1.27%
50-54	2	.84%
55-59	1	.42%
60-64	1	.42%
	237	100.01%

Table 3.3 presents data related to the age composition of the sample. The sample is heavily weighted toward the younger ages with 73.84% of the sample between the ages of 15 and 29. All age groups are represented by at least one individual but the number of

individuals within each age range drops sharply after the 40-44 age group.

TABLE 3.5

DEMOGRAPHICS: AGE

DISPERSION

Test	Result
1. Variance	74.440
2. Standard Deviation	8.628
3. Coefficient of Variance	33.500
4. Average Deviation About Mean	6.842
5. Average Deviation About Median	6.388

TABLE 3.6

DEMOGRAPHICS: AGE

SKEWNESS AND KURTOSIS

Test	Result
1. Second Moment	24.126
2. Third Moment	851.280
3. Fourth Moment	24712.140
4. Skewness (Pearson Beta 1)	1.334
5. Kurtosis (Pearson Beta 2)	4.498
6. Outliers	3.000

TABLE 3.7

DEMOGRAPHICS: FEMALE AGE DISTRIBUTION

Age	n	%
15-19	25	25.77
21-24	17	17.53
25-29	17	17.53
30-34	12	12.37
35-39	8	8.25
40-44	12	12.37
45-49	3	3.09
50-54	2	2.06
55-59	1	1.03
	97	100%

Table 3.7 presents data pertaining to the numbers of females in each age group. Note that all age ranges are represented up to age 59 with the single highest incidence (25.77%) at the 15-19 cluster. However, the female sample is underrepresented in the 15-29 age range (60.83%) versus 73.84% for the entire sample.

TABLE 3.8

DEMOGRAPHICS: FEMALE AGE

GENERAL FACTS

Observations	97
Minimum Age	15
Maximum Age	57
Range	42

TABLE 3.9

DEMOGRAPHICS: FEMALE AGE

MEASURES OF CENTRAL TENDENCY

Test	Result
1. Mean	28.423
2. Median	26.000
3. Geometric Mean	26.851
4. First Quartile	19.000
5. Second Quartile	26.000
6. Third Quartile	35.000

TABLE 3.10

DEMOGRAPHICS: FEMALE AGE

DISPERSION

Test	Result
1. Variance	98.809
2. Standard Deviation	9.940
3. Coefficient of Variance	35.000
4. Average Deviation About Mean	8.285
5. Average Deviation About Median	8.072

TABLE 3.11

DEMOGRAPHICS: FEMALE AGE

SKEWNESS AND KURTOSIS

Test	Result
1. Second Moment	97.790
2. Third Moment	754.881
3. Fourth Moment	26,195.210
4. Skewness (Pearson Beta 1)	.781
5. Kurtosis	2.739
6. Outliers	0.000

TABLE 3.12

DEMOGRAPHICS: MALE AGE DISTRIBUTION

Age	n	%
15-19	37	26.43%
20-24	60	42.86%
25-29	19	13.57%
30-34	9	6.43%
35-39	9	6.43%
40-44	5	3.57%
45-49	0	0.00%
50-54	0	0.00%
55-59	0	0.00%
60-64	1	0.71%
	140	100.00%

Table 3.12 presents data pertaining to the age composition of the male sample. The male sample is overrepresented at the 15-29 age range with 82.86% of the males in this category in contrast to the 60.83% of the female sample and 73.84% reported for the sample in its

entirety. Additionally, the age range from 44-59 has no male representation.

TABLE 3.13

DEMOGRAPHICS: MALE AGE

GENERAL FACTS

1. Observations	140
2. Minimum Age	15
3. Maximum Age	61
4. Range	46

The range is somewhat misleading as only one individual (at 61 years of age) fell into any of the ranges above 45 years.

TABLE 3.14

DEMOGRAPHICS: MALE AGE

MEASURES OF CENTRAL TENDENCY

Test	Result
1. Mean	23.907
2. Median	21.000
3. Geometric Mean	23.080
4. First Quartile	19.000
5. Second Quartile	21.000
6. Third Quartile	25.500

Note that the mean age for the male group (23.907 years) is 5.516 years less than that observed for females (28.423 years).

TABLE 3.15

DEMOGRAPHICS: MALE AGE

DISPERSION

Test	Result
1. Variance	49.740
2. Standard Deviation	7.053
3. Coefficient of Variance	29.500
4. Average Deviation About Mean	5.199
5. Average Deviation About Median	4.750

TABLE 3.16

DEMOGRAPHICS: MALE AGE

SKEWNESS AND KURTOSIS

Test	Result
1. Second Moment	49.384
2. Third Moment	642.851
3. Fourth Moment	18,905.080
4. Skewness (Pearson Beta 1)	1.852
5. Kurtosis (Pearson Beta 2)	7.752
6. Outliers	0.000

TABLE 3.17

DEMOGRAPHICS: LAST GRADE COMPLETED

FREQUENCY DISTRIBUTION

Last Grade Completed	n	%
4	1	.42
5	1	.42
6	9	3.79
7	18	7.59
8	38	16.03
9	30	12.66
10	35	14.77
11	46	19.41
12	59	24.89
	n=237	99.98%

Note that a total of 67 subjects had completed less than Grade Nine. Expressed as a percentage, 24.05% of the sample fall within the realm of the indicator "15 years of age and above with less than Grade Nine" versus 26.6% of the population as a whole cited by Statistics Canada. Is this group illiterate? Subsequent scrutiny will attempt to respond to this question.

TABLE 3.18

DEMOGRAPHICS: LAST GRADE COMPLETED

GENERAL FACTS

1. Observations	237
2. Minimum	4
3. Maximum	12
4. Range	8

TABLE 3.19

DEMOGRAPHICS: LAST GRADE COMPLETED

MEASURES OF CENTRAL TENDENCY

Test	Result
1. Mean	9.819
2. Median	10.000
3. Geometric Mean	9.622
4. First Quartile	8.000
5. Second Quartile	10.000
6. Third Quartile	11.500

TABLE 3.20

DEMOGRAPHICS: LAST GRADE COMPLETED

DISPERSION

Test	Result
1. Variance	3.488
2. Standard Deviation	1.868
3. Coefficient of Variance	19.000
4. Average Deviation About Mean	1.598
5. Average Deviation About Median	1.565

TABLE 3.23

DEMOGRAPHICS: LAST GRADE COMPLETED

MEASURES OF CENTRAL TENDENCY: FEMALE

Test	Result
1. Mean	9.876
2. Median	10.000
3. Geometric Mean	9.703
4. First Quartile	8.000
5. Second Quartile	10.000
6. Third Quartile	11.000

TABLE 3.21

DEMOGRAPHICS: LAST GRADE COMPLETED

SKEWNESS AND KURTOSIS

Test	Result
1. Second Moment	3.473
2. Third Moment	-3.247
3. Fourth Moment	27.805
4. Skewness (Pearson Beta 1)	-0.502
5. Kurtosis (Pearson Beta 2)	2.305
6. Outliers	1.000

TABLE 3.22

DEMOGRAPHICS: LAST GRADE COMPLETED

GENERAL FACTS: FEMALE

1. Observations	97
2. Minimum	4
3. Maximum	12
4. Range	8

TABLE 3.24

DEMOGRAPHICS: LAST GRADE COMPLETED

DISPERSION: FEMALE

Test	Result
1. Variance	3.047
2. Standard Deviation	1.746
3. Coefficient of Variance	17.700
4. Average Deviation About Mean	1.449
5. Average Deviation About Median	1.423

TABLE 3.25

DEMOGRAPHICS: LAST GRADE COMPLETED

SKEWNESS AND KURTOSIS: FEMALE

Test	Result
1. Second Moment	3.016
2. Third Moment	-3.209
3. Fourth Moment	26.898
4. Skewness	-0.613
5. Kurtosis	2.958
6. Outliers	1.000

TABLE 3.26

DEMOGRAPHICS: LAST GRADE COMPLETED

GENERAL FACTS: MALE

Test	Results
1. Observations	140
2. Minimum	5
3. Maximum	12
4. Range	7

TABLE 3.27

DEMOGRAPHICS: LAST GRADE COMPLETED

MEASURES OF CENTRAL TENDENCY: MALE

Test	Results
1. Mean	9.779
2. Median	10.000
3. Geometric Mean	9.566
4. First Quartile	8.000
5. Second Quartile	10.000

Note that the mean of 9.779 for males is quite close to the 9.876 observed for females.

