THE ADULT AND ADOLESCENT ILLITERATE: THE HUMAN FACTOR WITHIN THE USE OF THE PALS PROGRAM

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ABSTRACT

The broad objective of this study was to examine the impact of a computer-based literacy program, specifically the Principle of the Alphabet Literacy System (PALS), on the adult and adolescent illiterate. More specifically, the principal objective was to evaluate the effectiveness of the program in meeting both the general and functional literacy needs of its participants. Additional objectives included evaluating: (a) the effectiveness of the program in meeting its own objectives, (b) the efficiency in doing so, and (c) the program, itself, as a viable addition to existing adult literacy programs.

The study focused primarily on factors which have potential to mediate the effect of the computer-based PALS literacy program. Included were: (a) attitudes toward computers, (b) personal history, (c) learning disability, (d) learning environment, (e) awareness of reading tasks and strategies, and (f) learner and program objectives.

The 18 participants in the study ranged in age from 14 to 62 years, and were characterized by a male-female ratio of approximately 2:1. Both qualitative and quantitative

data were collected over a period of 6 months. The average gain in reading achievement was 1.6 grade levels.

Findings revealed very positive attitudes toward computers as instruction tools. In addition, data suggested that computer-based instruction is particularly well-suited to the learning-disabled student.

The learning environment of the PALS program was such that it encouraged an educational partnership between participant and instructor. This was appreciated by both adult and adolescent participant alike.

Findings also indicated that participants were aware of the role of motivation, interest, and prior knowledge in the reading process. As well, they were aware of selected reading strategies. However, such awareness appeared to be the least important consideration, particularly at the beginning level of the program.

Personal history emerged as a very critical factor in this study. For several of the participants, severe physical, emotional and sexual abuse had impaired their initial efforts to acquire literacy skills. Subsequent attempts had also been hampered by the participant's inability to resolve conflicts attributable to that abuse. Findings suggested the need for counselling services within

literacy programs, and within the public school system beginning at the elementary level.

The program objectives were broadly defined, and, as such, were achieved. However, the participants' objectives needed to be more specifically defined in relation to both their expectations and their specific literacy needs. In addition, the possibility of attaining given objectives needed to be realistically assessed within the context of the program and in relation to the affective profile of the individual.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

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Chapter 1

INTRODUCTION

The Problem: Its Scope and Definition

Adult illiteracy is a serious problem in both Canada and the United States. Only recently, however, has the extent of the problem in Canada been documented. The Southam Literacy Survey (Nesbitt, 1987) reveals that 24% of Canadian residents aged 18 years or older are illiterate, i.e., lack sufficient reading and writing skills to function comfortably in society. The same study also indicates that there is a student attrition rate in Canada of approximately 30%. Of those students who do graduate from Canadian high schools, 17% are illiterate. Although the lowest in Canada, the incidence of illiteracy in British Columbia is still 17%.

The literature abounds with definitions of literacy, both relative and absolute (Heathington, 1987; Taber, 1987). However, for this study, the term "literacy" will include the concepts of both general literacy and functional literacy, as defined by Valentine (1986). General literacy expresses "an individual's reading and writing ability without considering the broader social context" (p. 109). Functional literacy defines " . . . an individual's reading and writing tasks imposed by, or existing in, the

environment in which that individual resides and seeks to function" (p. 109).

The adoption of a dual definition of literacy provides a much broader base upon which to evaluate the effectiveness of a given instructional program. Specific needs of the adult and adolescent illiterate can be examined from a dual perspective: (a) the individual wanting to engage in individual, solitary literacy tasks, e.g., reading a novel or writing a grocery list, and (b) the individual wanting to engage in more interactive, communicative activities, e.g., replying to a letter from a friend or responding to an employer's written directive. Programs which best meet defined needs can then be developed, implemented, evaluated, and modified in response to such evaluation.

Given the enormous costs, both direct and indirect, that are associated with illiteracy (Meyer, 1987; Nesbitt, 1987; Nickerson, 1985), there appears to be an urgent need for finding effective solutions to the problem. With an increasing awareness of exactly how pervasive adult illiteracy is, has come a surge of interest and inquiry aimed at assessing existing programs and developing alternative programs by which to most effectively alleviate the problem.

Illiteracy is a problem with both a social and financial impact. The actual extent of illiteracy throughout Canada suggests that not all existing programs

are equally effective in addressing the problem. Therefore, any focus on combatting illiteracy should be expanded to include the development and assessment of alternative programs that are both efficient and effective.

Currently joining the traditional approaches to literacy instruction are more technologically-oriented programs. Recently developed, computer-assisted and computer-based instructional programs may provide viable additions to existing programs. However, research is needed in this area to assess the impact of such programs on given types of learners. Such an assessment is the focus of this study.

Purpose of The Study

The original, broad objective of this research had been to assess the impact of the computer-based PALS literacy program on the adult and adolescent illiterate. The program's potential as a viable addition to existing literacy programs was assumed to be a function of its effectiveness in meeting both its own objectives and those of its participants, as well as the efficiency in doing so. From my own perspective, as researcher, each of these facets of viability assumed equal importance, at least at the outset of the study.

However, because the planned emphasis of the study was to be on the perspective of the participant as interpreted

by the researcher, certain preconceived notions became subject to change. The effect that illiteracy may have had on the individual prior to that individual's involvement with the PALS program became far less important than the effect that the individual may have had on his or her own illiteracy. The focus of the research was thus redirected to illuminate the human factor at work within the program.

Consequently, the broad objective of the research was redefined: to examine the impact of the PALS program on its participants, with particular emphasis on the human aspect of the learning experience. More specifically, the primary objective of the study is to evaluate the effectiveness of the PALS program in meeting both the general and functional literacy needs of the participants. A secondary objective is to evaluate the effectiveness of the program in meeting its own objectives and the efficiency in doing so. A final objective, which evolves from the previous two, is to evaluate the PALS program as a viable addition to existing literacy programs.

Data generated from the study will be used in:

1. explaining what mediates the effects of the PALS program with respect to:
    (a) attitudes toward computers.
    (b) personal histories.
    (c) learning disabilities.
    (d) learning environment.

(e) awareness of reading tasks/strategies.

(f) learner expectations and program objectives.

2. identifying other relevant phenomena of the program.
3. determining whether or not there is a relationship between the PALS program and participants' reading achievement.
4. identifying existing or potential problems associated with the program.

If, indeed, PALS is effective in reducing illiteracy, and preliminary findings suggest that this is so (Evans, Falconer, Groves, & Rubin, 1988), then it would certainly have to be considered a viable addition to existing literacy programs, both traditional and technological. However, given the great diversity within any group of illiterate adults, it is unlikely that a single program would be able to meet the needs of all its user groups equally. There are simply too many factors that have the potential to influence the effectiveness of the program: age, educational background, gender, self-esteem, ethnic/cultural origin, and individual expectations, to name just a few.

Therefore, it is important to examine these variables not only from the perspective of program design and development, but also from the perspective of program implementation and evaluation. Adult illiteracy is a serious problem with serious implications. It must be addressed now. While a single program may never meet all

the needs of its users, a single program can be modified, or extended, to maximize its effectiveness in any given context.

Limitations of the Study

Certain constraints existed within the study which limited the scope of inquiry. The most notable were: (a) small sample size, (b) student attrition, (c) time, and (d) administrative decisions.

Because the study focused on the PALS program rather than on other programs, the number of available participants was limited, in part, by the number and locales of PALS installations. Until recently, the PALS operation in Saanich was the only one of its kind in Canada (Province of BC, 1987). While there have since been additional PALS programs introduced throughout Canada, the operation in Saanich still remains the only one of its kind on Vancouver Island. Thus, participants in this study comprised the limited, intact group of adults and adolescents enrolled in the PALS program at the Saanich location.

Another limiting factor which emerged in the study was that of student attrition. Given an original pool of 25 participants, only 18 of these were still registered in the program when data collection actually began. This number was further reduced to 15, and finally stabilized at 12 participants.

Time was a limiting factor throughout the study, particularly with respect to case studies. The number of participants wanting to be included in this aspect of the research exceeded the time available with which to accommodate them. Consequently, case studies were limited to only five.

Administrative decisions posed a final limitation on the study. The original plan had been to measure changes not only in reading achievement but also in typing, spelling, written composition, and self-esteem. However, the administrator of the program made the decision to limit measurements to changes in reading achievement, only. Therefore, no changes in participants' typing, spelling, or written composition were recorded.

Chapter 2

LITERATURE REVIEW

Traditional Approaches

It has been suggested that traditional classroom approaches to addressing the problem of illiteracy in adults are ineffective (France & Meeks, 1987; Olson, 1985; Wagner, 1985). There are several factors identified as contributing to this ineffectiveness: high student-to-teacher ratios, individual differences in patterns of learning, and the multifaceted affective profile of each individual student.

In addition, it has been suggested by Wagner (1985) that there are several different categories of illiterates in Canada. For example, historical illiterates are described as those individuals who did not have the opportunity to attend school for very long. There are also large groups of illiterates within established ethnic groups, such as Canadian Indians, Inuit, and many French-Canadians. There are also recent immigrant groups, with varying educational backgrounds, who are illiterate in English. Additionally, in most populations of adult illiterates there are individuals who are mentally or physically disadvantaged (Keefe & Meyer, 1988). Therefore, given that "individuals possess . . . literacy skills to

different degrees" (Nesbitt, 1987, p. 3), traditional approaches may have only limited degrees of effectiveness.

Criteria and Strategies for Teaching Illiterate Adults

Within the domain of adult literacy education, a variety of program dimensions have come under increasing scrutiny and evaluation. Teaching and learning strategies for the adult learner have been extensively described by Bowren (1987); Meyer (1987); Nickerson (1985); Padak and Padak (1987); and Wangberg (1985, 1986). The various criteria which underlie effective adult literacy programs have been discussed by Balmuth (1988), Heathington (1987), Roscow (1988), Schlossberg (1987), and Schuman (1989).

More recently, research studies have begun to focus on computer-assisted instruction (CAI) and its potential application within adult literacy programs (Imel, 1988; Snyder & Herrlinger, 1986; Turner, 1988a, 1988b; Young & Irwin, 1988; Wangberg, 1986). Interestingly, the proceedings of the American Adult Literacy and Technology conferences of 1987 and 1988 both suggest that CAI in adult literacy education is not only the fastest-growing field of inquiry, but also the area with the greatest research potential.

Technology and Adult Literacy Instruction

A Recent Innovation.

The use of technology in adult literacy instruction is a recent innovation. While there have been numerous educational software programs developed for children, the adult literacy student, until recently, has largely been ignored " . . . as a potential program user" (Turner, 1988a, p. 9). However, there is " . . . increasing evidence that the use of computers may be more appropriate for instructing adults rather than children" (Turner, 1988a, p. 9). Consequently, software programs related to adult literacy instruction are now beginning to emerge.

Current Research Findings.

Given that a technological approach to adult literacy instruction is still in its infancy, it is not surprising, then, that there are very few related research studies reported in the literature. While an extensive knowledge base in this area does not yet exist, there is increasingly more interest being shown by researchers in technological instruction and its potential application within the domain of adult education. A brief overview of current research findings in this field is presented as follows:

(a) Computer-assisted instruction (CAI) is an effective mode of instruction for a significant number of adult learners (Imel, 1988).

Imel indicates that while many studies do not report results that are statistically significant " . . . most report gains in achievement with CAI" (p. 2). Diekhoff (1988) makes an interesting observation that even if reported, statistical significance is of questionable value, particularly in adult literacy programs. He suggests that "practical significance" is a much more important criterion by which to assess the effectiveness of a literacy program, given that " . . . the average participant gains only 1 or 2 reading grade levels and is still functionally illiterate by almost any standard when he or she leaves training" (p. 629). Diekhoff's claim suggests that in order to have merit, a gain in literacy achievement must have utility. However, implicit in this proposition is the suggestion that the value of such utility be determined by someone other than the adult learner involved. Diekhoff's use of the term "only" with respect to gains in reading grade-levels appears to reflect his own standard of practical significance rather than that of the participant.

However, practical significance should, perhaps, be determined - at least in part - by the participant's own perceived needs for wanting to become literate " . . . in relation to work, family, and personal interests" (Young &

Irwin, 1988, p. 649). Furthermore, Diekhoff appears to have underestimated the value of documented increases in participant self-confidence and self-esteem as motivational factors in seeking further literacy instruction.

There is currently a lack of detailed achievement data on computer-assisted instruction in adult education. Whittle (1987) suggests that while "the success of CAI for promoting achievement at the elementary, secondary and college levels is well documented. . . . not much research on adult achievement with CAI has been done, and the results of existing research are inconclusive" (p. 25). Bean, Giver, and Johnson (1988) report that "while a number of articles have described the benefits and drawbacks of using computer-assisted instruction with ABE students, empirical evidence supporting the instructional efficacy of using microcomputer-based CAI with this population of learners is lacking" (p. 49).

(b) CAI is effective because it meets the criteria which underlie effective adult learning (Imel, 1988).

These criteria, which respond to the adult's affective profile, have been well documented in the literature for the past several years as they relate to adult education in general. However, there has been a shift in focus more recently toward the importance of these criteria

specifically as they relate to adult literacy education and technological instruction.

For example, Turner (1988b) reveals that "technology works with adult literacy students because it provides privacy, immediate feedback, individualization, control, and flexibility" (p. 643). These same findings were also found in a study by Evans et al. (1988).

Backlund (1988) describes how technology enhances the adult learning experience by providing "private, independent, and self-paced" (p. 44) instruction. She further asserts that technology provides non-judgmental and immediate feedback, and strengthens client's self-confidence.

Brown and Askov (1988) have found that by using computers, adults gain " . . . greater self-confidence, and a sense of improvement" (p. 50). Similarly, Carman and Lower (1987) suggest that computer-assisted instruction can " . . . boost the morale and self-esteem of the learner" (p.17).

Pyatte (1987) suggests that " . . . the typical adult learner likes to be actively involved in the learning process, prefers to learn in a non-threatening climate, prefers learning based on experience, and enjoys problem-centered learning with practically-based activities . . . " (p. 10). He submits, therefore, that an interactive

videodisc system is "better for the adult learner . . . " (p.11) than other modes of instruction.

(c) Adults with low literacy skills usually have positive attitudes toward computer use in their educational programs (Imel, 1988).

Participant enthusiasm about having the opportunity to learn to use the computer is reported by both Ciancio (1988) and Evans et al. (1988). Research by Brown and Askov (1988) reveals that adult students requiring literacy instruction " . . . had favorable attitudes toward using computers even before they had experience with them" (p. 50). No evidence of "computer anxiety" was apparent in any of these studies. The importance being placed upon adults' attitudes toward computer-assisted literacy instruction is underscored by the recent development and validation of the Adults' Attitudes Toward Computers (ATC) inventory (Lewis, 1987).

(d) Computer-assisted instruction " . . . has not been effective with all learners" (Imel, 1988, p.2).

This is an important consideration that needs to be explored if a "best fit" is to be effected between a particular literacy program and a given "profile" of adult learner. Reasons which underlie apparent program ineffectiveness should be identified, and subsequent action taken so as to remedy the situation.

The effectiveness of technological instruction with any given learner is subject to a variety of factors. With respect to the student, variations in background knowledge bases, diverse social, cultural, and environmental backgrounds, varying degrees of individual learning disabilities, learner strategies perceived and employed, and instructional strategies adopted can all influence the effectiveness of a CAI program. As well, factors inherent in the software itself can also influence the overall effectiveness of the program.

In addition, however, programs should also be viewed in terms of validity of their appraisal. Diekhoff (1988) claims that " . . . published evaluations of adult literacy training have presented an overly optimistic view of the effectiveness of these programs" (p. 624). Consequently, while the literature is replete with reported case-study successes, reality reflects a situation somewhat less successful. Diekhoff attributes this phenomenon to a variety of factors, but concludes that " . . . until there is greater recognition that what we are now doing is not working, it is unlikely that we will identify and eliminate the barriers to more effective programs" (p. 630). While some critics might regard Diekhoff as overly pessimistic, his point is well taken, and should alert us to the necessity of reporting and interpreting all data generated

in a given program, not just those data that reflect success.

What emerges from these current research findings is an obvious need for further study in the area of technological instruction and adult literacy education. If such instruction is to be maximally effective in meeting the varied needs of large, diverse populations of adult illiterates, then it must be streamlined so as to be maximally and optimally utilized.

(e) CAI effectiveness depends " . . . to a great extent upon the instructional staff" (Imel, 1988, p. 2).

This was a prominent finding in the study by Evans et al. (1988). Barry (1988) emphasizes the importance of instructional staff being familiar with both the hardware and software used in their particular adult literacy program.

Positive attitudes to the use of computers in literacy programs by instructional staff are also essential to the success of computer-assisted instruction (Brown & Askov, 1988). Moscow (1987) focuses on the need for instructional staff to view technology as a means of enhancing, not diminishing, the teacher's role.

Given that the "human element" may be important to the success of computer-assisted instruction, the instructional staff must not only be sensitive to the adult learner (Young

& Irwin, 1988), but must also focus on teaching strategies "based on top-down or meaning-oriented models for instruction" (Davidson & Wheat, 1989, p.342). Instructional staff should further have an understanding of " . . . how adults become literate and how best to foster adult learning" (Peruggi & Oppenheim, 1988, p. 34). They must also become knowledgeable about " . . . the adult student and . . . the unique problems and opportunities that adult students present in terms of teaching methods and techniques" (Shafer & Welliver, 1987, p. 46).

Given that the extent and type of interaction between instructional staff and the adult learner may influence program effectiveness, the distinction between computer-assisted instruction and computer-based instruction should be clarified. Both Rodriquez (as reported in Wangberg, 1986) and Turner (1988a) describe technological instruction in terms of its supplemental or primary application.

The most common use of technology in basic literacy programs is in supplemental instruction. The instructional staff constitutes the primary means of instruction, and usually, " . . . the instructional material is commercially available software that is integrated into an existing curriculum" (Turner, 1988a, p.9). The use of technology as a supplement to instruction is known as computer-assisted instruction (CAI).

The least used application of technology in basic literacy programs is that of primary instruction. With this type of usage, " . . . the computer serves as the primary means of instruction, and the teacher acts as a facilitator or assistant in the learning process" (Turner, 1988a, p. 9). The use of technology as a primary means of instruction is known as computer-based instruction (CBI).

(f) The effectiveness of computer-assisted instruction is "limited by the shortage of appropriate software" (Imel, 1988, p. 2).

Given the great diversity within any given population of illiterate adults and the rapidly-changing field of technology, this is not surprising. Considerably more research and development is needed in the field of technology and adult literacy education, as is revealed in the proceedings of the Adult Literacy and Technology Conferences held in Pennsylvania in 1987 and 1988. There are several factors which affect the "appropriateness" of software.

For example, individual prior knowledge is critical in adult learning. Beers (as reported by Perin, 1988) suggests that while "schemata [background knowledge bases] are not identical across individuals, shared social and environmental backgrounds result in shared concepts" (p. 55). An assumption of "shared" backgrounds implies some

degree of homogeneity within a given group. However, most groups of adult illiterates are characterized by extreme diversity, particularly with respect to social, educational, and cultural backgrounds. Therefore, a given software program must somehow respond to an acknowledged diversity in schemata while, at the same time, address an assumed commonalty in social and environmental backgrounds which usually does not exist within that user group.

Another issue that might be considered in relation to software is the particular model of learning which underlies the program. According to Young and Irwin (1988), "few software programs, particularly those labelled as 'reading', provide instruction based upon a cognitive model of learning" (p. 649).

A further factor that may limit the effectiveness of existing software relates to the issue of learning disabilities. Keefe and Meyer (1988), using diagnostic testing, have " . . . established 5 separately identifiable groups of adult disabled readers" (p. 615). Hartley and Bogo (1988) report that an estimated 60% of illiterate adults are learning disabled, and suggest that "software should have features that take learning disabilities into consideration" (p. 15).

Related to this is the need to identify not only how the disabled reader perceives reading and writing tasks, but also how the disabled reader actually carries out reading

and writing tasks (Gambrell & Heathington, 1981; Joyce, 1988). Joyce (1988) suggests that there is a definite need for " . . . information about the reading processes of adults at a beginning level and the techniques that address these processes" (p. 39). Gambrell and Heathington (1981) call for more research on the reading processes used, and the reading processes perceived by the adult disabled reader. In their study, the disabled reader is identified as an individual " . . . who had not acquired fifth grade reading skills" (p. 215). Their research reveals that "adult disabled readers perceive reading as a decoding process rather than as a meaning construction or comprehension task" (p. 215). Further findings indicate that the actual reading process used differs from the reading process perceived.

At present, single software programs are being employed to address the literacy needs of an extremely diverse group of individuals. In an evaluation study by Evans et al. (1988), participants ranged in age from the mid-teens to the mid-sixties; in educational backgrounds, from elementary school drop-outs to foreign university graduates; and, in ethnic/cultural origin from BC Native Indians to Canadian-born Caucasians to both educated and uneducated immigrants.

It is doubtful if any single software program can effectively meet the diverse needs of all user groups. At

the present time, there are only " . . . three major systems for purchase in adult literacy instruction that fit the primary category [CBI]: Programmed Logic for Automatic Teaching Operations (PLATO), Computer Curriculum Corporation (CCC), and Principle of the Alphabet Literacy System (PALS)" (p. 10). Each of these programs is characterized as a "total instructional program" (Turner, 1988a, p. 10) in which instructional staff function as program facilitators.

To effect an optimum "best fit" for given individuals, more, and more detailed, data must be obtained on the profiles of adults with low literacy skills. Therefore, the present research seeks, in part, to examine the profiles of adults with low literacy skills, and the impact, upon these individuals, of a computer-based instructional program.

Summary of Literature Review

In summary, traditional approaches to addressing the problem of illiteracy in adults are often ineffective. Therefore, alternative programs need to be explored. A technological approach offers the learner flexibility, privacy, immediate feedback, and control within the learning environment. These features suggest that the use of technology in adult literacy instruction may provide an acceptable alternative for those individuals whose needs are not met by more traditional modes of instruction. One such

computer-based program is the PALS program, and it is the focus of this research.

The PALS Program

General Description.

PALS is the newest of the three existing CBI systems. It was developed in 1983 and released in 1987. It "addresses a need in basic literacy instruction that simply has not been met--technological instruction at the 0- to 5th-grade level" (Turner, 1988a, p. 10). The other two CBI programs are designed for individuals with literacy levels of Grade 4, or higher. Furthermore, " . . . PALS is unique in that it enables [the student] to learn three skills at once: reading and writing, touch typing, and familiarity with computers" (Wagner & Rossman, 1988, p. 17).

More specifically, IBM Canada Ltd. (1987) describes the Principle of Alphabet Literacy System (PALS) as follows:

> PALS is a computer-based instructional application designed to develop reading and writing skills in the below-sixth-grade reading level . . . .
>
> The presentation of the learning exercises is in a multiple media format including video, audio, graphics, overlay, touch, text and synthetic speech.
>
> The PALS instructional program is designed for maximum utilization in a learning center or classroom environment. By combining interrelated hardware, software, and instructional tools, the student is provided an integrated learning approach. The student is expected to develop higher reading and writing skills through understanding the connection between written and spoken words. The student will have

> involvement in learning how a written language is created. The student will also learn to touch type and will be exposed to the personal computer and electronic typewriter equipment. (p.2)

The program at Stelly's High School in the Saanich school district is designed for a population of functionally illiterate adolescents and adults. At present, it is the only installation of PALS on Vancouver Island (S. Cuccione, personal communication, September 22, 1989).

Implementation of PALS.

IBM of Canada Ltd. (1987) describes the equipment of PALS as follows:

> A properly configured system would include the PALS licensed program and IBM 4055 InfoWindow Display, a properly configured IBM personal computer and IBM InfoWindow PILOT Presentation, and a videodisc player. (p.1)

The typical PALS learning environment is overseen by a classroom administrator. Students attend class for 1 hour per day for approximately 20 weeks (Province of BC, 1987).

The first phase of the program focuses on the invention of the alphabet and on the development of reading skills. Emphasis is placed on relating sounds to given letter symbols. The second phase of the program involves the use of work journals, and focuses on reproducing the sound in written form. The third, and final, phase of the program encourages the students to employ the principles they have learned in the first two phases and apply them to a variety of personal writing (Martin, 1987).

The touch screen provides an interactive environment that requires neither keyboarding skills nor reading skills. Through this medium, students are introduced to the 26 letters of the English alphabet. Students are shown how to combine the letters of the alphabet, using a phonemic representation, to form various words. According to IBM, this phonemic approach minimizes the confusion caused by spelling inconsistencies within the English language.

As the student progresses, phonemic spelling is replaced by book-form writing, and the focus of the program shifts to written output. Throughout the program, the individual personal computer typing stations provide the students with the opportunity to develop typing and writing skills.

Current Research on PALS.

The study carried out by Evans et al. (1988) is "the cleanest, most detailed [empirical] study" of PALS currently available (A. Danchak, personal communication, September 22, 1989). An extensive literature search revealed very few studies of any kind relating to the PALS program. The dearth of empirical data on the program is, in all likelihood, attributable to its relatively recent development and release.

In the fall of 1986, only ten school districts in the entire United States had begun to pilot the PALS program (Ciancio, 1988). In Canada, the first and only pilot

program of PALS was carried out in Saanich in 1988 (Evans et al., 1988). More recently, however, there has been an increase to " . . . about 550 PALS installations in the United States and Canada" (A. Danchak, personal communication, September 22, 1989).

With the exception of the study by Evans et al. (1988), those findings that are available on PALS are primarily descriptive and devoid of specific, empirical data (Ciancio, 1988; Rea, 1987; Vance & Raaen, 1988; Wagner & Rossman, 1988).

PALS Summary

A PALS "data base" or "findings inventory" needs to be developed and maintained so as to ensure that the program can respond optimally, on an on-going basis, to the needs of its user groups. In addition, a PALS informational network could be used to maximize the program's effectiveness for a given "profile" of adult learner.

The present research evolved directly from a preliminary evaluation of the PALS pilot operation in Saanich, BC (Evans et al., 1988). The present study will also evaluate the program, but from a different perspective, and in a post-pilot operation, in a new locale, with a new group of participants, and with new instructional staff. While this study involves an evaluation of reading achievement and attitudes toward computers, the major focus

is the participant and participants' perceptions of the program. The purpose of such a selected focus is to discover what mediates the effects of the PALS program.

A secondary focus will be that of assessing the effectiveness of the program in meeting its own objectives, and the efficiency in doing so. Finally, data generated in the study may suggest that a PALS program is, indeed, a viable addition to existing adult literacy programs currently in operation.

It should be noted here that because the field of adult literacy does, in fact, comprise such a multidimensional domain, the emphasis of the proposed study cannot be on the "usual" testing of nomothetic propositions. Subsequent generalizations would be invalidated, in any case, due to the numerous interactions of situational and idiosyncratic variables. Instead, the emphasis will be upon:

> . . . monitoring [a given] operational context . . . . [giving] attention to uncontrolled conditions, to personal characteristics, and to events that [occur] during treatment and measurement . . . . from situation to situation . . . to describe and interpret the effect anew in each locale, . . . taking into account factors unique to that locale. (Cronbach, 1975, p. 125)

Chapter 3

METHOD

The primary purpose of this research was to evaluate the effectiveness of the PALS program in meeting the general and functional literacy needs of program participants. A secondary focus was that of evaluating the effectiveness of the program meeting its own objectives, and the efficiency in doing so. A tertiary focus was that of evaluating the program as a viable addition to existing literacy programs. Therefore, to obtain maximum relevant data, given a multifaceted objective, an eclectic approach was adopted.

Design

The research study focused primarily on a single-group, single-site design. One aspect of the research, however, did require the use of a comparative group. The research, itself, was an evaluation study, and was conducted using both qualitative and quantitative approaches.

Qualitative Component.

The purpose of the qualitative component of this study was to explore the various facets of how a computerized, adult literacy program might influence a group of adults and adolescents (young adults) characterized by low literacy

skills. One aspect of the research was to discover and describe what mediates the effects of the PALS program with respect to: (a) attitudes toward computers, (b) personal histories, (c) learning disabilities, (d) learning environments, (e) awareness of reading tasks/strategies, and (f) learner expectations and program objectives. Another aspect of the study was to identify existing or potential problems associated with the program.

Data were collected through direct observation of the students as they participated in the program in its natural setting. Data were also obtained through extensive interviews with the participants, themselves, and, to a lesser extent, with instructional staff at the lab.

A qualitative approach was adopted to: (a) identify and describe possible trends or patterns which may have emerged over the course of the program, (b) discern various attitudes toward, or concerns about, the program, itself, (c) identify existing, or potential, problems within the program, and (d) identify outcomes which could not be specified a priori or outcomes which were not particularly amenable to quantitative measurement.

In addition, case studies reflecting histories of abuse were also carried out on specific individuals, and extended over a six-month period. Initially, data for these case studies had been accumulated through very extensive interview notes. However, latterly, and with the

participants' permission, data were also collected through the use of audio tapes.

Originally, longitudinal profiles had been arbitrarily planned for: (a) the student with the lowest/highest reading score at the time of entry into the program, (b) the student who was the youngest/oldest, (c) students who represented various ethnic origins, e.g. Native BC Indians and immigrants of various educational backgrounds, and, (d) Canadian-born school drop-outs. However, in actuality, it was the participants, themselves, who finally determined who would be included in the case studies. There were far more requests by participants to be included in this section of the study than there were resources to facilitate their inclusion.

It was not the original intent to restrict case studies to those individuals in the program who were victims of abuse. However, participant willingness, availability, and apparent urgency to be heard were the criteria that finally determined exactly who would be included in the personal profiles.

To examine, in detail, the impact of this program on selected participants, direct observations of the clients were supplemented not only by interviews with instructional staff about the clients, but also by extensive semi-structured or open-ended interviews with the clients, themselves. More and more, qualitative research is becoming

a particularly valuable methodology in the field of adult education (Merriam, 1989). Furthermore, to limit data collection to that specified a priori by the researcher would have made it extremely difficult to discover the perspectives of the participants, themselves (Long, 1986; Wilson, 1977).

The objective, then, was to gain some in-depth understanding of the needs and expectations of the program's participants, given their unique and diverse characteristics. Furthermore, given the heterogeneity of an illiterate adult population, the case studies also served to reveal which aspects of the PALS program might best meet the needs of students with particular profiles. Effectively the focus was to be on understanding illiteracy as perceived by the adult illiterate and interpreted by the researcher.

Quantitative Component.

There were four segments originally planned for the quantitative component of this study, but due to unforeseen circumstances involving administrative decisions, only three were carried out:

1. Pre-Post Test Scores (Woodcock Reading Mastery Tests).

Participants were comprised of a group of adults and adolescents, in situ, with a reading level of about Grade 5, or lower. Each student was administered a pre- and post-test using Woodcock Reading Mastery Tests (Forms A and B). These data facilitated an evaluation of the PALS program

with respect to its effectiveness in changing the reading achievement levels of the participants.

Originally, both cognitive skills, such as reading, spelling, and written composition, and psychomotor skills, such as typing, were to have been measured. Changes in participants' self-esteem were also to have been measured. However, the program administrator made the decision to limit measurements, with this group of participants, to reading achievement, only.

A pre-experimental, rather than a "true" experimental, format was employed in this study because the use of random procedures was not feasible. By using this format, students were compared to themselves, and in effect, functioned as their own controls. Differences between students, often complex and difficult to isolate, did not need to enter into the data analyses (Howell, 1985).

The main weakness of a related-measures design, such as this, is that because no control group is used, greater attention must be focused upon internal threats to validity. However, threats due to history and maturation were considered to be negligible, given that participants were already adults, and had been illiterate for many years. Thus, the assumption was made that dependent variables such as reading, writing, and spelling achievement levels were, in the adult illiterate, relatively stable. Hence, "when fairly stable dependent variables are studied, there is less

chance that pre-post differences have been caused by extraneous variables" (Borg, 1987, p. 2). An assumption was also made that there would be no "test order" effect between pre- and post-testing, given the interval of 100 instructional hours spread over 10 or 20 weeks.

Another threat to internal validity could have presumably arisen from differential selection due to the "volunteer" characteristic of the participants. However, given that the participants were adults and adolescents, rather than children, it is difficult to conceive of a situation in which they would have been recruited as other than volunteers. Therefore, the threat of differential selection to the internal validity in this adult literacy study appeared to be irrelevant. Given the assumption that all participants in an adult literacy program, such as PALS, are, in fact, volunteers, concern about differential effects appeared to be unwarranted.

Experimental mortality is a potential threat to any study, regardless of design. Therefore, with respect to this study, the presence or absence of an external control group would have had no bearing upon rates of attrition.

2. Scores of the ATC (Attitudes Toward Computers) Inventory.

The purpose of using this instrument was " . . . to obtain a better understanding of an individual's

willingness, or lack thereof, to use computers" (Lewis & Delcourt, 1989, p. 238). Scores from this inventory also served as a cross-check to anecdotal accounts of the participants' eagerness or reluctance to engage in computer use.

3. Awareness of Reading Tasks and Strategies.

Ideally, program design and implementation should be in response to identifiable participant needs, particularly in the domain of adult education (Friere, 1970; Gambrell & Heathington, 1981). Therefore, if a literacy program, such as PALS, is to be maximally effective in meeting its objectives, an inventory reflecting the participant's existing knowledge of the reading process should be established at the outset.

If, in fact, the illiterate individual is unaware that specific task parameters and cognitive strategies underlie proficiency in reading, then the process of reading for that individual will not progress much beyond the simple decoding of printed symbols. To maximize the impact of the PALS program, instruction might be expanded to include the teaching of specific task parameters and cognitive strategies hitherto unknown to participants.

The interview format used in this component of the research was based on the informal reading inventory developed by Gambrell and Heathington (1981). Its purpose

was to elicit responses from good and poor readers regarding their awareness of reading tasks and reading strategies. Female and male versions of the interview were used to minimize possible sex bias in responses (see Appendix D).

4. Quantitative Demographic Data (Frequency Counts).

Originally, collection and analyses of various demographic data had been planned so as to reveal possible trends or relationships within this group of PALS participants. The objective had been to examine these demographic data in light of their potential to influence expected program outcomes or to generate unexpected outcomes. However, because of a relatively low initial registration and a relatively high drop-out rate, the actual number of participants was considered too low to be useful in revealing a trend. The original pool of 25 participants had decreased to 18 participants within the first five weeks. It further decreased to 15, and finally stabilized at 12 participants. Therefore, this section of the planned research was deleted.

In general, the use of combined and/or selected components of both quantitative and qualitative paradigms is widely supported in the literature (Cronbach, 1975; Guba, 1987; Herrman, 1987; Rossman & Wilson, 1985; Smith, 1986). More specifically, with respect to adult literacy programs

and computer-assisted instruction, multiple data collection and analyses are also advocated.

Cranney (as reported in Diekhoff, 1988) suggests that the evaluation of adult literacy programs should involve the use of several types of data, including participant self-reports, pretest-posttest reading scores, and case study data. According to Diekhoff, himself, (1988), "each source of information provides a unique view of literacy that contributes to a complete understanding of program effectiveness" (p. 627). He further suggests that evaluation data should really be integrative in nature, and that while "case study data are not inappropriate in the evaluation of literacy training . . . such data serve best . . . when used to supplement, not replace, more objective data" (p. 628). Such triangulation will permit a cross-check of data and interpretations, thereby increasing credibility of findings within the given context (Lincoln & Guba, 1986).

With respect to computer-assisted language teaching/learning studies, Clark (1988), while supporting experimental procedure, strongly advocates the use of "microstudies" which include:

> the collection and analysis of student-provided feedback about various aspects of the instructional process, including both questionnaire-based data and information gathered through observation of and discussion with students about the ways in which they address their learning tasks. (p. 18)

He furthers suggest that such an approach "could have great informational potential" (p. 18).

In summary, then, there is great diversity and variation within any population of adult and adolescent learners. In addition, the field of educational technology is currently undergoing tremendous change. Interfacing with these two dynamic dimensions, within the educational domain, are recent innovations in the application of technology in adult literacy programs. The design proposed for this research is regarded as an optimum design by which to explore the many facets of a given program operating within a given context and with a given group of participants.

Participants

The adult participants in the program were recruited, on a voluntary basis, from a variety of community agencies and from the general public at large. With respect to the adolescent, or young adult, participants, while the PALS program had been strongly recommended to them by teachers at school, their participation was, nevertheless, on a voluntary basis.

Each individual was interviewed and administered a Woodcock Reading Mastery Test prior to the start of the program, and results were used for purposes of selection. Most of those individuals selected were characterized as

having a Grade 5, or lower, reading level at the time of entry into the program.

Initially, 26 participants had registered for the PALS1 program. One participant declined, at the outset, to take part in the study because he did not wish to sign a required consent form. Consequently, there was an original pool of 25 individuals available for the study.

However, actual data collection did not begin until approximately five weeks after the program had been in operation. The purpose of the lag phase was to provide an opportunity for the development of mutual trust between myself, as a volunteer tutor/researcher, and the students with whom I would be interacting. During this 5-week period, 28% of the original pool of participants had dropped out of the program, then leaving only 18 participants from whom to begin collecting data. Subsequent withdrawals reduced the overall participant sample even further.

Therefore, as the research began, there were 18 PALS participants available to complete the ATC inventory and the interviews on awareness of reading tasks and strategies. This group was comprised of six females and 12 males with an age range of 14 to 62 years. By the time data were collected for the PALS inventory, the sample size had decreased to 15 participants: four females and 11 males. Only 12 participants, i.e., four females and eight males, completed the post Woodcock Reading Mastery Test.

Additional participants external to the PALS program, were also recruited for one particular component of the research: awareness of reading task and strategy variables, which involved comparisons between able readers and disabled readers. In total, there were 36 participants involved in this section of the study. They were arbitrarily divided into two categories: poor readers and good readers.

The PALS participants, with an average grade level of 3.4 for reading achievement at time of entry into the program, were designated as poor readers. The good readers were also recruited as volunteers, but from more diverse sources.

A basic assumption was made with respect to what would constitute a "good" reader. It was assumed that individuals who had achieved advanced academic credentials, i.e., primary, secondary, or tertiary degrees, or students considered as "gifted" could reasonably be classified as good readers.

The rationale underlying this assumption was that most individuals who achieve high academic standing or earn advanced degrees have very likely employed effective reading strategies to do so. Certainly the pursuit of an academic degree would suggest the necessity for proficient reading skills, given the copious reading requirements associated with graduate studies. The attainment of high academic

standing would also suggest an awareness of the factors associated with an effective reading process.

Seventy-five informal reading inventories were sent out to a selected population in order to establish a preliminary pool of good readers. Included in this population were school teachers, "gifted" students (as defined by their teachers), college students with a first class GPA, graduate students and faculty members at the University of Victoria. There was a 51% return of usable inventories.

From the usable returns, 18 participants were selected for the comparison group. The selection of good readers for the study was based on the age:gender distribution reflected in the poor readers group. These criteria were chosen so as to minimize any differences potentially attributable to age and gender. Therefore, each group consisted of six females and 12 males with an age range of 14 to 62 years.

Setting

The study was conducted at the PALS computer laboratory located on the grounds of Stelly's High School in the Saanich school district. The lab, itself, was contained in one section of a portable building which was in close proximity to the school. A small library, also in the portable, was located immediately adjacent to the lab proper.

Equipment consisted of four IBM InfoWindow touch screens and eight IBM personal computers. Each InfoWindow station was equipped with two sets of headphones to facilitate participants who might work as partners. A variety of software programs were available, and workbooks were provided for students' use.

In addition to myself as a volunteer tutor, there was also a classroom administrator in charge of the overall program, and a teaching assistant. Occasionally, there was a male volunteer present from the University of Victoria.

There were two levels of the PALS program in operation: PALS1 and PALS2. The lower level was the focus of this study. Classes were in session Monday through Thursday, and participants were given a choice of the following sections:

PALS 1 12:30 pm - 1:30 pm

PALS2 1:30 pm - 2:30 pm

PALS1 3:00 pm - 5:00 pm

PALS2 5:00 pm - 7:00 pm

However, there was considerable flexibility within this schedule. Because the InfoWindow stations were not in use during the PALS2 sessions, and because resources were chronically underemployed in all sections, students from PALS1 had the option to attend class during the PALS2 sessions should that be more convenient for them.

The course, itself, was designed to comprise approximately 100 classroom hours. However, this varied among participants as a function of their progress.

Instrumentation

1. To assess reading achievement - Woodcock Reading Mastery Tests (Forms A and B).

In general, there is greater support for the instrument's reliability than validity. According to Tuinman (1978), the tests are considered more reliable for the lower grades, and "the test content as a whole seems best suited for use as a global screening measure for reading disability . . ." (p.1304). Therefore, this instrument appears to be a suitable choice for the study.

In 1987, Woodcock Reading Mastery Tests - Revised were released (Cooter, 1989). However, while these revised instruments were not used in the present study, they should, perhaps, be considered for use in future PALS programs, particularly since their design now encompasses "examinees who differ greatly in educational level and age" (Jaeger, 1989, p. 916).

2. To assess attitudes towards computers - ATC inventory.

This instrument, which employs a 5-point Likert format, is a refined version of a preliminary instrument developed

by Lewis and Delcourt (1987). Choices range from strongly agree (5) to strongly disagree (1). According to the authors, their decision to design such an instrument was based on the belief that:

> . . . the use of computer-based instruction is becoming more widely employed in basic skills classes . . . . while anecdotal accounts abound, no hard data exists [sic] that addresses [sic] the willingness or reluctance of learners to engage in computer use . . . . the high dropout rates in ABE [Adult Basic Education] classes require adult educators to continually seek new ways to encourage participation and increase motivation. (p. 238)

The instrument in its initial form was characterized by three categories of attitude: general interest, perceived usefulness of computers, and comfort in using computers.

However, the instrument was then re-piloted, and subsequent "interpretation of the principal component analysis (PCA) using Kaiser's criterion revealed a two component solution . . . . general interest and usefulness merged to form the majority of a single factor" (p. 239). Furthermore, "an internal reliability consistency estimate of .89 was found for the entire survey. Reliability estimates for each of the two derived factors were .89 (Factor I-General Interest/Usefulness) and .80 (Factor II-Comfort). Both the reliability estimates and the PCA support the use of the two factor solution.

Although the ATC inventory was specifically developed to measure adults'[italics added] attitudes, it was used in this study to measure the attitudes of adolescents as well.

The term "adult" was not specifically defined nor was there any age criterion provided. Therefore, an assumption was made that the adolescents in this group could be characterized as young adults. This assumption appeared reasonable, given the high level of maturity and self-direction displayed by all those adolescents in the program. In addition, several of these adolescents, because of their unique backgrounds, had acquired a considerable experiential base often associated only with individuals of greater chronological age. Finally, the adolescents in the PALS program appeared to have met most of the criteria associated with the adult learner, as outlined in the Adult Basic Literacy Curriculum Guide and Resource Book (1987) and A Guide for Tutoring Adult ESL Students (1988).