TABLE 3.28

DEMOGRAPHICS: LAST GRADE COMPLETED

DISPERSION: MALE

Test	Result
1. Variance	3.814
2. Standard Deviation	1.953
3. Coefficient of Variance	20.000
4. Average Deviation About Mean	1.699
5. Average Deviation About Median	1.644

TABLE 3.29

DEMOGRAPHICS: LAST GRADE COMPLETED

SKEWNESS AND KURTOSIS: MALE

Test	Result
1. Second Moment	3.787
2. Third Moment	-3.181
3. Fourth Moment	28.359
4. Skewness	-o.432
5. Kurtosis	1.978
6. Outliers	0.000

Performance on the Canadian Adult Achievement Test

The intent of this section is to provide an analysis of the sample's attainment on the Vocabulary and Comprehension components of the Canadian Adult Achievement Test and to establish the correlation between age and last grade completed on these measures. The tables to follow present data related to these concerns.

TABLE 3.30

ATTAINMENT ON VOCABULARY COMPONENT

GENERAL FACTS

1. Observations	237
2. Minimum	2.6
3. Maximum	13.0
4. Range	10.3

TABLE 3.31

ATTAINMENT ON VOCABULARY COMPONENT

MEASURES OF CENTRAL TENDENCY

Test	Results
1. Mean	8.812
2. Median	8.3
3. Geometric Mean	8.214
4. First quartile	6.3
5. Second Quartile	8.3
6. Third Quartile	12.1

It is interesting to note that the mean score on the Vocabulary component (8.812) is one full grade level below the mean Last Grade Completed.

TABLE 3.32

ATTAINMENT ON VOCABULARY COMPONENT

DISPERSION

Test	Result
1. Variance	9.638
2. Standard Deviation	3.104
3. Coefficient of Variance	35.2
4. Average Deviation About Mean	2.701
5. Average Deviation About Median	2.696

TABLE 3.33

ATTAINMENT ON VOCABULARY COMPONENT

SKEWNESS AND KURTOSIS

Test	Result
1. Second Moment	9.597
2. Third Moment	.313
3. Fourth Moment	159.027
4. Skewness	0.011
5. Kurtosis	1.727
6. Outliers	0

TABLE 3.34

ATTAINMENT ON COMPREHENSION COMPONENT

GENERAL FACTS

1. Observations	237
2. Minimum	2.7
3. Maximum	13.0
4. Range	10.3

TABLE 3.35

ATTAINMENT ON COMPREHENSION COMPONENT

MEASURES OF CENTRAL TENDENCY

Test	Result
1. Mean	10.966
2. Median	13.000
3. Geometric Mean	10.503
4. First Quartile	9.05
5. Second Quartile	13.000
6. Third Quartile	13.000

Note that the mean score observed on the Comprehension component is one full grade higher than that observed under Last Grade Completed.

TABLE 3.36

ATTAINMENT ON COMPREHENSION COMPONENT

DISPERSION

Test	Result
1. Variance	7.397
2. Standard Deviation	2.719
3. Coefficient of Variance	24.8
4. Average Deviation About Mean	2.265
5. Average Deviation About Median	2.034

TABLE 3.37

ATTAINMENT ON COMPREHENSION COMPONENT

SKEWNESS AND KURTOSIS

Test	Result
1. Second moment	7.363
2. Third Moment	-23.846
3. Fourth Moment	184.903
4. Skewness	-1.194
5. Kurtosis	3.411
6. Outliers	1

TABLE 3.38

MATRIX OF CORRELATION COEFFICIENTS

	Age	Vocab	Comp	LGC
Age	1.000	0.054	-0.088	-0.399
Vocab	0.054	1.000	0.734	0.486
Comp	-0.088	0.734	1.000	0.486
LGC	-0.399	0.486	0.486	1.000

Table 3.38 presents the correlation coefficients between the four variables employed in this study. It should be noted that the relationship between Age and scores on the Vocabulary (0.054) and Comprehension (-0.088) components of the C.A.A.T. are particularly weak, suggesting that very little credibility can be placed in reliance upon age as an indicator of literacy skills. The relationship between Last Grade Completed and scores on the Vocabulary (0.486) and Comprehension (0.486) components of the C.A.A.T. is indeed stronger but is not statistically significant.

Gender Comparison

It is a worthwhile side excursion to evaluate the data for males and females in an effort to determine if gender differences exist. The following discussion examines the relationships among the various descriptors for each sex.

TABLE 3.39

MATRIX OF CORRELATION COEFFICIENTS: MALE

	Age	Vocab	Comp	LGC
Age	1.000	-0.064	-0.114	-0.397
Vocab	-0.064	1.000	0.731	0.601
Comp	-0.114	0.731	1.000	0.566
LGC	-0.397	0.601	0.566	1.000

Table 3.39 presents data for the male portion of the sample. Note that the correlation coefficients between last grade completed and Vocabulary (.601) and Comprehension (.566) are significantly higher for males than for the group as a whole.

TABLE 3.40

MATRIX OF CORRELATION COEFFICIENTS: FEMALE

	Age	Vocab	Comp	LGC
Age	1.000	0.186	0.064	-0.469
Vocab	0.186	1.000	0.739	0.302
Comp	-0.064	0.739	1.000	0.347
LGC	-0.469	0.302	0.347	1.000

Table 3.40 presents data for the female portion of the sample. A comparison of the data for the male and female portions of the sample points to intriguing differences that bear close scrutiny. Note that the correlation coefficients between Last Grade Completed and scores attained on the Vocabulary and Comprehension components of the C.A.A.T. were 0.601 and 0.566 respectively for the male sample versus 0.302 and 0.347 for the female sample.

Two pertinent questions emerge:

1. Does this data point to a gender difference in performance on the C.A.A.T.?

2. Are the results a function of the age differences noted between the male and female samples?

It would seem that the obvious response to the first question would be "yes". Clearly, the data points to a pronounced difference for this sample. This writer would contend that a much larger sample would have to be used before a definitive response could be generated for the population as a whole.

However, insight may be gleaned from an analysis of performance of subsets of the male and female samples-namely, how do the results of the younger and older halves of each sample compare? The data for each sample was sorted by age and then split into two groups, resulting in the following observations:

TABLE 3.41a

MEANS/STANDARD DEVIATIONS

YOUNG MALES

	Mean	Standard Deviation
1. Age	19.157	3.113
2. Vocab	9.193	2.909
3. Comp	11.189	2.909
4. LGC	10.414	1.822

Note that the trend of mean Vocabulary scores as being less than mean Last Grade Completed results and mean Comprehension scores as exceeding Last Grade Completed results continues.