3. To assess participants' awareness of reading tasks and strategies using an informal reading inventory.

The interview format used in this study was developed by Gambrell and Heathington (1981) for use with an adult population. It is, in fact, a modification of a structured interview originally developed by Myers and Paris (1978) for use with a population of children.

In addition, the summary phrases to which data in this study were reduced were virtually the same as those devised by Gambrell and Heathington. In their research, "each subject's response was reduced to a summary phrase by each

of two researchers. . . . there were fewer than 6% disagreements on summarization of responses and they were resolved through discussion" (p. 217).

4. To assess the impact of program on participants.

   (a) Direct Observations.

   Physical learning environment.

   Instructional staff.

   Class, as a whole.

   (b) Personal Interviews with Instructional Staff - anecdotal format.

   Re: perceptions of students' attitudes, success or failure of students, apparent motivational levels, and unanticipated outcomes.

   (c) Personal Interviews with Participants - anecdotal format.

   Re: teacher behaviour, curriculum, materials, utility, and evaluation of the program.

   (d) Selected In-Depth Case Studies

   (see Appendix C).

5. For Minimizing Personal Bias.

   Day-book or diary to monitor daily fluctuations in feelings/situations that could bias myself as observer.

Procedure

The beginning of the study coincided with the beginning of the program, itself. However, actual data collection did not begin until after a 5-week researcher-participant adjustment period. Each participant in the PALS group was interviewed individually in an informal manner. Questions expected to generate data for quantitative analysis were asked in the same order to each participant, and responses were recorded by me. Qualitative data were obtained in a less structured order.

The informal nature of all the interviews served a dual purpose: (a) it dispelled participants' concerns that they were being given a "test", and (b) it established that the focus of the inquiry was the participants' own [italics added] ideas and opinions.

With respect to that component of the study requiring an external comparative group, those participants selected from the preliminary pool had already completed the interview questions, themselves. The same introductory information with respect to the nature of the interview questions was provided to both groups.

With respect to data collection and processing, participants were assigned either code numbers or pseudonyms so as to protect their privacy. Observations and interviews were carried out throughout the duration of the program, and recorded in anecdotal form as fieldnotes. With the

participant's permission, data for case studies were recorded on audio tape. Two of these case studies were completed, by invitation, at the homes of the participants following their withdrawal from the program. Attendance was also monitored and recorded.

Chapter 4

RESULTS

The broad objective of the research has been to examine the impact of the PALS program on its participants, with particular emphasis on the human aspect of the learning experience. More specifically, the primary objective of the study has been to evaluate the effectiveness of the PALS program in meeting both the general and functional literacy needs of the participants. A secondary objective was to evaluate the effectiveness of the program in meeting its own objectives and the efficiency in doing so. A final objective, which evolved from the previous two, was to evaluate the PALS program as a viable addition to existing literacy programs.

Data generated from the study are used in:

1. explaining what mediates the effects of the PALS program with respect to:
    (a) attitudes toward computers.
    (b) personal histories.
    (c) learning disabilities.
    (d) learning environment.
    (e) awareness of reading tasks/strategies.
    (f) learner expectations and program objectives.
2. identifying other relevant phenomena of the program.

3. determining whether or not there is a relationship between the PALS program and participants' reading achievement.
4. identifying existing or potential problems associated with the program.

Therefore, given the numerous, interacting facets of the research, it would be extremely difficult to attribute a specific result to a single, specific factor.

For example, one aspect of evaluating the effectiveness of the program in meeting the general and functional literacy needs of participants is to discover and describe what mediates the program. In this study, factors with the potential to mediate the effect of the program included: (a) attitudes toward computers, (b) personal histories, (c) learning disabilities, (d) learning environment, (e) awareness of reading tasks and strategies, and (f) learner expectations and program objectives. Given that these factors exist simultaneously and to varying degrees in a given individual, there is always the potential for any one of them to confound or compound the effect of any other. In addition, the effectiveness of the program in meeting either its own objectives or those of its participants could also be a function of existing problems inherent in the program, itself.

The difficulty then arises as to how to apportion a particular result among its contributing factors. Therefore, the results are presented without assignment to single, specific variables.

Direct Observations of the Physical Learning Environment

1. The lab, itself, located in a portable building, was comprised of three rooms: the lab, proper, with the computer stations for students; a small library, and the classroom administrator's office.
2. There were no outside windows anywhere in the lab which tended to make the lab appear smaller than it was.
3. The work area for participants was inadequate as noted through direct observations and by participants' opinions. Most participants had to complete their work journal assignments by resting the book on their lap or by propping it up against the keyboard.
4. The seating arrangement in the lab was conducive to information exchange between, or among, participants while still affording them privacy.

Direct Observations of the Class

The observations noted in this study are very similar to those reported by Evans et al. (1988):

1. The PALS lab was noticeably free of conversational din or distraction.
2. Most participants remained on task throughout a given class period. The exceptions to this were: (a) those participants who were preoccupied with personal problems, and (b) those participants who became bored while doing typing drills.
3. Overt frustration in participants was noticeable in two areas of the program: (a) when participants had completed the 12 videodiscs and were then given a choice of what else they might do, and (b) when participants attempted to use the Microsoft Works word processing package.
4. The lab appeared to be an extremely low-stress environment and participants, on the whole, appeared relaxed and eager to learn.
5. On occasion, participants would interact briefly and quietly with one another, usually to clarify some point relating to an immediate task, or to offer words of encouragement to each other.
6. When participants required assistance from instructional staff, they simply raised their hand or quietly called the instructor by name, and were, for the most part, attended to immediately.

7. Participants did not appear to take much advantage of the newspapers, magazines, or dictionaries available in the PALS library.
8. At the end of the first two weeks of the program, there were 26 participants registered for PALS1 classes. However, given the two scheduled sections for PALS1, there was the potential to accommodate 32 participants. Within the first five weeks, seven participants, citing a variety of reasons, had dropped out of the program.

    Subsequent absenteeism and additional participant withdrawals, in spite of new registrations, resulted in further underemployment of resources and facilities. An examination of attendance records revealed that over a period of six months, the lab never operated at more than 50% capacity, on average, in any given class in any single month.

Participants' Perceptions of the PALS Program

To gain some insight into what influence the PALS program was having on students, a series of interviews was carried out over a period of several months (see Appendices A and B). These interviews were informal and conversational, in nature, and the given questions were intended to elicit feedback from participants on their own

perceptions of the program. The questions also served as reference points for direct observations.

Initially, interviews had been planned for 18 participants, however student withdrawals resulted in only 15 participants being interviewed for this section of the study. Of these, eight were adolescents and seven were adults. A summary of the findings follows, with more detailed data presented in Appendix B.

1. All of the participants indicated that, overall, they enjoyed the PALS program, or, at least, the concept of the program. Satisfaction was expressed in comments such as: "I like everything [about the program]. It's educational and [italics added] fun."

   The PALS program was also perceived to be superior to other adult literacy programs taken by participants. Dissatisfaction with other programs was reflected in comments such as: " . . . only saw teacher's back . . . she was always writing on the blackboard", "far too many students", and "teacher talked down to me".

2. Most participants were able to articulate some expectations as to what the program might enable them to do. In some instances, their short-term expectations were, in fact, met, as for example, in the case of an adult, being able to read simple stories to grandchildren or, in the case of an adolescent, being able to read stories to younger siblings.

3. The best-liked feature of the program was the use of a computer as an instructional tool, while the least-liked feature was the geographical locale of the lab, itself: "it's too isolated", "too far", or "takes too long to get here". Most participants suggested central Victoria as a preferred locale, possibly with the lab to be located in a shopping mall.
4. All of the participants perceived themselves as having learnt something in the PALS program. For example, "increase in general reading ability", "better interaction with other people", and "better keyboarding skills".
5. The majority of participants were characterized by a variety of learning handicaps.
6. Most participants preferred a 2-hour session, as opposed to a one-hour session, and many were also in favour of the PALS program being operated on a year-round basis.
7. The adolescents in this particular group much preferred being in a class with adults than in a class with only their peers. Such preference was reflected in comments such as: "it's much quieter with adults", "adults don't talk as much and there's less disruption", and "less fooling around". (This was also borne out by direct observation in that these adolescent students

remained on task, worked independently, exhibited self-direction, and self-discipline.)

8. The majority of participants found their work space in the lab to be very inadequate as suggested by comments such as: "the journal keeps hitting the keyboard", "use my lap to put my journal on", and "working area is too cramped".
9. All of the participants indicated that the PALS staff had responded to their queries quickly, effectively, and in a friendly manner.
10. Overall, participants were quite satisfied with the typing component of the program, although several could not always specify in what way typing would be useful to them, personally. For example, "could improve your reading", and "you need it to get along in the world".
11. The majority of participants understood what was being taught through the typing module, e.g., the importance of home keys, the purpose of drills, the relationship between not looking at keys and typing speed, etc.
12. The majority of participants responded positively to the InfoWindow segment of the program. Particularly appreciated were: (a) its ease of operation, including both software and hardware, (b) clarity of instructions, (c) the underlying concept of the story, and (d) the work journal. The two native students in the group suggested the development of a similar

program which would focus upon their own Indian culture, and possibly their own Indian dialects.

13. The majority of participants understood the gist of the story presentation and the importance of written messages.

14. The majority of participants preferred to work alone at the InfoWindow station rather than with a partner because "I can work faster alone", "I don't progress at the same rate [as a partner] and that's kind of frustrating", and "I can go at my own pace".

15. None of the participants experienced any major difficulties with any of the hardware.

16. The phonetic alphabet segment, with the accompanying inset, was particularly important to those few participants who: (a) were taking the program to learn English as a second language, (b) could neither read nor write either English or their own native language, and (c) had resided in Canada for over 25 years. As one of the participants offered:

> If you sound out a word you can't read . . . if you actually hear yourself <u>say</u> [italics added] the word . . . you usually already know its meaning because you've already been using the word for years. Then I say 'So <u>that's</u> [italics added] what it looks like.' I know that the 'cave gang' look is how it sounds and the 'book look' is how it is

written. Other people here [in the PALS program] probably skip over it [this part of the program] because of their experience in school, but . . . I've never been to school so for me, it's important.

17. The majority of participants elected not to follow specific instructions to "say" the word or letter out loud. A variety of reasons were given: "thought it was silly", "may disturb others", and "was too embarrassed".
18. Of the word processing programs available, First Choice received the best overall rating by participants while Microsoft Works was considered far too difficult.

In conclusion, only two aspects of the PALS program caused any concern among participants: the geographical locale of the PALS lab, and the lack of an adequate work area at computer stations. Overall, the computer-based PALS program was well received by both its adult and adolescent participants.

Case Studies

One of the original purposes in carrying out selected case studies had been, in part, to explore, in greater depth, what impact illiteracy had had on the lives of

various participants in the PALS program. In addition, I was also interested in discovering what effect, if any, the program, itself, might subsequently have on these individuals.

It became apparent to me almost from the outset that the individuals in these case studies--individuals who were not necessarily representative of the group as a whole--wanted desperately to be heard. It also became evident that low literacy skills were often the least of their concerns. In fact, after about two months with these individuals, it occurred to me that perhaps my original focus should be redirected. Rather than consider what impact illiteracy may have had on their lives, it appeared more relevant to focus upon what impact their lives may have had on their illiteracy, and how this might relate to the PALS program. There were many stories waiting to be told, but because of time constraints and burgeoning data, only five cases have been included in this study (see Appendix C).

The individuals in these case studies included one female and four males, and they ranged from 14 to 41 years of age. Very often, these individuals <u>needed</u> [italics added] to talk to someone before they <u>wanted</u> [italics added] to learn anything. There were often tears, anger, and despair, and at these times, the instructional part of the program was of very little interest to them. All the

interviews were carried out in private, and on an individual basis.

Initially, my interviews with these participants had been recorded through written notes. However, it soon became apparent to me that note-taking had a tendency to disrupt the continuity of dialogue. Consequently, I obtained the permission of these participants to record our interviews on audiotape.

The following summary reflects the common themes that have emerged from these case studies. The individual interviews are presented in Appendix C.

1. All five of these individuals had, at some time in their lives, experienced intense emotional, physical or sexual abuse. This abuse was reflected in comments such as:

   " . . . my dad held a lighted lighter inside my private parts." [Mei-Lin, 41-year old female]

   " . . . he pulled down my pants and burnt me." [Booker, 14-year-old male]

2. All five of them had, for several years, "kept the secret" to themselves. They found that they were unable to share their feelings with anyone else. Reasons given included: concern about not being believed, and fear of retaliation by the perpetrator. Most had subsequently been termed "behavioral problems".

3. All five had seriously contemplated suicide. One adolescent had, during the spring break at PALS, spent much of his time devising ways of hanging himself with a skipping rope. Comments included:
"I wanted to die and escape [his feelings]." [Booker, 14-year-old male]
" . . . depressed, aimless, suicidal . . . I just kinda [sic] drifted." [Danny, 24-year-old male]

4. From the display of emotions, during our many interviews, i.e., tears of sadness and of anger, fists clenched in rage, silence, profanities, expressed hopelessness, etc., it became apparent that these individuals had, in no way, been able to resolve completely the issues that had given rise to their feelings. Comments included:
"It [recollection of the sexual abuse] still packs a punch." [Patrick, 14-year-old male]
"If it gets any worse, it will take over my whole system then I will start throwing desks around." [Booker, 14-year-old male]

5. All five individuals in the case studies were extremely articulate in expressing themselves:
"I told her [a teacher who was teaching a unit on sexual abuse] 'My dad touches me there', but she just ignored me. Maybe she didn't really know what to do." [Patrick, 14-year-old male]

"I was sexually abused by the older boys . . . I later became a sexual abuser myself, even though I felt inside it's not right." [Danny, 24-year-old male]

They all indicated that if one's emotional state is in turmoil then it doesn't really matter how successful an educational program might be. According to these participants, an individual grappling with turmoil is simply too preoccupied with other thoughts, and those thoughts often present a barrier to effective learning:

" . . . the reason I had a hard time with literacy skills was because of what was at home." [Matthew, 33-year-old male]

"School won't do me any good when I keep feeling this way . . . miserable . . . miserable all the time . . . that's why I think of dropping out of school". [Booker, 14-year-old male]

6. With great poignancy, all five expressed that, more than anything else, they wanted to be accepted as they <u>are</u> [italics added] rather than what they <u>might</u> [italics added] or <u>should</u> [italics added] be. For example:

"I want my friends at PALS to love me." [Mei-Lin, 41-year-old female]

"To Mom and Dad . . . I want you to love me as is." [Booker, 14-year-old male]

7. They were all grateful for what they perceived as their acceptance as is [italics added] in the PALS lab. Without exception, they had all been referred to, throughout their lives, as either "stupid" or "dumb" because of their limitations, and, without exception, throughout our many interviews, they all, at some time, referred to themselves as "stupid" or a "dumb"!.
"I'm so stupid." [Mei-Lin, 41-year-old female]
"Most times I don't believe it when Tony [his mother's common-law husband] calls me 'stupid', but there are days when it's just easier to give in. Sometimes I think he's right." [Patrick, 14-year-old male]
8. All five individuals expressed, either directly or indirectly, the need for counsellors to be available from the first grade in school, onward. There was also the suggestion that the PALS program, itself, have available a counsellor because so many of the participants in the program have problems other than illiteracy.

The urgency with which many of the PALS participants wanted to "talk to someone" tended to substantiate this observation. Often, individuals, overcome with tears, exhibited no interest whatsoever in booting up their systems. Their sole interest was in sharing their feelings with someone then and there.

9. All five of these individuals had been assessed as having a variety of learning disabilities. For them, the "atmosphere" in the PALS lab was as important as the subject being taught. More specifically, they found acceptance by others in the program. In the lab, they were not subjected to what they perceived to be the ridicule present in other learning environments.
10. A computer-based instructional program was perceived as being ideal for learning-disabled individuals, whether that disability is emotional, physical or a combination of both. Such individuals can work at their own pace, and make mistakes "in private". They can review material, or progress to another module, as they so choose. Finally, they can relax in a virtual "no stress" learning environment.

In conclusion, certain participants in the PALS program had, at some time in their lives, experienced severe physical, sexual, or emotional abuse. With great poignancy, these individuals articulated their need to be heard and to be accepted as they are. The social environment associated with the PALS program offered these individuals acceptance and the opportunity, albeit limited, to be heard. Given such acceptance, these participants were then able to enjoy a learning experience within a non-threatening environment.

Awareness of Reading Tasks and Strategies

In this study, as in the study by Gambrell and Heathington (1981), participants' knowledge of the reading task was explored by assessing their awareness of: (a) the role of motivation, (b) the role of interest, (c) the role of prior knowledge, and (d) the role of text structure in the reading process. Participants' knowledge of reading strategies was also explored by assessing their awareness of: (a) the purpose of reading, (b) reading skills, (c) resolution of word comprehension failure, and (d) mode of reading.

Reader responses were reduced to virtually the same summary phrases as those devised by Gambrell and Heathington (1981). Differences between good and poor reader summary responses were analyzed using a chi square test of association (Yates corrected), and, where criteria for the former were not met, a Fisher's exact probability test was used. An alpha level of .05 was adopted, and for the Fisher's exact probability test, a two-tailed region of rejection was used. A synopsis of findings is presented in Table 1 with more detailed data available in Appendix D.

To summarize, with the exception of text structure, there was no significant difference between good and poor

readers with respect to awareness of reading tasks. With respect to strategy variables, the poor readers differed significantly from good readers in their awareness of style and mode of reading, and on the characteristics of a good reader.

Table 1

Awareness of Reading Tasks and Strategy Variables Between Good and Poor Reader Responses

Variable	Sig. Diff.
Motivation	no
Interest - and rate of reading	no
- and retention of material	no
Prior Knowledge	no
Structure of Text - overall	yes[a]
- first sentence	yes[b]
- last sentence	yes[c]
Purpose of Reading - and recall	no
- and style of reading	yes[d]
Reading Skills	yes[e]
Resolving Word Comprehension Failure	no
Mode of Reading	yes[f]

Note. Sig. Diff. refers to a significant difference in responses between good and poor readers.

[a] $X^2(1, N = 36) = 19.76, p<.05$

[b] $p = .0076$ (Fisher's exact)

[c] $p = .0076$ (Fisher's exact)

[d] $X^2(1, N = 36) = 5.727, p<.05$

[e] $X^2(1, N = 36) = 13.61, p<.05$

[f] $p = .0454$ (Fisher's exact)

Attitudes Toward Computers (ATC)

The ATC inventory employs a 5-point Likert response format, and descriptors range from strongly agree (5) to strongly disagree (1). Inspection of ATC scores (Appendix E) suggests that participants displayed very positive attitudes toward computers, This is evidenced by their mean scores on: General Interest/Usefulness (4.37), Comfort (4.16), and the Total Inventory (4.30).

Such positive attitudes were also reflected in personal interviews with participants, and, indeed, the use of computers as instructional tools was cited as the best-liked feature of the entire program. Figure 1 reflects the range of individual scores on general interest and perceived usefulness (Factor 1), and comfort (Factor 2).

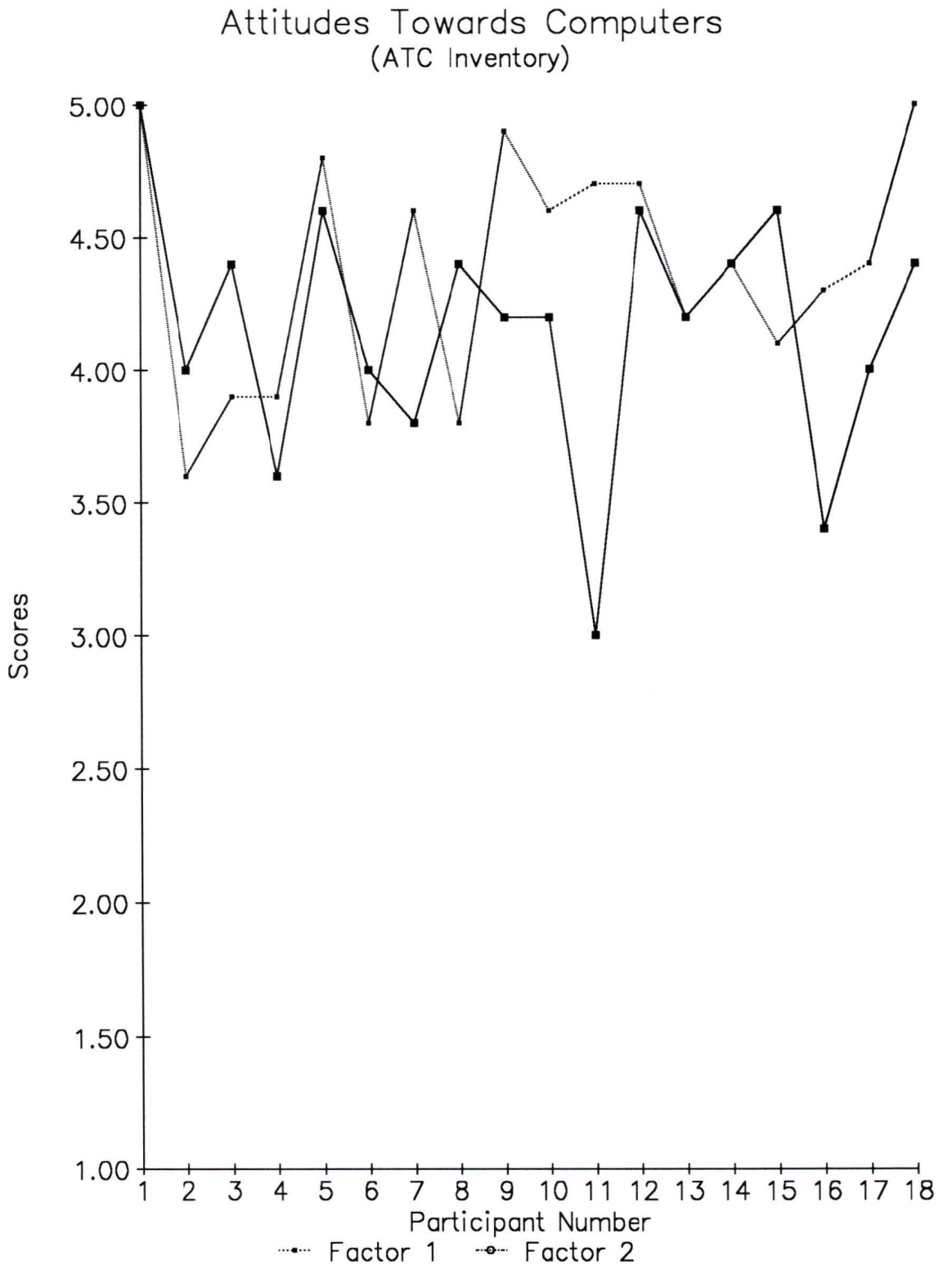

Figure 1. Attitudes toward computers: general interest and usefulness (Factor 1), and comfort (Factor 2).

Repeated Measures t-Test (Woodcock Reading Mastery)

Inspection of the Woodcock reading scores (Appendix F) indicates that there was a significant change in reading achievement between the beginning and the end of the PALS program, $t(11) = 4.18$, $p<.05$, two-tailed. Overall, the reading level of those individuals receiving PALS literacy instruction increased an average of 1.6 grade levels.

More specifically, the scores of the six adult participants indicate an average increase of 1.75 grade levels, while the scores of the six adolescent participants indicate an average increase of 1.47 grade levels. The scores of the female participants indicate an average increase of 1.93 grade levels while the scores of the male participants indicate an average increase of 1.45 grade levels.

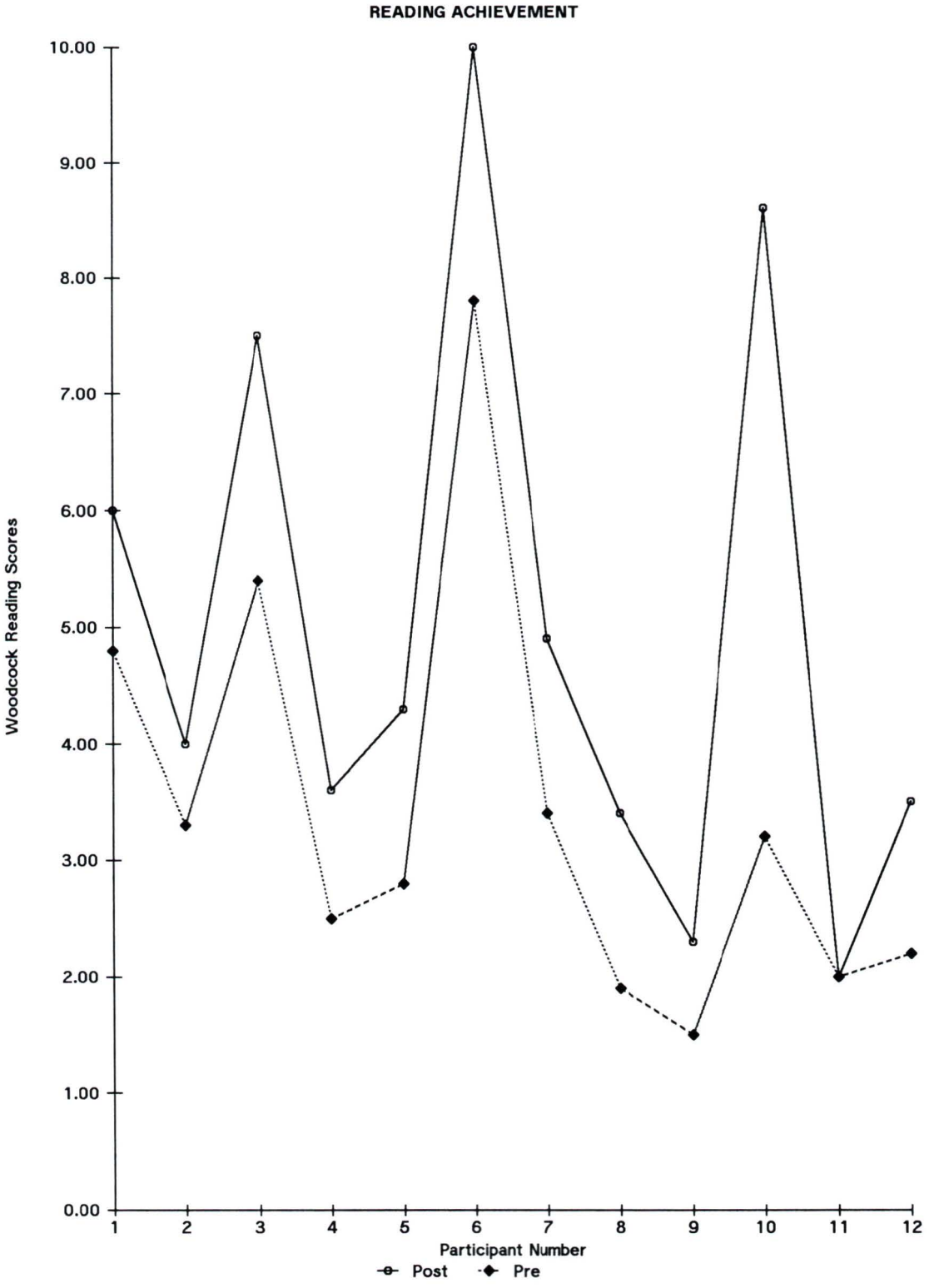

Figure 2. Pre/post Woodcock reading mastery scores.

Chapter 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The original objective of this research had been to assess the impact of the computer-based PALS literacy program on the adult and adolescent illiterate. The program's potential as a viable addition to existing literacy programs was assumed to be a function of its effectiveness in meeting both its own objectives and those of its participants, as well as the efficiency in doing so. From my own perspective, as researcher, each of these facets of viability assumed equal importance, at least at the outset of the program.

However, the planned emphasis of the study was to be on the perspective of the participant as interpreted by the researcher. Consequently, the environment in which the learner functioned emerged as one far more important than had originally been assumed. Indeed, a critical component of the learning environment became the participants' own "internal" environments--the personal histories which participants, themselves, brought into the class. Consequently, the focus of the research was redirected so as to illuminate the human factor at work within the PALS program.

Factors Which Mediate the Effectiveness of the Program

There are undoubtedly numerous factors which mediate the effectiveness of a program in meeting participants' objectives. However, in any given study, a variety of constraints always tends to limit those factors which might otherwise be explored. This research was no exception.

Therefore, determining which particular factors to use was governed by the following considerations:

1. PALS is a computer-based program therefore it was assumed that attitudes toward computers would influence the effectiveness of the program in meeting the individual's objectives.
2. The clientele of a PALS program is composed primarily of adults, both young and old, with very low literacy skills. Consequently, factors associated with these characteristics were selected as relevant variables.

For example, **personal history** may mediate the effect of the program by influencing the individual's motivation to learn. The **existence of a learning disability** may mediate the effect of the program by presenting a significant barrier to actual learning, as in the case of an emotional disability, or by influencing the rate of learning, as in the case of a physical disability. The **learning environment**, itself, also has the potential to mediate the effect of the program. For example, the physical

environment may be geographically undesirable for participants and thereby contribute directly to absenteeism and indirectly to perceived program effectiveness. The social component within the learning environment may also influence the effect of the program by influencing the individual's perception of acceptance by others associated with the program. Furthermore, the overall learning environment may elicit negative feelings associated with previous learning experiences. An **awareness of reading tasks and strategies** may have the potential to enhance the effect of a literacy program, depending on the existing level of literacy for any given individual. Finally, **learner expectations and program objectives** also have the potential to mediate the effect of the program. For example, if learner expectations differ substantially from program objectives, then the effectiveness of the program may be reduced. As another example, if learner expectations are either undefined or inadequately defined, the program may be perceived as failing to meet learner expectations when, in fact, those expectations were insufficiently or unrealistically defined at the outset. It should be noted that while the following discussion of each of the factors assumes ceteris paribus, in reality, each of them interacts in varying degrees with all others.

Attitudes toward computers.

Given that the PALS program is primarily a computer-based-instructional program, a participant's attitude toward computers becomes an important consideration in determining the viability of the program. In this study, data indicate that the PALS students do, indeed, hold very positive attitudes toward computers. Such positive attitudes are encouraging, given the low self-esteem and history of negative educational experiences revealed by many of these individuals. Literacy programs which incorporate computer-based instruction may well increase students' motivation to learn and, subsequently, their willingness to participate in a learning experience. Ultimately, programs that encourage student participation may also discourage student withdrawals.

Personal history.

The most unexpected finding in this study was the revelation that at least 30% of the participants, all from middle class backgrounds, had been victims of intense physical, sexual, or emotional abuse. The abuse reported was such that it interfered significantly with participants' efforts, both past and present, to acquire literacy skills.

In fact, these individuals are still having to cope with yet unresolved emotional consequences of that abuse.

The implications of this particular finding are, indeed, far-reaching. The participants, themselves, state the obvious: not only do counselling facilities need to be expanded in the community, but they also need to be introduced into the public school system during the first grade. In addition, units on child abuse need to be included as an integral part of school curricula across all grade levels. Given that most of these individuals have carried the burden of emotional trauma for many years, this is a reasonable suggestion.

While there is the stated need for counselling services, there is also a need, implied by participants, that existing counsellors be evaluated on a regular basis. The public, in general, and parents and teachers, in particular, need to be increasingly sensitized to the existence of abuse in the community; the academic, social, and emotional problems that can be associated with abuse; and, the remedies available to both victim and perpetrator.

As the data in this study reveal, parents may simply not know how to respond appropriately to their child, once that child admits to having been abused. Furthermore, while a teacher may be able to successfully present a unit on child abuse, there is no assurance that the same teacher

will be able to deal effectively with the situation when confronted by the child's own admission of abuse.

In this group of participants, the illiterate individual who has suffered abuse has frequently experienced a double penalty: directly from the abuse, itself, and more indirectly from an academic deficit consequential to a preoccupation with the abuse. Ever present, as well, is the doubt of others with respect to the victim's own credibility.

The PALS lab, as suggested by participants, would do well to have a counselling service available because very often individuals with literacy problems have other, far more serious problems which need to be acknowledged and addressed. It is reasonable to speculate that if a client could be helped to reduce such barriers to learning, then a literacy program, such as PALS, might be even more effective with respect to a given participant.

For the student with a history of abuse, the PALS program is, with some qualification, ideal. With this type of learner, the "barrier" to learning may be primarily emotional. The ambience within the PALS lab is effectively stress-free and such that these individuals are always regarded with compassion and respect. However, it must be said that the PALS staff members are not, in fact, qualified counsellors nor do they have available the time required to attend to the emotional needs of the program's participants.

Counselling services, even on a periodic basis, would be better than the status quo.

Existence of a learning disability.

Another factor that mediates the effect of the program is the existence of a learning disability. The majority of participants in the program had varying types and degrees of learning handicaps. Therefore, an average increase of 1.6 grades in reading achievement, under these circumstances, may be considered a success.

The findings imply that for the individual with a learning handicap, particularly physiological in nature, the PALS program may hold considerable promise. As indicated by the participants, themselves, a computer-based instructional program lends itself well to the learning-disabled student. Most importantly, it accommodates what these students perceive as their "slow" rates of learning, while at the same time facilitating independent learning. Furthermore, it occurs in an environment devoid of overt judgement and ridicule.

Learning environment.

The actual physical locale of the PALS program involves considerable time in transit for many participants. Those individuals who, in particular, rely on public transit have

expressed the wish that an alternate location be made available.

In the lab, itself, most participants indicated that their work space at the InfoWindow stations was inadequate. Writing boards should be made available for future PALS1 programs.

Certainly, the physical learning environment in the PALS program is quite different from that of the traditional classroom set-up. Students have their own computer stations, and they are permitted to interact freely with students at adjacent stations if they so choose. In addition, students are encouraged to "take a break" if they feel the need to do so, and are given some choice in their own learning experience.

The PALS instructional staff function as facilitators in a partnership of learning. There is no evidence to suggest the existence of the superior-subordinate relationship often evident in traditional classroom instruction. Furthermore, because of the small class sizes, the staff has more opportunity to tailor the program to individual needs.

From the perspective of the adolescent illiterate, the PALS program offers acceptance of that individual as a young adult, rather than as a child. When treated as young adults, these adolescents respond accordingly and, in fact, behave as young adults. They exhibit considerable self-

discipline, and, in many instances, self-direction. As do the adults in the class, these young people tend to remain on task, and interact with other participants in a mature and sensitive manner. These findings suggest that the program is an acceptable alternative for a particular segment of the population.

From the perspective of the adult illiterate, the PALS program offers a partnership in education wherein participants have considerable control over their own learning experiences. Their background knowledge and life experiences are regarded as valuable resources. Because the physical setting is unlike the typical classroom, it is unlikely to trigger recollections of negative experiences associated with previous learning situations. Learning to operate a computer presents a challenge to participants. However, it is a goal that is attainable and therefore provides them with tangible evidence of success. In turn, this tends to fuel motivation to engage in further learning experiences.

Awareness of reading tasks and strategies.

The purpose of having carried out this simple informal reading inventory was to assess the awareness of both good readers and poor readers with respect to particular reading tasks and strategy variables. The underlying concern was whether or not the presence or absence of such awareness

would influence the effectiveness of the overall PALS1 program.

In fact, some of these variables were already operational in the program and tended to enhance the participants' appreciation of them in relation to the reading process. For example, the data suggest that both good readers and the poor readers were aware of the importance of motivation, interest, and prior knowledge in the reading process.

In fact, the PALS participants were able to relate motivation in the reading process to their own motivation for wanting to improve their reading skills. Interest was perceived, by the PALS group, as the fundamental catalyst in both rates of reading and retention of material read. Prior knowledge was employed by many participants not only as a resource for written composition, but also as a vocabulary inventory, activated when the participant sounded out unknown words. Thus, participants could easily understand the importance of prior knowledge in the reading process. These variables all tended to be brought into the learning environment by the participants, themselves and contributed to the overall effectiveness of the program.

However, other variables were not as readily appreciated. For example, data from the PALS group indicate a lack of awareness of text structure. Responses from this group did not reflect an understanding of the sequential

nature or ordered format of text. Relative to the good reader group, responses from PALS participants also did not reflect a significant awareness of the function of the first and last sentence in a story or paragraph. Specific instruction with respect to text structure was not evident in the program, perhaps because the content of instruction was, in effect, limited by the content of the available software.

However, it is doubtful as to whether a lack of awareness with respect to text structure becomes a critical factor at this particular stage of the PALS program, i.e., at level one. Many participants were unable to read stories or even a simple paragraph. Therefore, sensitizing participants to the concept of continuity or cohesion in printed text would have likely been premature.

Both groups of readers indicated an awareness of relating, for recall, the gist of a passage, rather than a verbatim reproduction. However, the PALS participants, unlike their good reader counterparts, indicated that reading word-for-word was easier than reading for meaning, and that reading aloud was faster than reading to oneself. These responses suggest a contradiction, given that word-for-word reading is often employed to facilitate verbatim recall.

Both the good readers and, quite surprisingly, the poor readers were aware of a variety of strategies that could be

used to resolve word comprehension failure. Whether or not these strategies would actually be employed by the PALS participants provides a focus for future research aimed at a PALS2 group.

Certainly, at level one of the PALS program, it would be difficult to observe reported strategies in actual use. For example, using contextual cues requires a higher reading level than many participants in the PALS1 program actually achieve. Using a dictionary requires the ability, first, to read the definition, and, second, to recognize which particular meaning is suitable for the given context. Instruction in the resolution of word comprehension failures would probably be more effective at the outset of PALS2 program when participants have acquired a slightly larger reading base.

Finally, the PALS participants were unaware that skill in reading focuses upon constructing or extracting meaning from the text. However, this aspect of reading is addressed in the PALS2 program through the use of the two disks: "Reading for Meaning" and "Reading for Information".

An awareness of reading tasks and strategies can contribute to overall reading proficiency. It is reasonable, then, to suggest that adult literacy programs, at some point in their instructional continuum, include an assessment of a student's knowledge of reading tasks and strategies.

With respect to the PALS1 program, reading variables such as motivation, interest, and prior knowledge were already operational, and enhanced the effectiveness of the program. The lack of awareness of text structure and reading strategies, as assessed using the informal reading inventory, had no discernible impact on the effectiveness of the program at the PALS1 level. However, at the second level of the program, i.e., PALS2, an assessment should be made as to students' awareness of reading tasks and strategies. The program should then incorporate a component which makes students aware of existing strategies and encourages them to use such strategies.

Learner expectations and program objectives.

The objectives of the PALS1 program are sufficiently broad so as to almost ensure their attainment: to teach adolescent and adult illiterates to read, write, and type. Given that the participants in the program did learn, albeit to varying degrees, to read, write, and type, it can be said that the program's objectives were, in fact, met.

However, the achievement of learner's objectives presented somewhat more of a challenge. Learners' objectives can be viewed from the perspective of the learners' expectations or with respect to the two-dimensional definition of literacy.

With respect to learners' expectations, the data reveal that these ranged from the general to the specific. They further suggest that some of these expectations could realistically be met while others could not, at least not over the course of the PALS1 program.

Although participants did acknowledge that they had learnt something over the course of the program, the data suggest that what was learned was of a general nature, as for example "better keyboarding skills", "increase in general reading ability" or "improved letter writing". In effect, participants had achieved the program's [italics added] objectives. But, what of their own?

If viewed from the other perspective, i.e., the dual definition of literacy, certain of participants' objectives could be considered as having been achieved. However, unlike objectives evolving from learner expectations, these participant objectives have been defined by individuals external to the PALS program.

Within such an externally-generated framework, learner objectives can be examined from the dual perspective of: (a) the individual wanting to engage in individual, solitary literacy tasks, and (b) the individual wanting to engage in more interactive communicative activities. In this study, data suggest that the greatest improvement in literacy occurred in individual, solitary literacy tasks.

For example, there were reports, by participants, of increased general reading ability. An adult reported being able to read, for the first time, very simple stories to her grandchildren, while an adolescent reported being able to read stories to his younger brothers for the first time. Other participants composed short stories or paragraphs. Therefore, from the perspective of solitary tasks, participants enjoyed an improvement in literacy skills.

However, data do not reveal a similar improvement with respect to interactive, communicative activities notwithstanding that some participants did write a letter or compose a résumé. This is because interactive, communicative activity, as used in this study, implies a response or reply to another's communication. There was no evidence to suggest that participants were either responding or replying to communications authored by others. Rather, those individuals who did compose a letter or résumé, did so primarily as an exercise, as a preliminary step to future interactive, communicative activities.

It became apparent during the program that many participants needed guidance: first, in defining their own expectations; second, in formulating objectives, both specific and general, from those expectations; and, finally, in assessing the likelihood of actually achieving the objectives during the course of the program.

It was during Phase Three of the program that some participants became quite frustrated. At this stage of the program, students were presented with a variety of choices. While there were participants who did successfully generate résumés or letters, there were others who were less successful. Making choices involved making decisions, and some participants were simply unable to make a decision. Other participants were of the opinion that "work-related" projects would be more useful to them, personally, than writing a letter or composing a résumé. Still others wanted more "direction" to the program in Phase Three. Interestingly, however, none of these participants were willing to make their concerns known to the PALS staff.

Therefore, the onus must be on the staff, itself, to initiate and encourage more expansive dialogue with <u>all</u> [italics added] participants in the program. Furthermore, the staff might also: (a) assist participants in defining their wants, needs, and expectations within the context of the program, (b) assess whether or not such expectations are realistic within the given time frame and within the given course content, and (c) monitor, more closely, the "fit" between specified objectives and attainment of same.

Reading Achievement and the PALS Program

Overall, participants did increase their reading levels. Data indicate a statistically significant increase of 1.6 grade levels. This finding suggests that the program is an effective alternative for those individuals who are unable or unwilling to acquire literacy skills through more traditional modes of instruction. However, quantitative measurements must be assessed in conjunction with more qualitative data so as to determine what really constitutes effectiveness and what sustains viability.

Existing or Potential Problems in the Program.

The first two phases of the program presented no major difficulties, and data suggest that the content of the computer-based instruction was, in fact, readily understood by most clients. Overall, the program was well-received by participants. However, there are certain aspects of it that do warrant closer scrutiny.

Phase Three of the program, i.e., the personal writing component, offers the participant the greatest flexibility with respect to tasks. While such flexibility is applauded by some participants, for others, it presents a major weakness in the program. For those particular individuals, a more structured curriculum is needed.

"What would you like to do now?" often leaves these students grappling with decision-making processes, albeit simple ones, for which they are simply unprepared. By their own admission, they become discouraged, and lose interest in continuing on in the program. Admittedly, it is difficult to strike a balance here, given that too much structure is restrictive for some while too little structure is chaotic for others. However, some effort must be made to achieve a "better fit" between each individual and the program, itself.