TABLE 3.41b

MATRIX OF CORRELATION COEFFICIENTS

YOUNG MALES

	Age	Vocab	Comp	LGC
Age	1.000	.206	.020	.252
Vocab	.206	1.000	.752	.631
Comp	.020	.752	1.000	.666
LGC	.252	.631	.666	1.000

The younger males yield considerable gains when isolated from the group as a whole. The relationships between Last Grade Completed and Vocabulary (.631) and last Grade Completed and Comprehension (.666) is significantly stronger than that observed for the whole sample (.486, .486 respectively). The relationship between Age and these components is quite weak.

TABLE 3.42a

MEANS/STANDARD DEVIATIONS

OLDER MALES

	Mean	Standard Deviation
1. Age	28.657	7.217
2. Vocab	8.463	3.109
3. Comp	10.783	2.729
4. LGC	9.143	1.883

The mean age for older males (28.657 years) exceeds that of the young males (19.157 years) by 9.5 years. However, the mean last Grade Completed result (9.143) for the older group is less than that observed for the younger males (10.414). Again, the trend of Comprehension scores exceeding Vocabulary and Last Grade Completed results continues.

TABLE 3.42b

MATRIX OF CORRELATION COEFFICIENTS

OLDER MALES

	Age	Vocab	Comp	LGC
Age	1.000	-.014	-.136	-.411
Vocab	-.014	1.000	.705	.569
Comp	-.136	.705	1.000	.483
LGC	-.411	.569	.483	1.000

Interestingly, the older males record a strengthened relationship between Last Grade Completed and Vocabulary (.569 versus .486 for the whole group) but a slight decrease is observed (.483 versus .486 for the whole group) in terms of last Grade Completed and Comprehension. The results are also weaker than those observed for young males. Note the weak results obtained for Age in relation to Vocabulary and Comprehension.

TABLE 3.43a

MEANS/STANDARD DEVIATIONS

YOUNG FEMALES

	Mean	Standard Deviation
1. Age	20.292	2.752
2. Vocab	8.404	3.082
3. Comp	11.031	2.349
4. LGC	10.625	1.438

Young females have a mean age of 20.292 years. The mean scores obtained for Vocabulary, Comprehension and last Grade Completed compare favourably with those observed for young males.

TABLE 3.43b

MATRIX OF CORRELATION COEFFICIENTS

YOUNG FEMALES

	Age	Vocab	Comp	LGC
Age	1.000	.282	.364	-.305
Vocab	.282	1.000	.770	.414
Comp	.364	.770	1.000	.295
LGC	-.305	.414	.295	1.000

In spite of the observations related to 3.43a above, the relationships between Last Grade completed and the Vocabulary and Comprehension scores are significantly weaker than those of the young males. However, it should be noted that the relationships between Age, Vocabulary and Comprehension are the strongest of all of the various groupings.

TABLE 3.44a

MEANS/STANDARD DEVIATIONS

OLDER FEMALES

	Mean	Standard Deviation
1. Age	36.388	7.702
2. Vocab	9.167	3.094
3. Comp	10.847	2.817
4. LGC	9.143	1.720

Older females have a mean age of 36.388 years. The means for Vocabulary and Comprehension scores compare favourably with those of the older males. The mean last Grade Completed is lower by 1.5 grades than the young females.

TABLE 3.44b

MATRIX OF CORRELATION COEFFICIENTS

OLDER FEMALES

	Age	Vocab	Comp	LGC
Age	1.000	.122	-.190	-.229
Vocab	.122	1.000	.739	.383
Comp	-.190	.739	1.000	.416
LGC	-.229	.383	.416	1.000

The relationship between Last Grade Completed and Vocabulary (.383) is not markedly less than that observed for young females (.414), but the relationship between Last Grade Completed and Comprehension (.416) is significantly higher than that observed for young females (.295). The relationships between Age and Vocabulary (.122) and Age and Comprehension (-.190) are significantly less than those of the younger females (.282, .364 respectively).

Last Grade Completed Comparison

It appears that there are differences among the various age and gender groups examined to this point. The following section examines the sample as it is sorted by Last Grade Completed. Specifically, the intent is to determine whether or not significant differences exist between the group with Grade Nine and above and the group with less than Grade Nine. Any such differences may point to needs assessment implications.

TABLE 3.45

MEANS/STANDARD DEVIATIONS

< GRADE 9

	Mean	Standard Deviation
1. Age	30.567	10.635
2. Vocab	6.918	2.687
3. Comp	9.081	3.032
4. LGC	7.358	.883

Note that this group records an increased mean age (30.567 years versus 25.753 years for the whole group)

but the means for Last Grade Completed (7.358 versus 9.819), Vocabulary (6.918 versus 8.812) and Comprehension (9.081 versus 10.966) are significantly less than that of the whole sample. These results suggest an hypothesis that as the mean Last Grade Completed result increases, so too will the mean Vocabulary and Comprehension scores.

TABLE 3.46

MATRIX OF CORRELATION COEFFICIENTS

< GRADE 9

	Age	Vocab	Comp	LGC
Age	1.000	.400	.106	.014
Vocab	.400	1.000	.707	.064
Comp	.106	.707	1.000	.192
LGC	.014	.064	.192	1.000

Note the relatively high relationship between Age and Vocabulary (.400) and the weaker relationship between Age and Comprehension. More interesting are the results obtained for Last Grade Completed and Vocabulary (.064)

and Last Grade Completed and Comprehension (.192) which are the weakest observed to this point.

TABLE 3.47

MEANS/STANDARD DEVIATIONS

GRADE 9 AND ABOVE

	Mean	Standard Deviation
1. Age	23.859	6.855
2. Vocab	9.559	2.942
3. Comp	11.709	2.184
4. LGC	10.788	1.105

The group with Last Grade Completed results of Grade Nine or above is a more youthful and accomplished group than that composed of individuals with less than Grade Nine. Note that the means for Last Grade Completed (10.788 versus 9.819), Vocabulary (9.559 versus 8.812) and Comprehension (11.709 versus 10.966) are significantly higher than that observed for the whole group and for those of the group with less than Grade Nine.

TABLE 3.48

MATRIX OF CORRELATION COEFFICIENTS

GRADE 9 AND ABOVE

	Age	Vocab	Comp	LGC
Age	1.000	.129	.054	-.327
Vocab	.129	1.000	.689	.401
Comp	.054	.689	1.000	.283
LGC	-.327	.401	.283	1.000

Again, note the weak relationship between Age and the other descriptors. Additionally, the correlations between Last Grade Completed and the other descriptors are quite weak.

Stanine Comparison

Note that the preceding analysis clearly demonstrates that for this sample at least, the relationships between Last Grade Completed and Vocabulary and Comprehension scores are rather weak, notwithstanding the more significant results observed for young males. Similarly, Age appears to have a statistically insignificant relationship with these components.

Even so, it would be imprudent to dismiss the indicator of "15 years of age and above with less than Grade Nine" for program planning purposes, if not for the purpose of assessing the prevalence of illiteracy using this indicator exclusively. Statistics Canada Census data are the most comprehensive to be obtained from any source in this country and certainly no private source can match the scope of each Census effort. The Census data tells us that there is large group of people with less than Grade Nine in this province. The present study points to clear gains in Vocabulary and Comprehension scores on the Canadian Adult Achievement Test as years of schooling increase. Interestingly, the mean age for the group with Grade Nine and above is significantly lower than that of the group with less than grade Nine, suggesting that the various Stay in School initiatives are paying dividends.

However, one significant question remains: Is the group with less than Grade Nine illiterate? Implicit faith in this indicator would result in the various colleges deploying literacy initiatives for the 26.6% of the population in this category. Would this be effective program planning?

One further tactic might yield additional insight. Grade level equivalents from the C.A.A.T. are translated into stanine scores using charts which accompany the test manuals. Cutoff levels have been established for various College programs, and students who exhibit stanine scores of less than 3 on the Vocabulary and Comprehension components are counselled into Literacy classes. These cutoff levels have been determined as a result of intensive field testing of the instrument and have proven to be effective. Consequently, it can be a useful exercise to examine the sample in terms of the placements that would be recommended for each student on the basis of his/her stanine scores. The following discussion focuses on this analysis.

A review of Appendix A provides a summary of the stanine scores attained by each student. Using the criterion of a stanine score of less than 3 on either the Vocabulary or Comprehension component for placement into Literacy classes, 11 students would be counselled into such classes. Interestingly, 7 students out of the 67 (10.45%) with less than Grade 9 exhibited these scores while 4 of the 170 (2.35%) students with Grade Nine or above attained similar scores. An additional 25 of the

67 (37.31%) students with less than Grade Nine achieved stanine scores that would lead to placement in ABE Level II (at least one stanine less than 4) while 12 of the 170 (7.06%) with Grade Nine or above achieved similar scores.

All of the remaining students would be eligible to engage in post-secondary training on the strength of their C.A.A.T. scores, but it must be emphasized that those students who have not attained high school completion are strongly encouraged to do so. Given the current competitive labour market, most employers are now demanding high school completion or its equivalent as a prerequisite for employment. That requirement is especially significant for this sample, as only 59 of the 237 (24.89%) students in the sample have completed Grade 12.

Summary

The present study points to a rate of illiteracy that is perhaps not so extreme as currently cited statistics would suggest. Even so, a clear level of undereducation exists that must be ameliorated if the Province is to attain the economic goals prescribed in the Policy Statement on Literacy.

CHAPTER 4

RATIONALE FOR ADULT LEARNING CENTRES

The findings of this Study can assist in the provision of a more refined needs assessment policy for program planners. It has already been suggested that the indicator 15 years of age and above with less than Grade Nine as a measure of the prevalence of illiteracy provides an inflated assessment of the actual prevalence. The data in this Study suggest that this indicator does effectively point to a level of undereducation that in some electoral districts approaches staggering proportions, but there is some consolation to be derived from the fact that individuals characterized by this indicator generally manifest reading scores that point to a level of reading competence that can facilitate further academic or skills training.

In effect, this paper suggests that the Province does <u>not</u> have a staggering illiteracy problem per se as much as it has an undereducation problem that is somewhat more involved than the sheer inability to read or write. Clearly, illiteracy is indeed an issue that

must be addressed, but it is only one element of a larger undereducation problem. At a practical level, given the political will embodied in the Department of Education five-year plan and the prevalence of undereducation, these findings support the establishment of Adult Learning Centres throughout the College catchment area, each of which would offer literacy instruction as one of a range of programs.

In the context of the current recession, technological change and depleted resources, a great many workers are being displaced from their traditional primary processing occupations and are being forced to seek new employment. Unfortunately, given the relatively low educational levels of these workers, new employment is not readily available and retraining becomes a necessity. This pool of undereducated adults is augmented each year by the youth who drop out of the secondary school system prior to completion. The rural regions tend to suffer most from these conditions given that the decline of the fishery primarily impacts rural areas. The retention rate for secondary students is lowest in those areas.

Consider the following statistical data for the eleven electoral districts embraced by the Western Community College region:

TABLE 4.1

ELECTORAL DISTRICTS SERVED BY WESTERN COMMUNITY COLLEGE

District	Undereducation		Unemployment
	%	#	%
Strait of Belle Isle	37	3,410	35
St. Barbe	40	3,770	30
Baie Verte-White Bay	41	2,830	39.1
Humber Valley	31	2,200	38.5
Humber East	16	1,535	18.5
Humber West	21	1,825	18.9
Bay of Islands	31	2,615	32.5
Port Au Port	35	2,260	45
Stephenville	18	1,095	26
St. George's	35	2,575	42
Lapoile	40	3,160	27.8

(1986 Census Profiles for Provincial Electoral Districts, Newfoundland and Labrador, Newfoundland Statistics Agency, February, 1990)

Note that the areas which would be categorized as urban, namely, Humber East, Humber West and Stephenville, report undereducation incidences of 16%, 21% and 18% respectively while the rural ares report much higher incidences. Similarly, the unemployment rates for the urban districts (18.5%, 18.9% and 26% respectively) are consistently and markedly lower than those reported in the rural areas.

Clearly, the urban areas with their concentration of secondary processing industries attract a more highly educated workforce than do the rural areas which generally rely upon the primary processing of resources. Additionally, the urban areas offer an array of educational opportunities to enhance the employability of their residents, while the rural areas offer a much more restricted access to such opportunities. For instance, a resident of Humber East can choose between Fisher Institute, Sir Wilfred Grenfell College, Western Community College and the Newfoundland Career Academy which are all located on his doorstep while the resident

of Burgeo must contemplate a move of at least 175 kilometres to avail of educational opportunities.

Excluding the primarily urban districts, an analysis of Table 4.1 suggests that approximately 25,000 undereducated adults reside in rural areas with restricted access to educational opportunities. While it is difficult to extrapolate a rate of unemployment for that group, it seems reasonable to conjecture that this group is the most likely to have been displaced from the traditional primary processing occupations. Given that the mean unemployment rate for the rural areas is 37%, a conservative estimate of the number of individuals within the region who could avail of full-time academic upgrading programs is approximately 10,000.

Nevertheless, full-time programming of this nature is currently available only in St. Anthony, Corner Brook, Stephenville and the Port Aux Basques region. Each site offers a limited number of seats while a lengthy waiting list exists at each site. For all intents and purposes, prospective students in outlying areas <u>do not have access</u> to full-time programs, but they can avail of part-time evening programs offered throughout the entire region. However, this route takes the student considerably longer

to attain high school completion and as such, is not perceived to be a viable route for the individual who is unemployed and eager to upgrade his skills. The alternative, i.e., moving to a site where the full-time services can be accessed, imposes severe financial constraints upon adult learners.

A number of barriers to participation in adult basic education were identified in Chapter 1 of this paper. In the rural areas which need full-time academic upgrading services the most, it is apparent that these full-time services are simply not offered at all and this barrier to access must be addressed immediately if the province is to realize its goals. It must be emphasized that the recruitment concerns identified in Chapter 1 are purely academic issues if a service is not in place in the first instance. The challenge is to implement a range of programming within needy areas that is so meaningful that recruitment is not an issue. The following discussion examines an Adult Learning Centre that responds to these concerns.

ADULT LEARNING CENTRE MODEL

The Adult Learning Centre Model envisioned in this paper features Adult Basic Education (hereafter A.B.E.) Levels I, II and III as its nucleus with other short-term programs appended as required. Two scenarios are projected in this proposal; one featuring a 15-student unit and the other predicated on a 45-student unit. These scenarios are presented as a means of illustrating the budgetary and organizational requirements imposed by varying the number of students.