Another facet of the program that warrants attention relates to defining participant needs and formulating attainable goals. Given defined learner expectations, the adoption of the two-dimensional definition of literacy may facilitate the formulation of realistic goals for the program's participants.

Obviously, literacy needs vary considerably among individuals, and one assumes that the general need to improve literacy skills is common to all. However, needs are distinct from wants, and, indeed, can be general or specific, immediate or long-term. Furthermore, literacy requirements can be considered from a dual perspective: (a) an individual wanting to engage in individual, solitary literacy tasks, such as reading a book or writing a grocery list, or (b) the individual wanting to engage in more interactive, communicative activities, such as replying to a

letter from a friend or responding to an employer's written directive.

As an example, one individual admitted that he does not engage in extensive job searches because he is unable to read street signs or city road maps. He further indicated that he would like someday to acquire sufficient literacy skills to complete a vocational program in auto mechanics. He would also like to be able to read stories to his young daughters when they visit him, and he would like to be able to write poetry as a means of expressing his feelings. What emerges with this individual, then, is the immediate "need" to read street signs and city road maps, a short-term "want" to be able to read to his young daughters and to write poetry, and a long-term "want" to complete a vocational program. In this example, both the solitary and communicative aspects of literacy are evident.

However, entering Phase Three of the program, this participant was given the choice to do whatever he felt most comfortable doing. Because of his background, he was unable to make a decision. As a result, he dropped out of the program at which time neither his needs nor his wants had been met. He still did not know how to read street signs or a city road map. It should be noted that this individual did not wish to make his concerns known to the PALS staff.

Assisting participants to identify their literacy needs and wants, and to help them establish priorities with

respect to those needs and wants would, perhaps, enhance the effectiveness of the PALS program, and sustain the participant's interest over the entire course of the program. An informal reading inventory, such as the one developed by Heathington and Koskinen (1982) and presented in Appendix G, might prove useful in future PALS programs. A similar inventory for writing might also be developed and used, as well. Such inventories are fairly simple, would take relatively little time and effort to complete, and would allow the program to be tailored to meet, more specifically, the needs and wants of its participants.

The problems of absenteeism and drop-outs are not unique to the PALS program. Indeed, these problems plague many adult basic education programs. However, it is very likely that the geographical locale of the PALS lab is a contributing factor not only to absenteeism and attrition, but also to the initially low registrations in the program. The latter may also be due to limited public awareness of the program's existence. How feasible it would be to relocate facilities to a more central location and to operate the lab on a year-round basis remains a matter of conjecture. However, greater publicity with respect to the program would undoubtedly result in a greater number of registrations and more efficient usage of those existing facilities which are currently underemployed.

Summary of Discussion and Implications

In summary, the computer-based PALS program seems to be an effective program in terms of achieving its own stated objectives. Its effectiveness in achieving learner objectives, however is contingent on the specific identification of those objectives and the feasibility of attaining them within the given constraints of the program. In turn, the feasibility of achieving such objectives is primarily a function of the affective profile which characterizes the given illiterate individual.

Efficiency, as least-cost effectiveness, implies an optimal utilization of existing resources within the program. Therefore, the current underemployment of facilities and resources in the PALS program has to be addressed. A computer-based program, by its very nature, is often a more efficient mode of instruction than traditional modes of instruction or even computer-assisted instruction. However, if a program operates at less than its maximum capacity, or if the needs of its participants remain undefined, that efficiency will be severely reduced.

Given that the viability of a program is a function of its combined effectiveness and efficiency, the PALS program is, potentially, a viable addition to existing literacy programs. As it is a relatively new program, it can still benefit from on-going evaluation and modification.

Recommendations for Further Research

PALS is a program that provides a variety of foci for further research. For example, given the concerns expressed by participants about locale, and given their positive feedback about an extended operation, a feasibility study could be carried out with respect to a year-round operation of the program in a more centrally-located facility. Such a study could also address the need to integrate a counselling component into the program.

Another focus for future research is the development of literacy programs, similar to the PALS program, but which incorporate First Nation cultures, and possibly even Native Indian dialects common throughout British Columbia. As suggested by two Native youths in the PALS program, such an undertaking could be quite successful provided it was carried out in full cooperation with the Elders of the given tribes.

Another aspect of the PALS program that warrants further study is its use by various immigrant groups in Canada as an ESL (English as a Second Language) program. The phonemic component of the program was particularly well received by those individuals in the group who lacked adequate literacy skills in their own language as well as in English.

Because computer-based instruction is a recent innovation and because the group of participants in the

current study was so small, more research throughout British Columbia and Canada needs to be carried out with respect to the PALS program. A provincial or national PALS data base could facilitate a sharing of information about this relatively new program and therefore allow the program to be optimally tailored to the individual's needs.

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APPENDIX A

PALS Inventory Format

Interview Format Used
to Elicit
Participants' Perceptions
of the
PALS Program

[The questions in this appendix evolved from the study by Evans et al. (1988).]

General Information

1. Do you like this program?

   yes no undecided

2 Name the one thing that you like most about the program.

3. Name the one thing that you least like about the program.

4. Do you feel that your are actually learning something in the program? If so, what?

5. Have you ever attended other types of literacy classes? If so, where and for how long?

6. Were those classes helpful? If so, in what way? If not, why not?

7. Would it be of any importance to you if, at the end of 100 hours of instruction, you were to receive a PALS certificate indicating that you had completed the course?

8. The PALS program has available one-hour classes and two-hour classes. Which is more useful for you, or does it matter?

9. Do you think the PALS program should be operated on a year-round , or on-going,basis, rather than just the present 10- or 20-week periods?

10. Do you mind being in a class with both adults and adolescents? If you had a choice, would you prefer being in a class with people of your own age?

11. What are you expecting to be able to do as a result of completing the PALS1 program? (What are your expectations of this program?)

12. Have you taken PALS1 before?

13. How did you come to be in this program?

14. Do you prefer male or female teachers, or does it matter to you?

Physical Setting

1. Is the present location of the PALS Literacy Lab, i.e., here at Stelly's, a convenient location for you?

2. About how long does it take you to get to the lab each day?

3. Do you drive yourself, does someone else drive you, or do you take the bus to the PALS lab?

4. If the PALS Literacy Lab could be located anywhere else in Greater Victoria, what location would you choose?

5. Does the absence of outside windows in the lab bother you at all?

6. Do you think that the PALS lab should be larger or have any additional rooms?

7. Do you feel that you have enough work space at your stations?

Teachers/Volunteers

1. Do the PALS teachers/volunteers respond to your questions quickly and in a friendly manner?

2. Are your questions answered adequately such that you really understand the answer?

3. Have you ever felt uncomfortable at any time in any way with any of the teachers/volunteers?

4. In what ways, if any, do you think the teachers/volunteers here could improve what they do so as to allow you to get the most out of the PALS program?

5. What special features/characteristics, if any, should teachers in a PALS program possess? Do you think they are (or should be) different in any way from other teachers?

Typing Tutor

1. In general, how do you like the Typing Tutor component of the PALS program?

2. Do you think typing is a useful skill to acquire/have? Why, or why not?

3. Are the directions for Typing Tutor clear to you?

4. Do/Did you need much help from the teacher in using the Typing Tutor?

5. Have you experienced any problems with Typing Tutor? If so, what were they?

6. How often do you think that you actually keep your fingers positioned over the home keys when you are typing?

never	not very often	most of the time	all the time	don't know

7. Do you think it is particularly important to keep you fingers positioned over the home keys when you are typing? If so, why? If not, why not?

8. Which do you think would be faster: looking at the keys while typing, or not looking at the keys while typing?

9. Does the Typing Tutor allow you to keep check on your own progress?

InfoWindow

1. Do you find the story of Wise King Alfa, Brave Queen Bet and the cave gang interesting?

2. Do you find the instructions for using this software clear and easy to understand?

3. After you were shown what to do, did you experience any difficulties or problems when operating the equipment or program on your own?
   For example:
   - -turning on the equipment
   - -inserting the videodisc into the laserdisc player
   - -using the touch screen
   - -being able to go forward or backward in the story using the touch screen

-adjusting the headphones

-understanding and following the picture code instructions at the bottom of the screen, or

-anything else?

4. Which do you think would be better for you: a picture message, or a written message?

5. Do you think that the videodisc and the InfoWindow equipment are easy to operate?

6. With respect to the story, itself, how do you find:

the sound quality

the colour quality

the "comic-book" type of presentation

7. Are you offended by any part of the story?

8. The InfoWindow station is actually set up for students to work in pairs. Do you work with a partner?

9. Would your personal preference be to work with, or without, a partner?

Workbook

1. Do you find the workbook interesting?

2. Do you feel that the exercises in the workbook are useful?

3. Is the workbook easy to use/

4. Are instructions for using the workbook clear and easy for you to understand?

Hardware

What problems, if any, have you experienced with:

the computer

the monitor

the keyboard

the printer

the headphones

Usage: ESL or L1

1. Are you attending the PALS program to learn English reading/writing skills as a first or second language?

2. Do you speak any other languages besides English? If so, what are they?

3. What is your "mother tongue"?

4. Do you have good reading/writing skills in your mother tongue?

5. What grade, or level, of formal schooling, if any, did you complete?

6. How long have you lived in Canada?

7. You may remember that when you began writing in your journal (remember - at about Disc 7), the spoken instructions were:
   say and type and write (in that order)
   Did you actually say the letter or word as instructed?

8. Did you find the inset picture of the man sounding out the letters(s) or word(s) helpful?

9. Is the phonemic part of the program, i.e., hearing the sound, seeing how the sound looks phonetically, and writing the sound in your workbook, particularly helpful to you?

Word Processing

For each of the three word processing packages: Primary Editor Plus, First Choice, and Microsoft Works, the following questions were asked:

1. Do/Did you find this part of the program interesting?

2. Are/Were the instructions easy for you to understand?

3. Do/Did you need much assistance from the teacher while using this software?

4. Are/Were you able to progress at your own rate in learning this software?

5. What types of things are/were you able to do as a result of using this program?

APPENDIX B

PALS Inventory Data

Participants' Perceptions of the PALS Program

[Enumeration in Appendix B corresponds to enumeration in Appendix A]

General Information

1. All of the participants indicated that, overall, they liked the PALS program.
2. By far, the most frequently cited best-liked feature of the program was the computer, itself: learning by computer-based instruction or learning how to operate a computer. The second most frequently cited best-liked feature of the program was "the atmosphere" or "the environment" of the lab, itself.
3. Seven of the 15 participants (i.e., 47%) could not cite a single aspect of the program that they did not like. The remaining participants cited as "least liked": location of the lab, the tedium of typing drills, and the perceived "slow pace" of the Wise King Alfa story.
4. All of the participants perceived themselves as having, indeed, learned something in the PALS program. Their responses included: "better keyboarding skills", "more self-confidence", "better interaction with other people", "increased vocabulary", "improved letter writing", "increase in general reading ability", "better spelling", and "am now able to operate a computer".

5. Of the 15 participants:

   eight, or 53%, were presently in learning assistance or special education classes at school.

   three, or 20%, had, as adolescents, attended special schools for learning disabled students.

   four, or 27%, had taken literacy classes exclusively through the adult education system.

6. All of the adolescents currently attending learning assistance classes and those adults who, as adolescents had attended special schools for the learning disabled, were of the opinion that such classes were, or had been, instrumental in improving their grades in school. However, participants who, as adults, had taken literacy classes through the adult education system all expressed, most emphatically, a total dissatisfaction with that previous literacy instruction. Reasons given included:

   "far too many students"

   "only saw the teacher's back . . . she was always writing on the blackboard"

   "teacher talked down to me"

   "the teacher went too fast . . . [I] copied a lot from the board but never knew what the letters were, or how they sounded".

7. Eight of the 15 participants (i.e., 53%) expressed a keen desire to receive a certificate indicating that they had completed the course.

8. Ten of the 15 participants (i.e., 67%) preferred a two-hour class to a one-hour class.

9. Six of the participants (i.e., 40%) indicated that they were in favour of the PALS program to being operated on a year-round basis. Of the remaining participants, four, or 27%, preferred it as is, and five, or 33%, had no opinion.

10. Adolescent participants much preferred the presence of adult students, as opposed to students their own age, in the class, : "it's much quieter with adults", "less fooling around", "adults don't talk as much and there's less disruption". Adult participants, on the other hand, were about equally divided between "prefer my own age group", and "it makes no difference".

11. All but two of the 15 participants were able to articulate some expectations as to what the PALS program might enable them to do. For example:
    - enable the student to pursue a vocational program.
    - enable the student to complete high school.
    - enable the student to read stories to friends, children, or grandchildren.
    - enable the student to become familiar with various aspects of computers, and

- to facilitate an improvement of reading grade levels at school.

In the short-term, some of these expectations were realized. Those participants who so desired were, for the first time, able to read simple stories to younger siblings or to grandchildren. All of the participants did become familiar, to varying degrees, with computer operations and word processing packages. Participants did improve their overall reading levels significantly.

12. Two participants had taken the PALS program during the previous year. Both indicated that they preferred the current program and that they were "learning more this time 'round".

13. With respect to how participants came to be in the PALS program: a recommendation by teachers at school was the most frequently cited source of information about the program, followed by the recommendations of friends and relatives. Two participants had become aware of the PALS program through the newspaper.

14. Three of the 15 participants (i.e., 20%) expressed a definite preference for female instructors "because of their warmth". To the remaining 12 participants (i.e., 80%) gender made no difference.

Physical Setting

1. Nine of the participants (i.e., 60%) expressed dissatisfaction with the location of the PALS lab: "it's too isolated", "too far", or "takes too long to get here". The remaining participants indicated that the location made no difference to them, although these were primarily adolescents who were bussed to the lab during school hours.

2/3. Transit Mode and Transit Time (Estimated Round Trip Times)

Of respondents,

five, or 33%, used public transit for 2 hours per day.

three, or 20%, used own vehicle for 1 hour per day.

four, or 27%, used school bus for 1/2 hour per day.

two, or 13%, were driven by parents for 1 hour per day.

one, or 7%, walked for 10 minutes per day.

4. "Downtown" Victoria was the most favoured location for a PALS lab. A few respondents suggested a lab be located in a shopping mall, preferably in central Victoria.

5. Three of the respondents (i.e., 20%) felt "boxed in" by the absence of outside windows in the lab. The remaining twelve, or 80%, were not bothered by the lack of windows.
6. Six of the respondents (i.e., 40%) were of the opinion that the PALS lab should be larger, or have additional rooms "for private conversations".
7. Only three of the participants (i.e., 20%) were of the opinion that there was an adequate work space. The remaining twelve participants (i.e., 80%) complained about a lack of space; "working area is too cramped", "the journal keeps hitting the keyboard", or " . . . use my lap to put my journal on". Suggestions included having a "writing board" or having a "desk".

Teachers/Volunteers

1. There was unanimous agreement among participants that the PALS staff responded quickly and in a friendly manner to questions posed by students.
2. There was also unanimous agreement that answers were given in such a way so as to be understood by the student.
3. None of the participants had, at any time, felt uncomfortable with any of the current PALS staff,

although several participants were reluctant to make their concerns about the program known to the staff.

4. Thirteen of the 15 respondents (i.e., 87%) were unable to offer direct suggestions as to how the PALS staff might improve on what they do. However, two suggestions that were offered included: "would like them to give me some work-related activities", and "want more direction to the program after the InfoWindow . . . learning how to type is not going to come in that handy for me later on".

5. Opinions and comments offered as to what special features/characteristics, if any, staff in a PALS program should possess included:

"should be understanding."

"should have patience with students."

"should be kind and patient."

"a teaching certificate, the 'piece of paper', doesn't ensure a 'good' teacher."

"at first I was worried it might be like school here, but [I found out] its okay to be wrong".

"they give a little more direction that I get at school . . . at least in the first part of the program [i.e., up to the completion of the InfoWindow segment]."

Typing Tutor

1. In general, participants were satisfied with the Typing Tutor module, although a few participants did indicate that they became "quite bored" with the drills.
2. All of the participants indicated that typing, in general, would be a useful skill to acquire. However, only seven of the participants (i.e., 47%) could cite a specific use for typing: "to put out a résumé" and "to type a letter". The remaining eight participants (i.e., 53%) gave rather general responses as to the usefulness of typing: "[typing] could improve your reading", "to share with my kids, I guess", "will be useful when I become a police officer", "to learn something", and "you need it to get along in the world".
3. There was unanimous agreement among respondents that directions for the Typing Tutor were very easy to understand.
4. Six of the respondents (i.e., 40%) reported that they needed "some help" initially, but once familiar with the program, they needed no further help. Nine of the respondents (i.e., 60%) reported that they did not need much help at all from staff members.

5. None of the participants reported having experienced any difficulties or problems using the Typing Tutor module.
6. Twelve of the respondents (i.e., 80%) reported that they actually did keep their fingers positioned over the home keys when typing: eight participants (i.e., 53%) indicated "most of the time", while four (i.e., 27%) indicated "all the time".
7. Thirteen of the respondents (i.e., 87%) were aware of the importance of home keys. Explanations included: "they [home keys] form the central positioning for all keys", "[home keys] serve as location finders", "I can remember where all the keys are in relation to one another", and "to know where all the other keys are".
8. Ten of the 15 participants (i.e., 67%) indicated that for them, not looking at the keys while typing would be faster. The remaining five participants (33%) indicated that for them, at their particular stage of the program, looking at the keys while typing would be faster. The latter group of students acknowledged that "later on" they would likely type faster by not looking at the keys.
9. Ten of the participants (i.e., 67%) indicated that the Typing Tutor did allow them to keep check on their own progress, while the remaining five participants (i.e., 33%) either did not know or did not do so.

InfoWindow

1. Twelve of the 15 participants (i.e., 80%) responded that the story of Wise King Alfa, Brave Queen Bet, and the cave gang was interesting. The two native students in the group indicated that they would very much appreciate the development of a similar program which would focus upon their own Indian culture.
2. There was unanimous agreement among participants that instructions for using the InfoWindow software were clear and very easy to understand.
3. None of the participants experienced any difficulties or problems when operating the InfoWindow equipment or program on their own.
4. Twelve of the participants (i.e., 80%) appeared to understand the gist of the story by indicating that written messages would be more appropriate than picture messages. Responses included:

   " . . . can put different meanings to them [pictures messages]."

   "You know for sure what the person is saying [with written messages]."

   "Picture messages can be misunderstood."

   "Picture messages can be misinterpreted."

5. There was unanimous agreement among participants that the videodisc and InfoWindow equipment were easy to operate.

6. There was unanimous agreement among respondents that sound quality was good, although two participants observed that part of the sound track was "jerky" while one participant suggested that the "waterfall sound effect" should be diminished. There was also unanimous agreement that the colour quality of the story was good. The comic-book type of presentation was rated, overall, as good to excellent. Three students suggested that a film of actual people "like a movie film" might be more appropriate.

7. None of the participants were offended by any part of the story.

8. Only five of the participants (i.e., 33%) had, at any time, actually worked with a partner, and then had done so only on a temporary basis.

9. Thirteen of the participants (i.e., 87%) expressed a preference to work alone. Reasons cited included:

"can work faster alone."

"don't progress at the same rate [with a partner] and that's kind of frustrating."

"because of differences in rates of learning."

"because I can go at my own pace."

"would be easier and quieter."

Only 13% of participants responded with "it doesn't matter to me". None of the participants indicated a specific preference to work with a partner.

It should, perhaps, be noted here that the configuration of a PALS lab is such that it can accommodate 16 participants in each class. However, given an initially low student registration, subsequent absenteeism, and student withdrawals, the PALS facilities in Saanich were chronically underemployed. An examination of attendance records revealed that over a period of six months, the lab never operated at more than 50% capacity in any one class in any single month.

Workbook

1. Thirteen of the 15 participants (i.e., 87%) were of the opinion that the workbook was interesting, and there was unanimous agreement among participants that:
2. The exercises in the workbook were useful.
3. The workbook were very easy to use.
4. The instructions for using the workbook were clear, and easy to understand.

Hardware

None of the participants experienced any major difficulties with: the computer, the monitor, the keyboard, the printer, or the headphones.

Usage: English as a Second Language (ESL) or First Language (L1)

1. Three participants (i.e., 20%) indicated that they were attending the PALS program to learn English as a second language (ESL).

2/3/4. With respect to ESL, language history was as follows:

first language (L1)	additional languages spoken	literate in L1?
Farsi	Italian	yes
Hebrew	German/Yiddish	no
Spanish	none	no

5/6. The two participants who were illiterate in L1 had never attended a school, and both have resided in Canada for over 25 years. The participant who was literate in L1 had completed high school in her native country, and subsequently taught there as an elementary school teacher. She has resided in Canada for just over 6 years, and of the three ESL students, she appeared to have the greatest difficulty with spoken English. Many of the questions asked of her during our

interviews had to be repeated or rephrased for her to understand exactly what was being asked. In addition, her accent was so "thick" that her answers often had to be repeated to be understood.

7. When students began writing in their workbooks (at videodisc 7), the spoken instruction were:

"say and type and write" (in that order)

Ten of the 15 participants (73%) indicated that they did not actually say the letter or word as instructed, giving reasons such as:

"thought it was silly."

"may disturb others."

"was too embarrassed."

"drove me up the wall."

One respondent had not yet progressed to that stage of the program. The remaining respondents, including the three ESL students, actually did say the letter or word as instructed.