Given that A.B.E. is the nucleus of the Adult Learning Centre, it is pertinent at this point to provide an analysis of the structure and objectives of the program. In a nutshell, the A.B.E. program is capable of accepting an undereducated adult at his present level of competency and upgrading his academic qualifications to the high school completion level. The program has recently been the focus of an extensive revision as the former A.B.E. and B.T.S.D. programs were merged. Essentially, the present program (as delivered at Western Community College) combines the individualized, self-paced approach of the B.T.S.D. program with the breadth

of the former A.B.E. program resulting in a greatly enhanced academic upgrading service.

Level I (the Literacy component) focuses upon those students with weak reading and writing skills and raises the student to the equivalency level of Grade 6. Level II provides instruction designed to take the student to the equivalency level of Grade 9, while Level III serves as the high school completion component.

Traditionally, the B.T.S.D. program offered a 52-week time frame for completion with the provision of an additional 6-week extension for deserving students. The present program operates under the same guidelines but offers an attractive option that B.T.S.D. could not offer: namely, true high school certification. The College has adopted a policy that where it is clear that a student can attain high school certification within the available time frame, that student will be counselled into a high school completion track. However, a student who enters the program at a very low level will be counselled into the track determined by his occupational goal. This policy has evolved in view of the fact that most employers now specify high school completion in

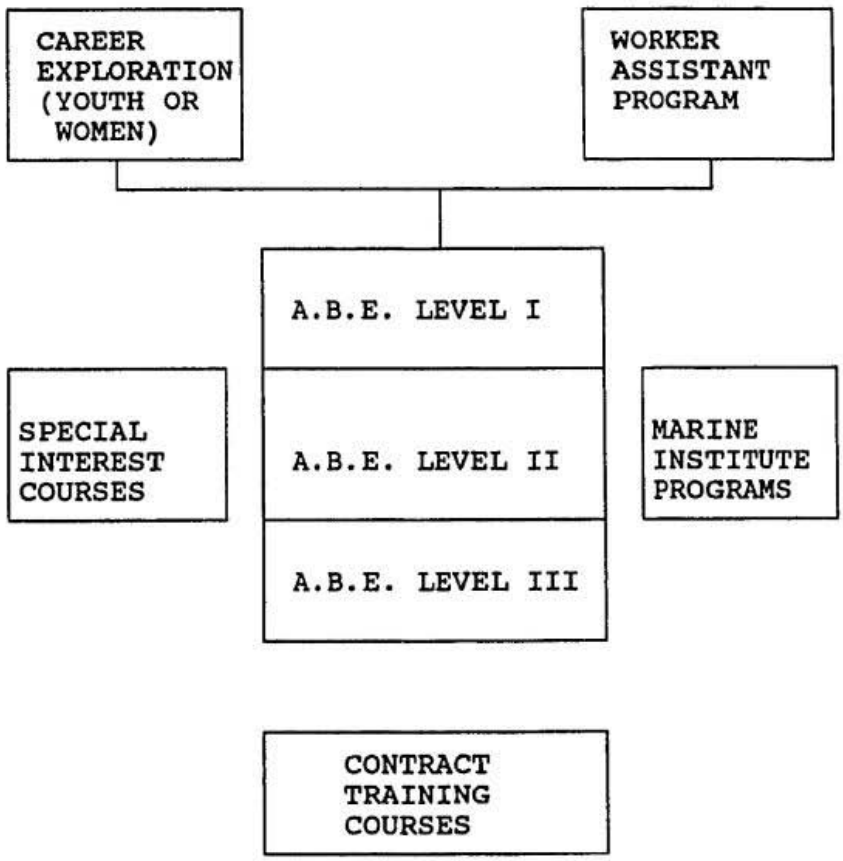
addition to the possession of a pre-employment certificate.

Entrance to post-secondary training programs in this Province is predicated upon the assumption that students possess the prerequisite academic skills to cope with the demands of the programs. The discussion to this point clearly suggests that an alarming proportion of the population does not possess those skills, hence, the choice of the revised A.B.E. program as the nucleus of the Adult Learning Centre.

Given the individualized nature of the program, the maximum class size should be limited to 15 students. Additionally, the range of professional expertise required to offer the program suggests a minimum of two instructors: one possessing a solid background in Communication Skills and another with a sound Mathematics and Science background. These students and instructors would operate within rented space in a central location within the community or region. The resource materials for the program would consist of the modules and test bank used in all A.B.E. programs supplemented with supporting commercially available textbooks.

The resultant Centre would thus be structured as follows:

ADULT LEARNING CENTRE MODEL



The statistics (and experience) suggest that a group of 15 students would be placed as follows:

a. Level I - 1 student

b. Level II - 7 students

c. Level III- 7 students

Consequently, the Communications Skills instructor might be expected to deliver Literacy instruction as well.

Such a program would be immensely interesting to a worker who is presently unemployed and wishing to upgrade his skills. Additionally, the Centre could serve as the focal point for part-time A.B.E. programming in the evening, thus ensuring the utilization of the Centre from 9:00 in the morning to 10:00 in the evening and enabling employed individuals to participate.

Furthermore, programs such as Career Exploration for Youth, Occupation Exploration Training, Career Exploration for Women and the Worker Assistant Program could be offered within the same building as required.

It must be emphasized that the various programs arrayed around the A.B.E. program are to be considered as options at this point. However, in a community featuring a large number of undereducated adults with no previous access to career counselling, it would be entirely logical to proceed with a six-week career exploration program designed to enable the students to select an occupational goal and to then stream the students into the appropriate A.B.E. track. Indeed, the Centre would be the optimal home base for itinerant counsellors in each region, assuming funding could be procured for such services. The areas cited as having the highest rates of undereducation and unemployment are also those which have the least counselling service available. As such, the availability of such services at each centre would be an invaluable asset.

While the A.B.E. program is in progress, various initiatives through the Community Education (Contract Training) departments of the College might also be in progress within the same physical site. Additionally, the I.T.T. (Introductory Trade Training) concept which is currently in place at the St. Anthony campus has great potential at these Centres. The availability of

interactive video hardware and software as well as more conventional computer assisted learning packages would enable the delivery of generic skills instruction at each site, thus permitting students to accumulate post-secondary credits in their home communities. Indeed, local companies might very well be inclined to allow access to their own shops to enable actual hands-on generic skills training to occur. This tactic would yield additional benefits in that the students would gain exposure to the actual requirements and job conditions of their chosen profession.

The end result would be enhanced access to relevant programming within the regions that need it most. The ancillary courses would reflect the needs of the community and region and would complement the essential core academic upgrading services provided at the Centre. Additionally, the Centres would serve as feeder agencies for established institutions.

The features of this program impose a number of considerations related to the selection of appropriate space. In the first instance, the building housing such a program must be sufficiently large as to accommodate a number of simultaneous programs. Ideally, the building

should be attractive both in terms of appearance and the amenities which it offers, so as to avoid conveying an image of the College as "low rent". For many students, such a facility will be their first exposure to the College and it is essential that this first impression be positive. Additionally, signage on the building should be prominent and highlight the College presence in the area.

Each Centre should also have a fully equipped resource centre, complete with all of the materials required to support A.B.E, the various career counselling programs and other programs unique to each Center. It is essential that the resource centre be completely outfitted prior to the commencement of any given program for obvious reasons, not the least of which is to avoid conveying a sense of inadequate preparation.