8. With respect to the inset picture of a man sounding out the letters or words:

two, or 13%, of the respondents were unfamiliar with the inset.

four, or 27%, of the respondents did not find it helpful.

nine, or 60%, including the ESL students, found it very helpful.

9. Assessing the overall phonemic component of Discs 7-12:

three, or 20%, of the respondents couldn't give an opinion,

five, or 33%, of the respondents indicated it wasn't very useful to them personally because: "you just know it already from when you first go to school", or because "it was too difficult", and seven, or 47%, of the respondents indicated that it was very helpful to them. The two ESL students, illiterate in L1, found this part of the program to be extremely helpful.

One of the participants offered:

> If you sound out a word you can't read . . . if you actually hear yourself <u>say</u> [italics added] the word . . . you usually already know its meaning because you've already been using the word for years. Then I say 'So <u>that's</u> [italics added] what it looks like.' I know that the 'cave gang' look is how it sounds and the 'book look' is how it is written. Other people here [in the PALS program] probably skip over it [this part of the program] because of their experience in school, but . . . I've never been to school so for me, it's important.

Word Processing

There were three word processing programs available for participants to use: Primary Editor Plus (PEP), First Choice (FC), and Microsoft Works (WKS). Each of the participants did use at least one of these programs, however the amount of time devoted to the word processing unit varied considerably among participants.

At this stage of the overall program, participants were given several options as to what activities they might pursue. There were some participants who chose to limit their time with word processing in favour of beginning the PALS2 program. There were other participants who chose to review previous parts of the program while still others focused on computer games. A few of the participants felt that they were "not ready" to begin a composition. Consequently, data on the word processing component of the program is not as comprehensive as had been originally planned.

Of participants,

seven (i.e., 47%*) used First Choice

four (i.e., 27%*) used Primary Editor Plus

one (i.e., 7%*) used Microsoft Works

three (i.e., 20%) used a combination of the above

(*Rounding up decimals will result in 101%.)

The consensus of opinion was that Primary Editor Plus was "far too slow" and "difficult getting in and out of", while Microsoft Works was too complex and "even the Help screen was too complicated". First Choice received the best overall rating by participants: "easy to use", "directions [were] really clear", "instructions [were] much easier to follow [than the other two]". From direct observations, it was apparent that First Choice also gave rise to the least frustration among users.

APPENDIX C

Case Studies

The Story of Patrick

My original intention had been to interview Patrick periodically throughout the PALS program to gain some insight as to what impact, if any, the program was having on him. However, regardless of which aspect of the program I focused upon, whether it was reading strategy or touch screens, typing tutors or word processing, Patrick always redirected the conversation back to more personal concerns. He had an obvious and urgent need to talk to someone, and an equally obvious and urgent need for someone to listen to him.

Consequently, our initial 15-20 minute sessions per week quickly expanded to about three hours a week. What emerged was a picture of an extremely sensitive and articulate adolescent, fourteen going on forty. Synthesized from extensive interview notes and audio tapes, this is Patrick's story. Pseudonyms have been used to protect identities, and were, in fact, chosen by Patrick, himself.

Born in Ontario, Patrick never knew his natural father. While he was still an infant, his mother became involved with Jack, and subsequently bore Jack two sons. This man was the only father figure that Patrick had ever known, and to this day, still refers to him as "my dad".

However, when Patrick was about five years old, his dad began coming into the boy's bedroom at night, "very late after everyone else was asleep". He would quietly slip between the sheets, and begin to fondle Patrick's genitals while, at the same time, forcing the young boy to reciprocate. Jack's nocturnal visits to his son's bed occurred night after night, year after year, until Patrick was about nine years old. "Sometimes he'd come back again the same night. It seemed he was always drunk."

The beginning of school was a time of tremendous anxiety for Patrick. It was impossible for him to pay attention to anything his teacher was saying, whether it related to lessons or to discipline. His mind was usually on what was going to happen that night "after everyone else as asleep". He was in a constant state of turmoil.

> One minute I would feel very angry, the next minute I'd feel frightened . . . sometimes I would feel guilty, and other times . . . well, I felt so ashamed. I always felt I [italics added] was doing something wrong. I always felt it was my [italics added] fault, you know, that somehow I [italics added] was to blame.

"Did you ever tell anyone, perhaps your mum?", I asked. "No, I thought my mum would go on Jack's side and turn against me."

Patrick was "held back" in his first year of school, and was diagnosed as having a "learning disability" by the

middle of the third grade. Now fourteen, he can still recall the pain of being laughed at by his peers, and being called "you retard".

"Did you ever tell your teachers about the sexual abuse?", I continued.

He replied:

> I tried to tell my kindergarten teacher. I tried to tell her twice, but she didn't want to listen. We had a unit on touching. I think it was called Feel Right, Not Feel Right, . . . umm, something like that. I told her "My dad touches me there", but she just ignored me. Maybe she didn't really know what to do.

Throughout our many sessions together, Patrick often reiterated the wish that there had been someone at school with whom he could have shared his feelings. Someone "who would listen to me . . . who would try to help."

By the age of nine, Patrick had developed an overwhelming fear that his two younger brothers might be suffering the same abuse as he, himself, had been suffering. This concern was what finally prompted him to share with his mother what had been going on. "She hit the roof." Unbeknown to Jack, she arranged to sleep in Patrick's bed, herself, one night, and on that occasion when Jack slipped between the sheets, it wasn't Patrick whom he found. Shortly thereafter, the three boys and their mother left

Ontario and moved to Alberta. A warrant for Jack's arrest on charges of child molestation is still outstanding.

In the nine years that they had lived with Jack in Ontario, Patrick and his family had moved 39 times. Between kindergarten and grade three, Patrick had attended more than 30 different schools, and in most of these schools, he was shuttled between "regular" classes and "learning assistance" classes. Life was extremely difficult for him. There were always new neighborhoods, new schools, new peers with new taunts of being "a retard", and, always, the on-going sexual abuse at home.

It wasn't until the family had left Jack and moved to Alberta that Patrick, his brothers, and his mother finally obtained counselling. The family moved only once during their four years in Alberta thereby allowing Patrick to attend school with a constant peer group. Some sense of stability had emerged for him.

However, the relationship between Patrick and his mother became steadily worse and, by the time he entered his teens, it had deteriorated almost completely. "It occurred to me that if Jack could do it to me so could my mum. I worried that she would do the same thing to me as Jack [had done]." At the age of thirteen, he ran away "about four times . . . I lived on the streets for a while." He'd been arrested four times, and school work was certainly not among his priorities. He was "held back" in the sixth grade.

During the seventh grade, Patrick was present only 52 days of the school year. By his own admission, he had become a "behavioral problem", and had seriously contemplated suicide.

During this period, also, Patrick's mother had become involved in another relationship. As Patrick described it, " . . . it was kind of a long-distance love affair . . ." because although Tony was frequently in Alberta, he actually lived on Vancouver Island. By the summer of 1989, Patrick's mother had moved the boys and herself to Victoria, and Tony had become a part of their family. Unfortunately, his charm and thoughtfulness, so evident during the "long-distance love affair" disappeared soon after their arrival in Victoria. Another type of abuse was about to begin.

Patrick began the PALS program in the fall of 1989. Initially, it was difficult for him to remain on task. He would stare vacantly at the monitor for several minutes at a time. When asked what part of the program he was working on, he didn't know. It was quite apparent just by looking at his monitor which particular module he was using, however, his responses to my questions suggested that his thoughts were often elsewhere.

During the initial interviews, Patrick was often in a state of apparent agitation. He was easily startled by the closing of a door, or by the ringing of a telephone. He often picked at the skin around his fingernails, and

constantly fidgeted with his hands or feet. He just couldn't seem to sit still. Perhaps most notable was his manner of speech. There were so many things that he wanted to say, and it seemed to me that he wanted to say them all at once. He spoke very loudly and very rapidly. He was almost stumbling over his own words in his haste to have them heard.

However, as the days went by, he became more relaxed, and, in fact, became quite eager to share his feelings. He frequently sought me out upon his arrival at the PALS lab and would ask, "Can I talk to you today?' or "Do you want to talk to me today?" I made myself available to him whenever he felt the need to talk, and that became quite often. He began to enjoy working with the computer, and, indeed, became much more task-oriented. However, there were times when Patrick needed "to talk" before he wanted to work.

Life at home was not easy. Tony's "drinking problem" had rapidly become "everyone's problem". "It's not a happy time." "Tony is always calling me 'stupid' and a 'liar'." "I feel like I'm walking on eggs all the time."

During the month of October, Patrick had found a watch on the gym floor at school. He thought the watch belonged to his friend. Because it was late in the day, he put the watch into his locker. The next day, he was absent from school, and it was on this particular day that an announcement had been made over the school public address

system regarding the watch. A day or so later Patrick brought the watch to class to ask his friend if, in fact, the watch was his. The teacher saw him with the watch and accused him of theft. Patrick tried to explain that he had not stolen the watch, and that he had missed the announcement about the watch because he'd been absent. "My absence was even marked down in the book!"

However, the teacher did not believe him, and subsequently contacted Patrick's mother about the incident. Patrick did concede that his mother may have been justified, initially, in believing that he had stolen the watch because of previous incidents in Alberta. Nevertheless, he was innocent in this particular instance, and it hurt him that she had taken the word of the teacher over his own.

The result of the "watch incident" was that Patrick was given a series of detentions. Unfortunately, the timing of these detentions was such that it necessitated him leaving the PALS lab only a half an hour after he had arrived. Because his particular lab section was only an hour long, this arrangement precluded him from optimally utilizing what time he did have in the lab. He'd barely have the system operational before he began to focus on what time it was. He became preoccupied with meeting his detention deadline.

Not only was he penalized at school for an incident he claimed to be innocent of, but he was also penalized at home by Tony. Patrick could accept the imposed restrictions, but

not the constant name-calling and use of profanities. His mother finally believed her son, but Tony did not. Arguments and recriminations about the incident continued long after its occurrence.

During the following month, Patrick returned home one afternoon to find that all his belongings had been packed in suitcases. Tony was drunk, and ranting that he had contacted the Ministry of Social Services and Housing. He claimed that someone would be coming for Patrick by 7 o'clock that same evening. He [Patrick] was to "get the hell out". Patrick hadn't the vaguest idea of "what I had done". What he was alleged, by Tony, to have done was fail to telephone home after school to say that he would be late. In fact, Patrick had phoned home and told his younger brother that he was going to be late.

In the meantime, however, Patrick's mother had arrived home, and taken the two younger boys out. By the time, Patrick did arrive home, the house was empty except for Tony. There was the usual shouting, threats, and profanities, and, later, yet another "reprieve". That night, like so many others before, was lost for studying. Patrick simply fell asleep exhausted.

I often asked Patrick what he did with all the anger he accumulated. His replies varied according to his particular frame of mind on any given day:

"What <u>can</u> [italics added] I do? I'm only a kid."

"I sometimes cry when I'm alone in bed at night."

"I've been talking to a kid I know about getting into a shelter."

"Well, we'll be moving back to Alberta soon anyway." He found it particularly difficult to deal with the pain of "when my mum sides with Tony".

By the end of November, the family had moved, and Patrick began attending a new school. Within a week, he had incurred a five-day suspension for sampling alcohol on school premises. He admitted that it was curiosity that had prompted him to do it, and acknowledged that it had been a foolish thing to do. While his mother felt the penalty imposed by the school was sufficient, Tony did not. When I rang Patrick one evening during his suspension to inquire as to when he might be returning to the PALS program, Tony answered the telephone. He was loud, rude, and abrupt. "Who wants to know?", he bellowed. When I explained who I was and why I was calling, he yelled "Well, you can't [speak to him]!", and promptly hung up.

When Patrick did return to the lab, I asked him about the status of his school work during his suspension. He indicated that while he had been given homework to do, he did not have access to help in completing it. His mother had certainly been willing to help him to the extent that she could, but she, herself, was limited by her own low level of literacy skills. Patrick's personal preference

would have been to serve his suspension under supervision at school where, at least, he might have received some help. The withdrawal of educational resources during a suspension didn't make much sense to him, particularly if the student affected was, like himself, learning disabled.

Life with Tony became increasingly intolerable. Patrick's mother spent days at a time simply weeping. The two younger boys were in a constant state of anxiety, just anticipating Tony's next outburst of verbal abuse. Patrick hated going home, and by the time spring break had arrived, he had secured the telephone number of an emergency shelter.

Finally, Patrick's mother had taken enough. By the end of March, she and the boys had left Victoria to return to Alberta. Before Easter, Patrick would be attending his third school in one school year.

Patrick's Experience With the PALS Program

It was difficult for many of the adolescent participants in the PALS program to offer their impressions of the program exclusive of their daily experiences at school. Given that their presence at PALS had been arranged through the school, itself, this was certainly understandable. Consequently, as will be evident, Patrick's

opinions encompassed not only the PALS program, itself, but also the public school system, in general.

More than any other participant in the PALS program, Patrick had been the one person who outwardly exhibited the greatest range of emotions. I had seen his eyes brimming with tears in sheer frustration, and I'd seen his body literally shake with rage. I had heard him quietly express hope one day, and despair, the next. I had shared with him his exuberance at " . . . finally getting a really good report card", and his disappointment at Tony's caustic criticism of that same report card. Always through his turmoil, however, could be seen the relief, almost gratitude, that someone was willing to listen to him and respect him as a person.

In my earliest interview with Patrick, I'd asked him what his expectations of the program were. His response was that by taking the PALS program, he expected to raise his reading score by "a grade level". His entry reading score had been 2.5. His reading level upon completion of the program was 3.6. For him, the program had not only met his expectations, but had also increased his motivational level to do "even better next time".

With respect to other aspects of the program, he volunteered:

> "I like everything [about the program]. It's educational <u>and</u> [italics added] fun. At first I was

> worried [that] it might be like school here. . . . it's okay to be wrong [at PALS]."
>
> "I really like that idea [i.e., PALS being operated on a year-round basis]."
>
> "I would get more done [if his class time was two hours instead of one hour]."
>
> "That's one of the reasons I like PALS . . . there are adults in the class."

From Patrick's perspective, a computer-based program such as PALS was, by far, the best type of program for the learning-disabled student.

> . . . the computer allows [learning disabled] kids to work at their own speed. There's no stress if the kid misses classes or is away for some reason. It [the computer] doesn't tell you off and it doesn't laugh at you if you make a mistake.

In addition, he considered the adult-adolescent composition in a PALS class a distinct advantage, particularly for the learning-disabled student who might otherwise have to contend with ridicule from peers. (According to Patrick, there exists ridicule even among learning-disabled students within the same class.) There are no taunts about being "a retard" simply because one is disadvantaged in some way. One can focus on the lesson instead of always expending energy in defending oneself against cruel remarks from other students.

Detentions and/or suspensions at school should not interfere with instruction, particularly for learning-disabled students who are already at a disadvantage in terms of education. Alternatively, other types of penalties should be considered. (Patrick, himself, suggested "doing lines" as one such alternative as they could often be done at home and at the student's convenience.)

He further opined that some students are quiet, and, at school, they are often ignored. In the PALS program, all students receive attention whether they're quiet or not.

The program should also include a counselling component. He made the suggestion that many of the participants in the program may have problems other than illiteracy which could interfere with their learning experiences. In fact, counsellors should be available "in elementary schools . . . that's a must!".
Somewhat reflectively, he continued:

> What do I look for in a counsellor? Well, someone who will listen to me, someone who tries to help, someone who doesn't shove me off and say "I've got someone else to listen to", someone who gives me some recognition that I'm being heard, for instance with eye contact. . . . I prefer to talk to women.

In many respects, Patrick seemed old before his time: "I relate much better to adults. Kids my own age are too immature." In other respects, he was still a child trying

to deal with his past: " . . . it [recollection of the sexual abuse] still packs a punch". In transition to adulthood, he was also trying to come to terms with the present: "Most times I don't believe it when Tony calls me 'stupid', but there are days when it's just easier to give in. Sometimes I think he's right."

Still, he maintained a sense of humour, evident in a comment he made to me as his voice switched from one octave to another. In addition to coming to terms with difficulties at home and at school, "I now have to deal with all the problems of puberty, too!"

The last time I saw Patrick, he expressed to me how very much he had enjoyed the PALS program. For him, the experience had been a resounding success. For me, his departure gave rise to some quiet speculation: How much more effective might the program have been had Patrick not had to contend with so much emotional turmoil?

The Story of Booker

Fourteen-year-old Booker, an eighth-grade student, was a late-comer to the PALS program. He didn't start attending classes on a regular basis until about three months after the program had begun. While I did obtain a variety of data from Booker on different aspects of the program, I was undecided as to whether or not I would include a personal profile on him in my study. By the time he had begun the program, my research had already generated an enormous amount of data. Booker's first day back to the lab, after the spring break, convinced me that his profile should, indeed, be included. This is his story, synthesized from interview notes and audio tapes. The pseudonym, Booker, was selected by the participant, himself.

Booker had arrived at the lab earlier than usual that first Monday after spring break. I was just completing a spelling unit with another student when I heard a whisper in my ear. Booker wanted to talk to me. I agreed, but indicated that I would first have to spend a few minutes completing an interview with another student. No sooner had I started the interview when Booker slowly pushed the office door open. Completely ignoring the other student, he looked at me with tears in his eyes, and said, "Please". Sensing

some despair in him, I quickly concluded the interview with the other student, and invited Booker to sit down.

Almost immediately, tears began streaming down his cheeks. He looked at the floor, and, after a long pause, quietly said:

> I'm suicidal. I almost hanged myself last week . . . during spring break . . . I was in my bedroom. . . . The flashbacks are getting worse. . . . I wanted to strangle myself [gestures making a noose and a knot with an imaginary rope]. . . . I wanted to die and escape [his feelings] . . . I finally threw the skipping rope against the wall and cried [gestures throwing the rope against the wall]. I couldn't do that to my parents [begins to sob uncontrollably]. . . . My parents doesn't [sic] know about this.

The flashbacks to which Booker was referring were those of having been burned as a young child by his father. When I asked him to describe the flashbacks to me, he responded: "He had his cigar, he was drunk, and he pulled down my pants and burnt me." I then asked him if he'd ever talked to anyone about these experiences. His reply was that, for a long time, he wasn't able to talk at all because he was, quite literally, tongue-tied. After an operation at the age of nine, Booker underwent intensive speech therapy. However, nothing about his early experiences was ever mentioned.

When he was about eleven years old, the matter of Booker's adoption by his mother's current husband arose. Reference was made to Booker's natural father, and this was when his flashbacks began. It was only then that Booker told his mother and stepfather, for the first time, about the abuse that had been inflicted upon him by his natural father. Although registering some degree of surprise, his parents suggested that Booker should forgive and forget " . . . 'cause when I was getting . . . um . . . baptized--I'm a Christian, see--so I'm s'pposed to forget and forgive . . . but I never do."

Booker never spoke with anyone again about the flashbacks until he began the PALS program. By that time, the flashbacks had become more frequent and more intense. His anger had also intensified:

> I look up at my real dad as a bastard . . . a piece of garbage [that] needs to go into [a] trash can [tears welled up in his eyes at this point, and his fists became clenched]. . . . I'm going to find him and send him to hell.

Just prior to the most recent spring break, Booker had approached his Life Skills teacher, and actually requested that he be allowed to speak to his classmates about his own experiences as a victim of child abuse. His request was granted, and despite a noticeable speech impediment, tiny Booker stood up alone and shared, with his peers, his most

private and personal feelings. Three of his classmates suggested that what Booker had related was simply not true. When I asked Booker how he'd felt about not being believed, tears welled up in his eyes, and he haltingly replied, "I said, 'It is [italics added] true. No one should have these flashbacks like I do.' I almost broke out of [sic] tears."

It was quite apparent that Booker was frightened about the intensity of his own feelings:

> "If it gets any worse, it will take over my whole system then I will start throwing desks around."
>
> "I might do something crazy."
>
> "I could right now, if I'm in enough temper--I'm saying 'if'--I could pull this chair and throw it out of [sic] this window."
>
> "Right now its getting even worse . . . like anytime now, I will . . . um . . . even beat up my parents, and I don't want that."
>
> "School won't do me any good when I keep feeling this way . . . miserable . . . miserable all the time . . . that's why I think of dropping out of school".

I had hoped that Booker might be able to talk to his parents, and, indeed, encouraged him to make the effort. Shortly thereafter, Booker did, in fact, make an effort to do so for the first time in three years. " . . . and I told my dad . . . yesterday, I told him [about the flashbacks]". "What was his response?", I asked.

"Forgive. Forget."

"How did you feel when he said that?", I continued.

"Felt lousy."

"Do you think that you're likely to talk to your mum and dad in the next few months about these things again or not?"

"Hmm, depends. If they [the flashbacks] get any worse, I might do something stupid like tell them what I've been doing."

"What kind of response would have made you feel better?"

" . . . if they'd share my anger."

Following Booker's revelation to me about having felt suicidal, I found myself in somewhat of a dilemma. I had been the only person with whom Booker had shared his feelings of suicide thus far. I did not want to risk losing his confidence by appearing to betray his trust, however, it was quite apparent to me that his was a cry for help, and, as such, warranted being shared with someone more qualified than myself to address the problem. Booker had repeatedly expressed apprehension about school counsellors: "They might tell other teachers or phone parents". He had also expressed the wish that his parents not be told: "They'll just say 'forgive and forget'". He also felt that he had absolutely no friends with whom he could share his feelings: "They wouldn't understand. . . . kids asked me [after his revelations in the Life Skills class], 'How are <u>you</u> [italics added] a victim of abuse? You're so nice."

I finally decided to establish with Booker that because I cared for him and was concerned about him, I was definitely going to have to share our talk with another adult. However, so that Booker would not feel totally powerless in the situation, I gave him the opportunity of deciding who that adult would be. After some thought, he named a female teacher at his school, and then, almost as an afterthought, quickly told me her room number. Shortly thereafter, I arrived at his school and then at the classroom of the teacher he had named. She was astounded, but expressed appreciation for having been advised of the situation.

Seeming to have compounded Booker's problem, was his emerging sense of major losses. The first of these related to the recent death of his friend's mother: "She was like a second mother to me. She died in February [at this point, he broke down and sobbed]." The second perceived loss related to his older brother with whom he'd had no contact for three years: " . . . don't know if he's dead or alive . . . I love my brother . . . I miss him . . . I'm worried about him [began to weep]."

My last major interview with Booker occurred a few days after I had made the visit to his school. It was the first time in three months that I had seen Booker actually smile. He rushed over and gave me a big hug. Resources had, at last, been mobilized to help him cope with his feelings.

Booker's Experience With the PALS Program

Three months after having begun the PALS program, Booker had made very little progress. By the beginning of April, he was still working on the fourth of twelve videodiscs. He had missed approximately 15 hours of instructional time, and when he was in attendance, he would focus primarily on computer spelling games. Occasionally he attempted to create printed output, an example of which follows this vignette. However, his main interest appeared to be in finding some outlet for his emotions.

During those first three months, Booker and I spent considerable time together. There were days when his feelings almost overwhelmed him. Some days he was very quiet, and simply wept. Other days, he vented his rage by repeatedly banging clenched fists on his thighs. I became intrigued by his apparent insight. "I know what it [his feeling] is, but I don't know what to do about it." He also acknowledged, on several occasions, that he tended to over-react among his peers, and added, almost apologetically, "It's not their fault." He maintained that his "anger at little things" was primarily due to the anger he harbored toward his natural father: "I have so much hatred for him."

In retrospect, it is not difficult to understand why Booker was not fully committed to the PALS program at its

outset. During those three months, his own feelings had escalated and intensified at an alarming rate, and appeared to have overridden any interest he may have had in improving his literacy skills. Those emotions evidently reached a climax during the spring break when Booker wanted to take his own life. It was only during our last interview that Booker expressed a genuine interest in learning to read, write, and use a computer.

Only occasionally throughout the three month period could Booker be persuaded to offer his opinion on various aspects of the program, itself. However, those he did offer warrant consideration.

He certainly understood the importance of knowing how to read and write " . . . for when I become a police officer, I'll have to read people their rights and write down what witnesses say." At this point in the interview, he recited me my rights according to law.

Booker also knew the value of computer-based instruction, and often echoed the impressions of other adolescents in the program. He felt that he could make mistakes "in private", that he could work at his own speed, and that he could resume instruction where he'd left off in the event of an absence from class. Summing it up, Booker offered: "It's easier to learn things using a computer [as opposed to more traditional modes of teaching]." He would have preferred a two-hour class instead of the one-hour

class that he did attend, and he also indicated a preference for PALS to be operational during the summer holidays.

When asked what he liked the best about the program, he immediately responded, "The teachers, they're nice--especially you." Aside from the staff, what Booker liked most was learning keyboarding skills.

As a learning-disabled student, Booker appreciated being in a class with adults. In fact, he preferred adults to students of his own age group. According to a school report on his social and emotional behaviours, Booker "sometimes is the 'brunt' of teasing". This may have been due to his halting speech pattern or to his very small stature. At 14 years old, Booker had the physical appearance of someone half his age. In any event, Booker found acceptance in the PALS lab "just as I am".

At the time of this writing, about two months remained in the PALS program. With resources mobilized to help him cope with other problems, there was no doubt that Booker would be better able to direct his focus on improving his literacy skills. Unfortunately, because of the time constraints, my own research ended before Booker had completed the program.

The following is a short note written by Booker. With the exception of a slight modification to protect his identity, it has been reproduced here exactly as it was written.

To Mom And Dad

I want you to love me as is. I love mom & dad. I like P.A.L.s. I hate Royal Oak because the teachers are mean. (not Mrs. Emm).

The Story of Danny

"I'm not a regular person."
"I'm always trying to beat the system, but I know I'm disabled in some way."
"I was born abnormal."
"I'm slow so I'm not popular with people my own age."
"Sometimes I wish I'd never been born."

These are the words of Danny, a 24-year-old man who, despite having a noticeable speech impediment, was quite adept at articulating his thoughts and feelings. Early in the series of interviews that I had with Danny, it became apparent to me that before he could maximally benefit from what the PALS program had to offer, he first had to be heard.

He certainly needed no persuasion to be interviewed. Many times upon arriving at the lab, Danny would seek me out, and ask "Can I talk to you today?" On the rare occasion that I was absent from the lab, Danny would "corner" me upon my return, and, with his hands on his hips, demand to know: "Where were [italics added] you yesterday, Jos? I needed to talk to you."

Initially, I solicited his opinion on various technical aspects of the program. However, it soon became apparent to me that Danny was not always focused on the technical aspects of the program when he was in class. Consequently,

he could hardly be expected to provide me with the data I wanted unless he had completed the particular component of the program under scrutiny. When I did engage him in dialogue, the topic, regardless of where it began, inevitably returned to matters of a more personal nature. In effect, then, Danny's apparent needs determined the priority of my informational wants. This is Danny's story, synthesized from interview notes and audio tapes. The pseudonym, Danny, was chosen by the participant, himself.

Danny, now 24 years old, was born in Alberta, and was the middle of three children. His parents separated when he was about seven years old due to domestic violence and substance abuse. Both his parents had been drug abusers, both before and after his birth. "My mum took acid, and my dad was into heroine, speed, and alcohol. My dad died when he was 32 and when I was nine." Danny attributes his learning disability to having been born with an oxygen deficit.

When Danny was about nine, his mother placed him in Cedar Lodge, a boarding school for learning-disabled children, located near Shawnigan Lake on Vancouver Island. In the five years that he spent at Cedar Lodge, Danny went home infrequently: twice for Christmas, and only occasionally during the summer breaks. During his early years at Cedar Lodge:

> I was sexually abused by the older boys . . . I later became a sexual abuser myself, even though I felt inside it's not right. . . . I wish I'd had someone to talk to [at that time].

Punishment upon discovery took the form of a severe strapping on bare buttocks " . . . with a snorkel . . . it was so humiliating."

Various sexual activities continued over the five years that Danny attended Cedar Lodge, however their importance tended to fade as did his anger and guilt about them. As the years passed, he developed a sense of belonging, a sense of family, and eventually, he came to love Cedar Lodge.

However, at 14 years of age, Danny was transferred to Dean Heights School in Victoria. Suddenly the sexual activities that he'd been involved with for the preceding five years began to bother him. "I couldn't concentrate. I felt 'up-tight' about it. I felt inside it wasn't right." He had not, at that time, shared his feelings with anyone and began to notice " . . . a lot of anger and frustration in myself." Consequently, he was unable to pay much attention to what was being taught in school.

By the time, Danny left Dean Heights, he was 17 years old. He felt " . . . depressed, aimless, and suicidal . . . I just kinda [sic] drifted." Any employment he did secure was sporadic and short-term. He began to associate with older men. "After I left Dean Heights, I began having sex

with older men. I was intimidated by them, but I didn't know how to say no."

At about the same time, Danny's mother had begun a relationship with a man who was "into drugs and alcohol". Danny disliked the man from the outset. "I can't understand why she [his mother] is still with him. . . . he's scum . . . I can't stand the guy!"

At the time Danny registered in the PALS program, he was 24 years old, and living by himself. About a month and a half after the program had begun, Danny appeared to have become preoccupied with matters not related to the program. Indeed, he was far more interested in wanting "to talk to someone" than in wanting to operate a computer.

What had happened to give rise to his preoccupation was that Danny had recently been arrested and handcuffed "right there on Shelbourne". When I asked him why he'd been arrested, he volunteered:

> Last month I had oral sex with a 13-year-old boy. This kid had been sexually abused already at a foster home he'd once been in. . . . I met him at a swimming pool, and afterwards he came home with me, and we had sex. His [present] foster mother found out about it and reported it to police. . . . When a man and a child get . . . get it on, it's . . . it's quite funny [i.e., odd] . . . I knew for a fact it was wrong. . . . I was so humiliated. Imagine being handcuffed right on the

main street. . . . I know now what I did was wrong, and I hope it doesn't happen again.

Danny took little comfort in having received a sentence of two years probation. He was frightened and confused: "It shook me up quite bad [sic] . . . it scared the hell out of me. I'm really up-tight about my own emotional and sexual make-up."

Nevertheless, Danny persisted with the program, partly by his own volition, and partly as a condition of his probation. By the time he'd completed the PALS program, he had increased his reading skills by 1.5 grade levels.

Danny's Experience With the PALS Program

Echoing his adolescent counterparts in the program, Danny, too, found computer-based instruction particularly advantageous for the learning-disabled student. "It [the computer] allows for differences in rates of learning."

He was also of the opinion that his experience in the PALS program had given him increased self-confidence. The teachers " . . . [are] friendly, easy to get along with, and I'm treated like a human being." In addition, he appreciated the adult-adolescent composition in the class, as well as the small number of students in each section.

He preferred the two-hour class that he was in, and suggested that he could "learn a lot more" than had he selected the one-hour section. His preference here may have been influenced by his commuting time. Danny relied on the city transit system for transportation to the lab, and his daily round-trip took approximately two hours. "Because there is a great need for this type of program", Danny was of the opinion that PALS should be operated on a year-round basis.

His reading achievement score at the time of entry into the program was 3.4. Upon completion of the program, his score had increased to 4.9. His initial expectation of the program had been that it would enable him "to use word processing". A sample of Danny's use of word processing follows this vignette.

The PALS program for Danny was a positive experience. There wasn't a single aspect of it that he didn't like. "PALS is . . . PALS is easier [than other education programs]. . . . The teachers are really friendly. . . . I'm a fast learner at PALS . . . um, simply because the teachers have enough time to help you." Given the environment in a PALS program, Danny would very likely benefit by continuing on into the second level of the program.

The following is a composition written by Danny at the PALS lab. It is reproduced here without modification.

The first time I came to the Pals program I thought it was unique, and it was an ideal place for me. It is a fun place to be, and when I am working on the computers I feel successful. The Info Window allows me to learn and listen at the same time.

The Laser Disc box is from disc 1-6, and from 7-12. The teachers are nice and friendly to me. I really like it here and using the computers is educational. I think the computers are helpful in some ways. For example computers can do many office jobs.

Every day I would catch the number 70 Pat Bay from down town at 1:40 PM Stelly's Cross Rd. I sometimes walk to Pals from Stelly's Rd., and other times I would transfer from Mr. Newton Cross Rd.

I take the 75 Central Saanich to Pals program I get there at 2:45 PM. I have 15 mins. to wait until we go in the classroom.

In the classroom there are about 8 people or more, by 4:30 pm, the class gets ready to go home at 5:00 pm. I take 75 Central Saanich to Prairie Inn then I transfer on the 70 Pat Bay to downtown. I caught the number 28 Majestic bus right across from Shoppers Drug Mart.

The Story of Mei-Lin

Mei-Lin is a tiny, soft-spoken 41-year-old female of Chinese extraction. Born in Victoria, BC, she grew up in a very affluent family, but experienced an extremely unhappy childhood. When I first invited Mei-Lin to participate in my study, she was overjoyed that anyone would care enough to include her in anything. However, she didn't feel that she had much to offer. "I'm so stupid" or "I'm the dumb one" were the most frequent remarks Mei-Lin made. This is her story. Pseudonyms have been used to protect Mei-Lin's identity. Both notes and audio tapes were used in the interviews.

Mei-Lin was the elder of two daughters born of an arranged marriage. (The father's previously-arranged marriage had produced a son whom Mei-Lin scarcely knows.) While she and her sister were still infants, their father, having physically abused their mother for years, forced her into a life of prostitution. Soon after the younger daughter was born, Mei-Lin's mother disappeared, leaving both girls in the care of their father. He subsequently remarried, and the family unit then expanded to include a step-mother and step-sister.

By the time Mei-Lin was seven years old, her life had become a nightmare. Her father had begun having sexual

intercourse with her, and had also begun committing buggery on her. "I was terrified. I was sore. It continued for 16 years. I didn't know about getting pregnant until I have [sic] sex education in school."

By the time she was eight years old, Mei-Lin had had both arms broken by her father, and was suffering from severe malnutrition. Speaking softly, with a noticeable accent, she shared her recollections:

> The school nurse know'd [sic]. . . . she saw me with all the bruises, and I was all scratched up on my face and I wasn't clean at all. . . . she put me into a foster home. . . . they took me to the doctor and said I was a badly abused child. . . . they [the doctors] checked me inside . . . it was little bit bleeding. . . . They gave me an intravenous to feed me. . . . I stayed there [at the foster home] about two months. . . . Twice.

Mei-Lin was subsequently returned to her father, and the abuse continued unabated for several years thereafter.

> Dad tied me [to the bed] and then . . . then mum [her step-mother] [began] fondling me on the breasts an' then he start [sic] fondling me down below me [sic] . . . like a French kiss. . . . Yeh, like a French kiss . . . Yeh, like they show on pono [sic] movies . . . at both ends. And then they say, "Here, you enjoy that?" . . . You know, and then dad started to put his penis

> in my asshole. . . . I was bleeding . . . I'm sore inside and my skin inside . . . inside of the skin was broken . . . you know how it is when you're tight. Then dad said, "Lick up the blood [she began to cry at this point in the interview]."

"Did you have anybody to talk to?"

"No, I hide [sic] it to myself all these years. I didn't wanna [sic] tell anybody. . . . I [used to] talk to my teddy bear. He was my friend."

"How did you manage to concentrate on school work?"

> It was hard . . . I tried my best. I didn't wanna [sic] go home. I just wanted to go downtown and stay downtown and sleep somewhere else. I said, "Look mum and dad, I am [a] human being. Don't treat me like that".

At eight years old, Mei-Lin was diagnosed as having a learning disability. Although she enjoyed the concept of learning and education, she found it very difficult to concentrate on her lessons. In addition to the abuse at home, she also experienced racial discrimination at school: "They call [sic] me 'Chinky-Chinaman' . . . it made me feel sad." Teachers were not always kind to her either:

> I was having a dizzy spell. . . . my Grade 5 teacher slapped me across the face, and my nose began to bleed. My dad saw the blood on my clothes [at home] . . . and said, "You deserve it."

In spite of her situation, Mei-Lin achieved and maintained "average grades" in school, however her father was not satisfied with "just average" grades. He constantly berated her by calling her "stupid" and "dumb", terms she uses about herself to this day. Disgusted that Mei-Lin had never become "an A student", her father took her out of school when she was about 15 years old, and sent her to work in a Chinese restaurant.

A year later, Mei-Lin's parents accused her of " . . . messing around with one of the guys from the restaurant who drived [sic] me home one night." No sooner had she arrived home when her father and step-mother dragged her into the bedroom. They stripped her naked, tied her to the bed, and then " . . . my dad held a lighted lighter inside my private parts."

"What did your step-mother do?"

"She fondled my breasts [at this point in the interview, she bowed her head, and began to weep]."

Mei-Lin subsequently required corrective surgery for the damage inflicted during the "lighter incident".

By the time Mei-Lin was 17, her father had "sold me for $23,000. . . . Wai-Hong [the future husband] wanted a wife . . . he cannot [sic] stay in Canada as long as he can't [sic] become a citizen so he bought me." She had never met the man before in her life, and with the arranged marriage, came continuing abuse. Only the perpetrator was different: "He

started punching . . . punching me right after we got married . . . from day one."

Shortly after the marriage, a son, Lui, and a daughter, Jade, were born. When her daughter was four, Mei-Lin left both her husband and her children."I wrote a letter to my husband when I left. I said, 'Don't look for me', I said, 'I'll suicide.'" She'd fled to Ontario, not realizing that the same type of abuse that she, herself, had experienced as a child was about to be inflicted upon her daughter. After all, "he said he loved the children."

Mei-Lin's daughter began being raped, buggered, and tortured as soon as her mother had left. Jade, herself, now 20 years old, recalled, with some distress, the many times her father had forced her small hands onto the hot elements of their kitchen stove. Perhaps her worst recollection, however, was that of the "electric shock treatment". (Jade literally shuddered when she related this to me.) The child's wrists had been routinely tied behind her back with an electrical cord. The end opposite the plug had had its insulation peeled away so as to expose naked copper wires which were then pressed against the child's skin. Her father would immediately insert the plug into the socket, then quickly remove it. Such jolts were applied to Jade on a regular basis over a period of several years.

Two years after having left, Mei-Lin returned to Victoria. Her children did not know her.

> . . . and I gave her [the daughter] a bath and I sez, "Gee, Jade", I sez . . . un . . . she cries, she doesn't know who I am. I said "I'm your mum." She thought I was a stranger coming into her home.

Mei-Lin saw the bruises on her daughter, and Jade reluctantly acknowledged that they had, indeed, been inflicted by her father. Mei-Lin solicited more information from the child, but the child's father became infuriated.

> Then I saw it with my own eye, too. I . . . I saw [with] my own eye what he's gonna [sic] do to Jade . . . he's suffocating her with a pillow. . . . I saw'd [sic] it and I pushed him away. He wanted to shut her up.

To this day, Mei-Lin carries the guilt of having left the children with their father: "I left you [Jade]. I feel sorry. . . . eyes just burst with tears . . . I know. I feel wrong, I feel guilty." Her son, Lui, remained physically unharmed, but now in his twenties, he has grown up "just like his father . . . no respect for women. He tell [sic] me to fuck off and I'm his mother."

Following her return to Victoria after her two-year absence, Mei-Lin left her husband on other occasions, taking the children with her each time. Their stays at transition facilities and elsewhere were short-lived, however, and she always returned to her husband hoping life would be better. It never was. Wai-Hong continued to abuse both Mei-Lin and

their daughter. "He tried to burn my hair on the stove on the element . . . and burnt my skull and I went up in Emergency. They had to cut it [her hair] all off." He continued having sexual relations with both his wife and his daughter. Other forms of cruelty also ensued.

> He told me to eat the shit out of the bathroom because I told him "I don't have no [sic] money to buy groceries." He told me to eat the bathroom shit. . . . he forced me to eat it [at this point in the interview, she bowed her head and began to weep].

Compounding Mei-Lin's misery with her husband was the continuing sexual abuse by her father.

> . . . even though if [sic] I got married I still have sex with dad . . . my real dad when my husband was out working. It make [sic] no difference . . . you're married or not married. . . . she [her step-mother] didn't care.

Finally, Mei-Lin left her husband permanently, and took 14-year-old Jade with her. Her son, Lui, remained with his father. By this time, Jade had a developed a problem with alcohol, and shortly thereafter dropped out of school. At the present time, Jade works night shift as a janitor, and Mei-Lin remains on welfare.

Mei-Lin's Experience With the PALS Program.

It is difficult to assess what impact the PALS program may have had on Mei-Lin. It became evident, almost from the outset, that she was trying to cope with a host of problems far more pressing than those related to illiteracy.

" . . . [awful periods of depression] for quite a long time since I was a little kid to now."

"I just don't trust people. . . . put you in a six-foot hole [begins to cry]."

" . . . nobody care [sic] . . .[they] just want to . bounce you up and down . . . use you as a rubber ball."

She was a timid and submissive individual desperately seeking approval. "Yes, Jos, I'll do what you say [in response to asking her if she'd like to do the typing tutor or the InfoWindow]." "I want to do what they [teachers at PALS] say." "I want my friends at PALS to love me."

There was also a "child-like" quality to Mei-Lin. When she'd learned that one of the teaching assistants in the PALS program had resigned, she cried like a baby. Even from behind closed doors, her pitiful wailing could be heard throughout the lab. However, in less than an hour, her tears had dried, and she was giggling about something else.

Mei-Lin's attendance dropped sharply after the first six weeks of the program. It was about that time that she

had been diagnosed, for the first time, as a diabetic. She was often just too tired to make the long trip out to the lab. In addition, she was about to leave for a holiday in Disneyland. Still in the same time frame, Wai-Hong had been charged with the rape of a neighbour's daughter, and Mei-Lin was asked by the RCMP to provide them with certain information about her ex-husband. She found the experience an ordeal: " . . . and they had to drag the whole thing up again."

Because she didn't drive a vehicle, Mei-Lin relied on the city transit system for transportation to the lab. The round-trip between her home and the PALS lab took approximately two hours each day. As winter approached and the days became shorter, she became increasingly apprehensive: "In the winter time, I get frightened more [about the darkness, and the location of the PALS lab]."

Her Woodcock reading score at time of entry into the program was 3.4. No exit score was available because she had effectively dropped out of the program after only six weeks. In total, she had been present for only 24 out of a possible 100 instructional hours.

During one of our early interviews, I was just about to ask Mei-Lin a question from my data sheets, when instead, I handed her the sheet, itself, and asked her to read the question to me. With correct pronunciation and excellent diction, she responded immediately: "If you were given a

newspaper or magazine article to read, how would you go about trying to read it?" I then asked her if she knew what the question had meant. Without the slightest hesitation, she paraphrased what had been asked.

Mei-Lin's written output came as somewhat of a surprise to me simply because of her constant self-denigration: "I'm so stupid." Initially, she had very little self-confidence and doubted that she could compose anything. A sample of her written work appears following this vignette, and except for pseudonyms used to protect Mei-Lin's identity, her composition is reproduced exactly as she, herself, wrote it.