It is not the intention of this proposal to recommend the establishment of such Centres in every nook and cranny of the region. Rather, it is proposed that the Centres be established in the regions with the greatest need and moved to new locations when the need has been feasibly satisfied. Experience with a similar venture at Flat Bay suggests that in smaller communities,

a 15-student unit will exhaust the committed demand within three years. Clearly, in larger communities or regions, 45-student units might experience the same results, albeit with cost savings realized by virtue of greater efficiency.

It is projected that a 15-student unit operating on a full-time basis for three years will serve approximately 75 students in total, considering the potential for enhanced part-time programming when such Centres are established. The projected costs are outlined in the following section of the proposal.

Projected Costs:

A. 15 Student unit		
a. Salaries:		
- 1 Communications Skills Instructor @ $40,000/yr.	$40,000	
- 1 Math/Science Instructor @ $40,000/yr.	$40,000	
- Benefits (30%)	$24,000	
	$104,000	$104,000
b. Rental		
- 1 Classroom x 52 wks. x $225/wk.	$11,700	
- 1 Office x 52 wks. x $125/wk	$ 6,500	
	$18,200	$18,200
c. Textbooks		
- Complete classroom resource holding	$ 5,000	$ 5,000
d. Materials and Supplies	$ 2,500	$ 2,500

e. Travel (Instructors and Students)		
- 1 field trip to tour educational facilities in Corner Brook	$ 6,500	$ 6,500
f. Telephone	$ 1,200	$ 1,200
g. Micro-Computers		
- 2 @ $1,200	$ 2,400	$ 2,400
		* $139,600

* Total annual cost of maintaining a 15-student unit.

B. 45 Student Unit		
a. Salaries		
-3 Communication Skills Instructors @$40,000/yr	$120,000	
-2 Math/Science Instructors @ $40,000/yr.	$ 80,000	
-Benefits (30%)	$ 60,000	
	$260,000	$260,000
C. Rental		
-3 Classrooms x 52 wks. x $225/wk.	$ 35,100	
-1 Office x 52 wks x $125/wk	$ 6,500	
	$ 41,600	$ 41,600
c. Textbooks		
-Complete classroom resource holding(See Appendix B for listing)	$ 10,000	$ 10,000
d. Materials and Supplies	$ 5,000	$ 5,000
e. Travel (Instructors and Students)		
-1 field trip to tour educational facilities in Corner Brook	$ 10,000	$ 10,000

f.	Telephone	$ 1,500	$ 1,500
g.	Micro-Computers		
	-5 @ $1200	$ 6,000	$ 6,000
			* $334,100

* Total annual cost of establishing and maintaining a 45-student unit.

Given the projected three-year time frame for each Centre, the total costs incurred would be $418,800 for a 15-student unit and $1,002,300 for a 45-student unit.

It must be emphasized that the budgets presented here represent the costs to be incurred in the establishment of the infrastructure and maintenance of the Centres. Clearly, adult students will require some form of financial incentive to attend, and here a measure of creativity may be required. For instance, if present recipients of C.E.I.C. and Social Assistance were permitted to attend classes without financial prejudice, significant savings would occur in comparison to the traditional practice of paying training allowances. The financial incentive package selected at each location should reflect prevailing conditions at that location.

It should also be pointed out that the budgets do not project reduced rental costs or revenue from fee-paying students which might be possible at certain sites. Consequently, the budgets are presented as guides only.

Suggested Sites

The data presented in Table 1 suggests that the following electoral districts should receive priority

status in the implementation of Adult Learning Centres:

a. Burgeo-Bay d'Espoir

b. Baie Verte-White Bay

c. St. Barbe

d. Strait Belle Isle

e. St. George's

f. Port Au Port

These districts, in descending order, report the highest incidences of undereducated adults and unemployment. Burgeo-Bay d'Espoir and Baie Verte-White Bay both have major portions of their territories within the region embraced by Central Community College and, as such, this paper can respond only to the needs of the respectve districts that are within the Western Community College region. Given the sparsely populated area of Baie Verte-White Bay within the College region, it would appear that any remediation in this district will have to occur as a result of a Central Community College initiative. However, Burgeo and Ramea, communities within both the Burgeo-Bay d'Espoir and College regions, would appear to be prime candidates for an Adult Learning Centre by virtue of isolation and reported need.

Within the St. Barbe district, the Rocky Harbour-Norris Point and Hawke's Bay-Port Saunders-Port Au Choix areas have the population base and reported need for the establishment of learning centres. Further along the Northern Peninsula, and into the Strait of Belle Isle district, Flower's Cove and Roddickton are also logical sites.

The districts of Port Au Port and St. George's similarly share a need for such services. The Port Au Port district is unique within the region in view of the French heritage of the area but shares the liability of an appallingly high unemployment rate like the other districts. This district might best be served with the establishment of a Centre at a central location on the Port Au Port Peninsula. The communities of McKay's or Robinsons would be the optimal sites for a similar program in the district of St. George's.

Funding Sources

A variety of sources might be accessed for this purpose. Essentially, the source or approach selected will to a great extent be influenced by local issues, but

I believe that the following sources should be explored first:

Canada/Newfoundland Youth Strategy Agreement

This approach would describe the target group for the Adult Learning Centre as those individuals between the ages of 16 and 24 who have not completed school. The disadvantage of using this approach is the restriction imposed by the age group.

Community Futures Organizations

The various Community Futures organizations have a vested interest in upgrading the academic skills of the population within their areas. These groups exist to promote the growth and development of their respective regions and must rely upon an educated populace to achieve these goals. The Adult Learning Centres could operate as joint ventures between the College and these groups in the various regions.

Canada Employment and Immigration Commission

Campuses might elect to pursue direct negotiations with C.E.I.C. in a similar manner to that employed in the establishment of present full-time A.B.E. programs.

Department of Social Services

The Department of Social Services is currently in transition from its most recent practice of Employment Enhancement Programs to a philosophy of training, as evidenced by the allocation of $3.5 million in the recent budget. This Department might be willing to participate in aspects of such an initiative.

Western Community College

The College is hampered by a grant in aid package which is not sufficiently generous to permit wholesale expansion via Adult Learning Centres. Even so, the College can make valuable contributions to the Centres through its various community education programs, not the least of which is the part-time ABE program.

Ultimately, the most feasible economic tactic would have all of the players identified above in a joint funding arrangement. In a coordinated effort, training and education dollars would be more effectively deployed and community needs more effectively addressed.

EPILOGUE

The preceding discussion has proposed an Adult Learning Centre Model to be deployed in the amelioration of current levels of undereducation in this Province. The intent of this epilogue is to point to benefits that would accrue from such Centres and to raise some concerns about program evaluation as it impacts offerings in rural areas.

Franklin (1990) sets the tone for this discussion in her suggestion:

> Whenever someone talks to you about the benefits and costs of a particular project, don't ask "What benefits?" ask "**Whose**" benefits and "**whose**" costs?" (p. 124)

A review of the projected costs of these Centres reveals that a significant funding commitment will be required for their establishment and maintenance. Clearly, the provincial and federal governments will have to absorb these immediate costs, but both levels of government should realize savings in the future through reduced social assistance and unemployment insurance expenditures.

The single greatest benefit of Adult Learning Centres has already been identified - namely, enhanced levels of access to programs in the regions with the greatest need. In addition, the potential to offer ancillary programming related to the unique needs of each region has been identified. However, a plethora of additional benefits, many of which are not readily obvious at the outset, can accrue from the establishment of such Centres and these benefits need to be publicized.

I should note that these benefits became obvious to me only after I had spent two years teaching at an outreach ABE program at Flat Bay. This program was offered as a result of the efforts of local native leaders who had argued effectively that the low levels of educational attainment among the native population warranted the establishment of a program in that community.

The most immediate benefit became apparent when these adult learners realized that they could experience success in the program. In a metamorphosis of sorts, the students shed a veil of doubt about their abilities and it didn't take long before a constructive level of competition emerged in the classroom.

A second benefit accrued from the flexibility to arrange the schedule to accommodate local circumstances. The students (most of whom had children in the local primary school) voted to take a shortened lunch break so that they could arrive home at about the same time as their young children.

This latter arrangement tended to promote the unanticipated outcomes of the program. Traditionally, education had not been perceived to be valuable in that community and the retention rate had been correspondingly low. The principal of the local school soon reported attainment gains among the children of the students in the ABE program, and these gains were attributed to the fact that parents had gained an appreciation of education and were inculcating these values in their children. Furthermore, parents who traditionally could not assist their children with homework could now do so. In fact, students reported that homework had become a family affair every evening.

Cumulatively, these circumstances led to the development of highly motivated adults and children, all of whom were now looking beyond high school completion and considering future options. I would suggest that

this outcome would not have developed had the program not been established at Flat Bay.

However, outcomes such as these are not readily apparent in program evaluation efforts when the evaluation is driven by fiscal year considerations. Most funding agencies can only make commitments of up to one year because their budgets are doled out on that basis. It would be a courageous regional manager indeed who would make a commitment beyond one year under these circumstances. It would be a more courageous individual to do so if the year-end evaluation of the program could not point to clear and significant outcomes.

Nevertheless, I would suggest that the full effects of such programs will not be known for well beyond the one year time frame. I would further suggest that Adult Learning Centres be funded for a minimum of three years unless extenuating circumstances warrant their discontinuation.

I believe that the benefits observed in Flat Bay are representative of those that would be observed in any rural setting. I would hope that many communities will experience the collective benefits themselves in the very near future.

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APPENDIX A

SAMPLE DESCRIPTORS

KEY:

A - Age of case at time of test

Vo - Score attained on Vocabulary component

Co - Score attained on Comprehension component

LGC - Last Grade Completed at time of test

Sx - Gender of case

Vs - Stanine equivalent of Vocabulary score

Cs - Stanine equivalent of Comprehension score

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
1.	34	6.3	13.0	9	f	4	9
2.	27	13.0	13.0	11	m	9	9
3.	23	8.9	13.0	10	f	5	9
4.	19	5.6	7.0	7	m	4	3
5.	24	12.1	13.0	11	m	7	9
6.	18	13.0	13.0	11	m	9	9
7.	20	13.0	13.0	12	m	9	9
8.	19	5.0	9.0	9	m	3	4
9.	43	12.1	13.0	10	f	7	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
10.	17	2.6	4.6	10	f	1	2
11.	24	7.7	13.0	10	m	5	9
12.	28	6.7	11.0	7	m	4	5
13.	18	6.3	11.0	9	m	4	5
14.	24	8.3	13.0	10	m	5	9
15.	20	9.6	12.0	11	f	6	5
16.	22	5.9	9.5	7	m	4	4
17.	25	13.0	13.0	10	m	9	9
18.	23	6.7	12.0	8	m	4	5
19.	18	10.3	13.0	12	f	6	9
20.	19	5.9	8.6	11	f	4	4
21.	19	5.0	11.0	9	f	3	5
22.	20	6.7	9.0	6	m	4	4
23.	44	13.0	13.0	11	f	9	9
24.	35	12.1	12.1	7	f	7	6
25.	37	6.7	12.0	8	m	4	5
26.	17	3.2	2.7	8	m	1	1
27.	25	7.7	13.0	8	m	5	9
28.	39	6.3	9.0	10	m	4	4
29.	32	5.9	8.6	10	f	4	4

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
50.	20	6.7	11.0	9	m	4	5
51.	49	13.0	13.0	7	f	9	9
52.	19	5.9	8.1	9	m	4	4
53.	35	5.0	7.0	6	m	3	3
54.	18	13.0	13.0	11	m	9	9
55.	22	9.6	13.0	12	m	6	9
56.	28	4.4	8.6	8	m	2	4
57.	26	6.3	4.8	10	m	4	2
58.	22	10.3	13.0	9	f	6	9
59.	21	5.9	9.5	7	m	4	4
60.	32	7.2	11.0	8	m	5	5
61.	21	5.3	7.0	11	f	3	3
62.	20	13.0	13.0	12	m	9	9
63.	26	11.2	13.0	10	f	6	9
64.	21	10.3	13.0	10	f	6	9
65.	31	6.7	9.0	6	m	4	4
66.	29	13.0	13.0	11	f	9	9
67.	36	13.0	13.0	11	f	9	9
68.	28	10.3	13.0	12	m	6	9
69.	34	4.7	6.7	7	m	3	3

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
30.	33	7.7	13.0	9	m	5	9
31.	44	13.0	13.0	11	f	9	9
32.	34	13.0	13.0	11	f	9	9
33.	18	5.9	13.0	12	f	4	9
34.	17	5.3	11.0	9	f	3	5
35.	17	7.2	12.0	10	m	5	5
36.	20	11.2	13.0	10	m	6	9
37.	18	8.3	9.5	11	f	5	4
38.	31	6.7	6.2	11	f	4	3
39.	22	4.1	8.1	7	m	2	4
40.	23	13.0	13.0	11	m	9	9
41.	40	13.0	13.0	11	m	9	9
42.	35	13.0	13.0	10	m	9	9
43.	25	11.2	13.0	10	f	6	9
44.	21	6.7	9.5	11	m	4	4
45.	40	5.9	7.0	8	f	4	3
46.	47	8.9	11.0	8	f	5	5
47.	22	12.1	13.0	10	m	7	9
48.	25	8.3	8.1	11	m	5	4
49.	39	13.0	13.0	6	m	9	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
70.	18	6.7	13.0	12	m	4	9
71.	36	3.9	4.2	7	m	2	2
72.	26	7.7	13.0	8	m	5	9
73.	21	8.3	13.0	12	m	5	9
74.	40	13.0	13.0	10	f	5	9
75.	39	7.2	9.5	9	f	5	4
76.	40	9.6	9.4	9	m	6	4
77.	41	5.0	6.7	8	f	3	3
78.	32	13.0	13.0	8	f	9	9
79.	30	7.7	10.2	8	f	5	5
80.	33	8.9	9.5	7	m	5	4
81.	28	6.3	6.7	8	m	4	3
82.	26	5.0	8.6	11	f	3	4
83.	36	10.3	13.0	10	f	6	9
84.	19	4.7	10.2	8	f	3	5
85.	20	11.2	13.0	12	m	6	9
86.	25	13.0	13.0	12	m	9	9
87.	19	6.3	10.2	9	m	4	5
88.	20	2.9	3.0	8	m	1	2
89.	28	11.2	13.0	8	m	6	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
90.	36	6.3	7.4	7	m	4	3
91.	26	12.2	13.0	8	f	7	9
92.	17	4.1	4.4	7	m	2	2
93.	39	9.6	9.0	8	m	6	4
94.	29	5.3	13.0	9	f	3	9
95.	40	4.1	7.4	8	m	2	3
96.	19	8.9	13.0	10	m	5	9
97.	48	8.9	11.0	8	f	5	5
98.	32	8.3	12.0	10	f	5	5
99.	24	12.1	13.0	10	f	7	9
100.	50	7.2	7.0	8	f	5	3
101.	21	7.2	6.7	9	m	5	3
102.	25	6.7	11.0	10	m	4	5
103.	20	11.2	13.0	10	f	6	9
104.	18	6.7	12.0	12	f	4	5
105.	61	13.0	13.0	8	m	9	9
106.	18	13.0	13.0	12	f	9	9
107.	26	4.7	6.5	7	m	3	3
108.	21	5.3	11.0	12	f	3	5
109.	24	4.4	11.0	8	m	2	5

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
110.	33	6.7	13.0	9	f	4	9
111.	54	6.7	4.2	8	f	4	2
112.	15	8.3	12.0	8	m	5	5
113.	57	8.3	8.0	8	f	5	4
114.	15	7.2	12.0	8	m	5	5
115.	15	5.0	7.0	8	f	3	3
116.	19	2.9	4.0	10	m	1	2
117.	18	4.1	7.0	9	f	2	3
118.	18	4.1	7.4	10	f	2	3
119.	20	5.9	8.6	8	f	4	4
120.	24	5.0	11.0	7	m	3	5
121.	40	8.3	6.2	8	f	5	3
122.	24	8.9	13.0	11	m	5	9
123.	25	10.0	13.0	9	f	6	9
124.	34	13.0	13.0	10	m	9	9
125.	24	13.0	13.0	11	m	9	9
126.	31	8.3	13.0	11	f	5	9
127.	41	10.0	13.0	12	f	6	9
128.	41	9.6	13.0	6	f	6	9
129.	42	6.7	9.0	9	f	4	4

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
130.	42	8.9	9.0	10	f	5	4
131.	39	3.9	3.9	4	f	2	2
132.	27	9.6	13.0	10	f	6	9
133.	29	13.0	13.0	11	f	9	9
134.	33	12.1	13.0	10	f	7	9
135.	26	11.2	13.0	8	f	6	9
136.	35	13.0	13.0	11	f	9	9
137.	25	3.7	9.5	8	f	1	4
138.	19	13.0	13.0	12	m	9	9
139.	22	6.7	13.0	11	f	4	9
140.	26	11.2	13.0	10	f	6	9
141.	18	9.6	13.0	12	m	6	9
142.	25	10.3	13.0	9	m	6	9
143.	41	13.0	13.0	11	f	9	9
144.	24	11.2	13.0	11	f	6	9
145.	16	6.7	10.2	8	m	4	5
146.	16	6.3	9.5	9	m	4	4
147.	17	5.9	9.5	10	m	4	4
148.	18	11.2	13.0	12	m	6	9
149.	24	7.2	13.0	11	f	5	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
150.	35	7.7	13.0	7	f	5	9
151.	22	5.6	9.0	11	m	4	4
152.	20	10.3	13.0	11	m	6	9
153.	34	5.6	11.0	9	m	4	5
154.	35	9.6	12.0	9	m	6	5
155.	30	5.3	7.7	8	f	3	3
156.	20	7.2	9.5	12	m	5	4
157.	19	8.3	10.2	12	f	5	5
158.	25	13.0	13.0	11	f	9	9
159.	19	9.6	13.0	12	f	6	9
160.	25	13.0	13.0	10	m	9	9
161.	19	13.0	13.0	11	m	9	9
162.	23	7.7	13.0	9	m	5	9
163.	21	7.7	7.7	8	m	5	3
164.	25	6.7	13.0	10	m	4	9
165.	20	12.1	12.0	11	f	7	5
166.	24	13.0	13.0	12	f	9	9
167.	22	13.0	13.0	12	f	9	9
168.	19	13.0	13.0	12	f	9	9
169.	19	13.0	13.0	12	f	9	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
170.	18	13.0	13.0	12	f	9	9
171.	42	11.7	13.0	10	f	7	9
172.	24	13.0	11.0	11	m	9	5
173.	18	9.9	13.0	12	f	6	9
174.	23	11.0	13.0	12	m	6	9
175.	18	7.9	9.1	12	f	5	4
176.	18	9.3	13.0	12	f	5	9
177.	17	8.3	13.0	12	m	5	9
178.	18	7.9	9.1	12	f	5	4
179.	18	7.9	8.4	12	f	5	4
180.	20	8.3	10.5	12	f	5	5
181.	18	5.6	8.1	11	f	4	4
182.	19	6.7	9.0	12	f	4	4
183.	21	7.7	13.0	9	m	5	9
184.	18	11.2	13.0	12	m	6	9
185.	24	8.9	10.2	9	m	5	5
186.	19	7.2	13.0	11	m	5	9
187.	18	13.0	13.0	9	m	9	9
188.	16	7.2	9.5	6	m	5	4
189.	20	13.0	13.0	12	m	9	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
190.	22	13.0	13.0	12	m	9	9
191.	19	12.1	13.0	11	m	7	9
192.	19	13.0	13.0	12	m	9	9
193.	21	13.0	13.0	11	m	9	9
194.	19	12.1	13.0	12	m	7	9
195.	21	13.0	13.0	12	m	9	9
196.	21	13.0	13.0	12	m	9	9
197.	21	8.3	13.0	12	m	5	9
198.	20	13.0	13.0	11	m	9	9
199.	18	8.3	13.0	12	m	5	9
200.	21	13.0	13.0	12	m	9	9
201.	20	9.6	12.0	12	m	6	5
202.	19	9.6	13.0	12	m	6	9
203.	19	5.6	13.0	11	m	4	9
204.	21	7.2	12.0	11	m	5	5
205.	20	11.2	13.0	12	m	6	9
206.	22	8.9	13.0	11	m	5	9
207.	22	7.7	13.0	11	m	5	9
208.	19	13.0	13.0	12	m	9	9
209.	19	13.0	13.0	11	m	9	9

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
210.	19	12.1	13.0	12	m	7	9
211.	20	13.0	13.0	12	m	9	9
212.	20	13.0	13.0	12	m	9	9
213.	20	9.6	13.0	12	m	6	9
214.	21	13.0	13.0	12	m	9	9
215.	20	13.0	12.0	11	m	9	5
216.	24	13.0	13.0	12	m	9	9
217.	19	10.3	13.0	12	m	6	9
218.	20	8.9	13.0	12	m	5	9
219.	20	8.9	8.6	12	m	5	4
220.	21	12.1	13.0	12	m	7	9
221.	22	6.7	11.0	9	f	4	5
222.	21	8.9	11.0	9	m	5	5
223.	36	12.1	12.0	6	f	7	5
224.	29	5.5	11.0	10	m	3	5
225.	25	3.9	6.7	8	f	2	3
226.	29	3.5	5.9	7	f	1	3
227.	29	4.1	6.2	9	f	2	3
228.	41	7.2	13.0	8	m	5	9
229.	31	5.6	6.7	7	m	4	3

Case #	A	Vo	Co	LGC	Sx	Vs	Cs
230.	29	3.7	3.4	5	m	1	2
231.	30	5.9	9.5	9	f	4	4
232.	22	3.9	4.6	11	m	2	2
233.	21	3.7	3.7	10	m	1	2
234.	21	5.9	3.4	6	m	4	2
235.	33	7.7	13.0	6	m	5	9
236.	22	5.3	7.4	7	m	3	3
237.	28	5.0	9.0	8	f	3	4