A Wonderful Trips [sic] to Vancouver reflects Mei-Lin's recollections as a child of "about 10". The "dad" to whom she refers in this composition is her biological father, and the "mom" referred to is a step-mother. Bo-Gee is an older step-sister, and Me-Gim is her younger biological sister.

Mei-Lin certainly expressed great enthusiasm about the computer as a teaching tool. It allowed her to progress at her own pace, and was far less threatening to her than more traditional modes of instruction. She also expressed a desire "to get a good education", and was aware of the importance of acquiring good literacy skills.

However, although she did acknowledge PALS as an educational program, she appeared to use the program more to satisfy deep social and emotional needs. On occasion, she had telephoned other students in the program at their homes.

Parents of those adolescent students contacted by Mei-Lin became concerned. Her conversations had focused almost entirely on being "loved by my friends in PALS". Mei-Lin's literacy needs appeared to have been totally subordinated to her emotional needs.

> "I've got PALS and teachers [at PALS] to love me."
>
> " . . . everyone [in PALS] is a family."
>
> " . . . but at least if you feel depressive . . . uh . . . depression, you could phone up [the PALS lab] and they talk to you on the phone . . . that's the best help that they ever can give . . ."
>
> "The staff [at PALS] will understand."

Mei-Lin appears to have far deeper needs than can ever be met by the PALS program. She often expressed the wish that there could be a counsellor available at the lab with whom she could talk "when I'm feeling bad". She also expressed a wish that the PALS lab could be more centrally located as "it is a long way to come". Even if her wishes were to become a reality, it is doubtful that the program would have a significant effect on improving Mei-Lin's literacy skills. There are simply too many barriers impeding the receipt of its benefits.

A Wonderful Trips to Vancouver

On Christmas Morning

I,went upstairs to help Mom and Bo-Gee and Me-Gim to carried the suitcases downstairs. Mom and Bo-Gee and Me-Gim said,"Get out of the bedroom." Mom slapped me across the face. I started to walked away very quietly and went downstairs. Dad was already loading large suitcases and Christmas gifts into the car. I decided to help dad with the loading outside the driveway. Dad said,"Get out of the way." You Slut!
I started to cry so badly my clothes was soaked with tears. I walked away very quietly from dad and sat by the doorstep and watched dad still loading. Finally, Mom and Bo-Gee and Me-Gim came out from inside the house. Mom and Bo-Gee and Me-Gim said,"Get out of the way." Slut and Bitch! Dad finally finished loading everything in the car. Dad said to Mom and Bo-Gee and Me-Gim,"Let's get going everybody,We're leaving! Victoria very shortly. Dad and the family ignored me with no conversation no hugs, no love, no appreciations, no good-bye.

Dad and Mom said,"This is your responsibility to look after the house." I,watched them drive away toward the highway. Dad and Mom are always worried about their money. I had no babysitter for almost one month. I have no little friends or friendshipto play with. I have no company. I, just moped around the house,with no Christmas turkey on the beautiful table. I have no Christmas gifts underneath the Christmas tree. No Christmas To Celebrate! For Me!
My family was having a wonderful trip to Vancouver! Beautiful Christmas Holidays with the Love Ones!

I stayed behind! Victoria British Columbia!

The Story of Matthew

At 33 years old, Matthew began the PALS program with the immediate objective of learning how to read street signs. His longer term objective was to learn how to read books on auto mechanics because, although he was extremely skilled in applied mechanics, he realized that any future employment prospects in that field would necessitate his becoming literate.

Once he'd completed the laserdisc component of the program, his interest declined and so, then, did his attendance. This is Matthew's story.

Matthew was born in Victoria, BC, one of eight children. His mother was a timid woman, and lived in constant fear of her husband. Although not highly educated, his father " . . . back then, he was considered the best plumber in Victoria."

However, there were problems. Matthew's father was an alcoholic: "He'd take whiskey in his coffee when he went to work, and not show it." He was also a gambler: "major gambling . . . . he lost homes, sold 'em, got the money and gambled . . . drank it . . . partied . . . yeh, the whole nine yards."

Perhaps the greatest difficulty Matthew had to contend with was the fear of his father's violence.

Quite stoically, he shared some of his earliest recollections:

> I was only about five, or so. I remember it was a Saturday. I woke up to yelling and a loud noise downstairs. My father had beaten my mother up . . . punched her in the face and knocked her teeth out. Blood [was] everywhere. She ran out of the house. We were all terrified of my father. I knew I'd better get out, too, so I ran to my gramma's house. I went home a few weeks later and discovered they'd all moved. There was a For Sale sign in the yard, and the house was empty.

There was also humiliation and loss of dignity. He recounted an incident involving his father, his brother, and himself:

> He was havin' this huge big party, eh, an' me and my brother were late five minutes for supper . . . "Don't [italics added] be late . . . no [italics added] tardiness" [his father always yelled] an' so we had to pull our pants down right [italics added] in the middle of the party . . . [he used] the top end of a fibre glass fishing rod with the eyes taken off . . . whoosh . . . whoosh . . . [on] the bare ass. He used to give us whippings [but] that was . . . that was . . . the only time my dad ever really dropped me to the floor with losing my dignity.

During those early years, Matthew lived in foster homes and group homes; in his own home and his grandmother's home. Sometimes, he just lived on the streets:

> But occasionally . . . ya know . . . like when I was five or six years old, I used to live under the Bay Street bridge . . . . spend a few days under there. Then my dad would send Bill, my big brother, yeh, to come an' git [sic] me . . . . Then one day we found this little baby bird . . . eh, and I sez [sic] "Aw look at this, aw, look at this" . . . ya know, trying . . . feeling love for this bird, eh. My brother picked it up and then smacked it up against the wall . . . plup! . . . . he sez [sic] "Ah, ya don't need that bull shit, you're goin' home to see dad."

Matthew's schooling was continually interrupted and disrupted. In those days, his interest in learning to read and write was very much overshadowed by concerns about home and family: "the reason I had a hard time with literacy skills was because of what was at home".

He completed Grade 1 in two years rather than in one year. He subsequently spent five months in Grade 2, three months in Grade 3, and a month and a half in Grade 4. Each grade was in a different school, and, in each grade, he heard himself referred to as "stupid" or "dumb". Most of the time, he simply didn't go to school at all.

Finally, at about the age of nine, Matthew was sent to Seven Oaks, " . . . a treatment center for the mentally disturbed . . . I call it Seven Jokes." Matthew spent four and a half years in this institution and contends that it was here that he suffered the worst abuse of his life.

A female staff member was "assigned" to Matthew. One of her duties was to bathe him. Because he was a shy youngster, this routine was especially embarrassing and humiliating for him, particularly when he entered puberty. His clothes, including his underwear, were literally ripped off his body. "The physical stuff that used to go on there . . . all in the name of treatment! It made me feel like . . . uh . . . there was nothing left."

He described the "blow" procedure that he was subjected to " . . . maybe every second, every third day."

> Staff members . . . they were . . . they were supposedly qualified to . . . uh . . . manipulate childrens' minds. They push you back and forth [within a circle of staff members] and then when you blow up and freak out . . . then they'd restrain you on the ground and put their knees on your arms and . . . uh . . . slap you in the face . . . not too hard though . . . ya know, just hard enough.

There was no one at Seven Oaks with whom Matthew was able to share his feelings. His perception was that the

staff were more interested in changing his behaviour than in examining its causes.

It was Matthew's impression that while Seven Oaks was certainly structured in terms of behavior modification programs, it was sorely lacking in any type of structured educational programs. He recollected:

> The only thing we did for 'school' was to go to the library, get a movie, watch it and then take it back. Sure there was a little bit of writing . . . but they knew that . . . ya know . . . uh, I was not very educated [so] they weren't really worried about my education . . . . [they] worried more about my mental status, so they were workin' more on that than on my education.

Matthew spent each and every Christmas at Seven Oaks:

> For Christmas . . . for Christmas, I wasn't allowed to go home so they used to take me to Vancouver and show me Vancouver streets and . . . [at this point in the tape, Matthew's five birds were chirping so loudly that the last part of his comment was inaudible]. I'd get a day or something . . . you know, I was the only kid that [sic] wasn't allowed to go home. All the other kids went . . . I mean they even [italics added] sent the kids back to Ontario. I was the only one left at the place.

He had very little interaction with his family during his years at Seven Oaks, " . . . only when I ran away, but the cops would always come and get me." It was the intense love he felt for his mother that had caused him to run away "about two dozen times in the four and a half years I was there." Only once did he recollect seeing his father at the institution: "My dad, he was just 'Hurry up, let's get the hell outta [sic] here . . . ya know . . . 'What the hell's this bull shit . . . let's go . . . dump the kid off . . . let's go'."

However, Matthew was not the only member of his family experiencing pain. Each and every one of his siblings had been taken out of the home environment. Only the youngest child ever finished school, and Matthew attributed this to the fact that she was actually adopted by a family, and never returned to her own home. About his brothers and sisters, Matthew reflected, "they're all psychologically screwed up."

Approaching 14 years of age, Matthew left Seven Oaks. He was told, quite simply, that he was "free to go", but free to go where? He felt aimless and frightened: "it was just . . . you're out, you're gone, you're finished . . . more or less just tossed to the wayside . . . there was no direction for me to follow."

By the time Matthew had left Seven Oaks, his mother had been abandoned by his father, and was existing on welfare.

She had, living with her, Matthew's two younger sisters. However, he'd been away too long, and had grown apart from them. He was forced to find accommodations elsewhere. He began living in a series of group homes, but finally ended up just living on the streets. He had no education, no saleable skills, and no hope. He survived as a panhandler " . . . on a Friday night, sometimes I'd walk away with 40 or 50 bucks".

When Matthew was 19 years old, his mother died. He was devastated. Within a year, he married a young woman who reminded him of his mother, and he subsequently fathered two daughters. The marriage was doomed from the start because of his inability to earn a living. His in-laws never did accept him as he was. When his wife finally left him, he became suicidal. Even now, long after his ex-wife has remarried, "I try not to [think about her] because it hurts too much."

Today, Matthew lives on welfare and has very few prospects for employment. It has become a way of life for him: "when I turned 19, I went from bein' a ward of the court to bein' right on welfare."

Matthew's Experience With the PALS Program

Initially, Matthew was very enthusiastic about the PALS program. His only criticism pertained to the physical location of the lab, itself. Even using his own vehicle, it took him approximately 40 minutes, one way, to commute to the lab. As a welfare recipient, he was also acutely aware of the costs associated with his transportation. Nevertheless, he was keenly interested in acquiring literacy skills through computer-based instruction.

His motivation to learn was certainly evident in the InfoWindow component of the program. He expressed considerable pride in having completed the workbook, and indicated great satisfaction at having increased his vocabulary to the extent that he had. This section of the program, for Matthew, represented "structure" and "direction".

However, activities separate from the InfoWindow/workbook component were received with considerably less enthusiasm. His primary difficulty was in being presented with a choice: he could practice typing, or he could "play" computer word games, or he could write a story about anything that interested him. In effect, once he had completed the workbook, it was his perception that he could do as he pleased. For Matthew, this option reflected

the "looseness" at Seven Oaks: " . . . if I do as I please, I won't do nothin' . . . I need some direction."

He continued:

> Well, that's why I was enjoying the idea of the PALS program 'cause I figured it was a structured environment, and was . . . uh . . . going places. Ya [sic] found out at the end of doin' . . . uh . . . once ya [sic] finished that . . .uh . . . book and got onto the computer, it's more or less just sit there and punch a bunch of keys. That's another reason I find me not going as much is because going there and learning how to type . . . that's not going to come in that [italics added] handy for me later on.
>
> I think what they should do is . . . is . . . uh . . . have more of a direction . . . ya know, like say okay this [italics added] today, and . . . . also, you'd find a word . . . you wouldn't just find a word and write it on the computer . . . you'd write it in your book, too . . . and in that way somebody's got their own [exercise book] which says this [italics added] is what I've done, man, this is what I've learned. I've gone as far as . . . uh . . . I can with that part . . . that's why I've got into finding some books . . . some school books.

> I thought it [the PALS program] was going to be more . . . uh . . . uh . . . intense than it is . . . . [it] just worked out to be a place to go and hang around for two hours.

Matthew's attendance dropped sharply after he'd completed his workbook. He offered several reasons for this: illness, finances, repairs to his rented house, having to pick up a friend just released from jail, and "house-sitting" for a friend. However, the major factor appeared to be his loss of motivation. Matthew had no direct complaints about the staff at the PALS lab. It was just his feeling that the program needed more structure.

It was my impression that Matthew was not ready to begin written composition. Certainly, it was at this point in the program that he appeared to lose interest. It might have been more useful, in Matthew's case, had his immediate needs been focused upon, and the program tailored to meet those needs. For example, rather than attempt to compose written output for which he lacked adequate skills, it might have been more useful to Matthew had he been given a street map of Victoria and exercises that facilitated learning to read street names. That had, after all, been his stated immediate objective at the outset.

At the time of his entry into the program, Matthew's reading level was 2.7. He stopped attending before he could be given a final reading evaluation. He did not learn how to read street names.

APPENDIX D

Awareness of Reading Tasks and Strategies

1. The Role of Motivation in the Reading Process.

To assess readers' awareness of motivation in reading, the following question was asked:

"Suppose there were two men (women) named Kevin (Susan) and Sam (Jean) who came from different homes. Kevin (Susan) was rich and had a lot of books. Sam (Jean) was poor and didn't have many books at home. All other things being equal, do you think one of the men (women) was a better reader than the other? Why, or why not?"

As shown in Table D-1, 56% of the good readers indicated that the poor person would be as good a reader as (or a better reader than) the rich person, while 67% of the poor readers chose this response. There was no significant difference between the groups on this item.

Table D-1

Responses Related to Motivation

	better reader	
readers	rich person	poor person[a]
poor	6	12
good	8	10

[a]Poor person is as good a reader as (or better reader than) the rich person.

Both groups indicated an awareness of motivation as an important factor in the reading process, as reflected in the following sample of responses:

"poor person would be more motivated."

"poor person . . . so as to get a better education."

"poor lady . . . in order to make a better living."

"depends on the individual's motivation."

" . . . maybe [the poor person] is a voracious reader even though he has few books."

"Wealth is not the determining factor in reading."

"Rich person might have books just for show . . . maybe too busy to read."

" . . . interest in reading is more important than access to books."

"Perhaps Sam [poor person] has overcome this inequity by being an avid user of the library system."

2. <u>The Role of Interest in the Reading Process</u>.

To assess further the readers' awareness of the role of interest in the reading process, the following questions were asked:

(a) "What type of story do you like to read best? If someone wanted you to read another type of story that you didn't like as much, which do you think you would read faster? Why?"

As shown in Table D-2, 61% of good readers and 88% of poor readers indicated that they would read the story that interested them faster than the one that did not interest them.

Table D-2

Responses Relating Interest to Rate of Reading

readers	the story that interested me	the story that did not interest me
poor[a]	15	2
good	11	7

[a]One response in this group was "I don't know". It was excluded from the above set of responses.

Interestingly, 39% of the good readers indicated that they would read the story that did not interest them faster, while only 12% of the poor readers chose that response. Reasons given for this response included:

" . . . because when I read comedy [the type of story I like], I stop and laugh, and re-read parts."

" . . . to get through it as soon as possible."

" . . . because I wouldn't be as involved in the story, and wouldn't stop to think over important paragraphs."

" . . . because I take more time with the one I like."

"to get it over with."

A Fisher's exact probability test yielded a $p = .1450$ (corrected for possible extremes), therefore the assumption was made that there was, in fact, no significant difference between the two groups on this item.

(b) "Which story would be easier to remember?"

As shown in Table D-3, both groups were keenly aware that interest is a motivational factor in reading. There was no significant difference between the two groups of readers on this item.

Table D-3

Responses Relating Interest to Retention of Text

reader	the story that interested me	the story that did not interest me
poor	18	0
good	16	2

3. The Role of Prior Knowledge.

To assess the readers' awareness of the role of prior knowledge in the reading process, the following question was asked:

> "Several students were reading a story about Montreal. One of the students, Mike (Elaine), was in Montreal last summer on vacation. Do you think the story might be easier or harder for Mike (Elaine) to understand than for Joe (Joan) who has never been to Montreal?"

Data in Table D-4 reflect that there was unanimous agreement among respondents that the individual who had been to Montreal would find the story easier to understand than the individual who had never been there.

Table D-4

Responses Relating to Prior Knowledge

reader	easier for Mike/Elaine	Joe/Joan
good	18	0
poor	18	0

Both groups were aware of the importance of prior knowledge in a reading task, as reflected in their responses:

" . . .because its more relevant to his past experience."

" . . . [the reader] can recreate the atmosphere the writer had in mind."

"[The reader] has a frame of reference from which to interpret the story."

" . . . will probably be more interested (even excited) in reading about something she is acquainted with."

" . . . because [the reader] has had experience with Montreal."

"Mike can relate things in the story to what he's actually seen."

4. The Role of Text Structure.

To assess the readers' awareness of the importance of structural cues in the reading process, the following questions were asked:

(a) "Is there anything special about the way sentences go into a paragraph or story?. Please explain."

Table D-5

Responses Relating to Text Structure

readers	has structure or some kind of order	no/don't know/ can't explain
poor	4	14
good	18	0

As shown in Table D-5, all of the good readers were aware that a paragraph or story had a structure or sequence, while only 22% of poor readers were familiar with text structure. Included in their responses were:

"Most paragraphs have a standard structure, i.e., a topic sentence, a concluding or summarizing sentence, etc."

"A story usually starts by introducing characters and setting, then the plot, and then ending with a conclusion."

"A topic sentence begins most paragraphs . . . novels go smoothly because of transitional paragraphs . . . one area of the plot usually leads into the next."

" . . .sentences should be linked together to provide a cohesive, logical train of thought."

"Beginning, middle, end."

Of the poor readers, 78% responded with: "sentences are together", "have no idea", "No", and "don't know."

The difference between the two groups on this item was significant, $X^2(1, N = 36) = 19.76$, $p<.05$.

(b) "What does the first sentence usually do in a paragraph or story?"

As shown in Table D-6, all of the good readers were aware that the first sentence leads into the story, while only 61% of the poor readers were aware of its introductory function.

Table D-6

Responses Related to First Sentence

readers	leads into/ introduces	don't know/ not sure/no idea
poor	11	7
good	18	0

A Fisher's exact probability test yielded a $p = .0076$, therefore the assumption was made that there was, in fact, a significant difference between the two groups on this item.

(c) "What does the last sentence usually do in a paragraph or story?"

Table D-7

Responses Relating to Last Sentence

readers	summarizes/ concludes	don't know/not sure no idea
poor	11	7
good	18	0

As shown in Table D-7, the response pattern to this question was exactly the same as that of the preceding item. All of the good readers, and 61% of the poor readers, indicated that the last sentence "is a summary", "sums up", or "usually tells what the whole thing was about."

Also, as with the previous item, there was a Fisher's exact probability of $p = .0076$ therefore, the assumption was made that there was a significant difference in responses between the two groups with respect to awareness of structural cues.

The variables examined by Gambrell and Heathington (1981) to assess readers' awareness of the strategy variables involved in the reading process were also the variables explored in the present study, and included: (a) purposes of reading, (b) reading skills, (c) resolving comprehension failures, and (d) reading mode.

5. Purposes of reading.

To assess readers' awareness of purpose, two questions were asked of participants:

(a) "If you're telling someone about something you've read, what do you try to tell them: all the words, just the ending, or what?"

As shown in Table D-8, all of the good readers and 78% of the poor readers responded that they would tell the "main points", "the general theme", "a brief outline of the story", "all the exciting parts, [but] no heavy detail", and "a shortened version of the story".

Table D-8

Responses Relating Purpose of Reading to Recall

readers	main idea or gist	other[a]
poor	14	4
good	18	0

[a]Other responses from poor readers included: "that it would be an interesting book to read", "just the beginning", or "don't know".

A Fisher's exact probability test yielded a $p = .1038$ therefore the assumption was made that there was, in fact, no significant difference between the two groups of readers on this item.

(b) "Which would be easier to do, read word-by-word, or reading for meaning?"

As shown in Table D-9, 83% of the good readers responded that reading for meaning was easier. Only 39% of poor readers chose this response.

Table D-9

Responses Relating Purpose of Reading to Style of Reading

readers	reading for meaning	reading word by word
poor	7	11
good	15	3

The difference between the two groups was significant, $X^2(1, N = 36) = 5.727$, $p<.05$.

6. Reading Skills. To assess an awareness of reading skills, the following question was asked: "What makes someone a really good reader?"

Table D-10

Reading Skills Responses

readers	centered on meaning	centered on non-meaning
poor	2	16
good	14	4

As shown in Table D-10, 78% of the good readers gave responses suggesting that comprehension was the most important factor in being a good reader. Only 11% of poor readers alluded to comprehension. Responses included: "to understand the content", "really knows the main theme of the story", "the ability to bring meaning to a text and abstract

meaning from it", and "the ability to understand the ideas presented in the material".

Of the poor readers, 89% gave responses unrelated to comprehension or meaning: "should like what they read", "reads a lot of books", "practice", "luck", and "if they started early in school", and "don't know".

The two groups of readers differed significantly in their responses on this item, $X^2(1, \underline{N} = 36) = 13.61$, $\underline{p}<.05$.

7. Strategies to resolve word comprehension failure.

The question asked with respect to this factor was: "When you are reading, what do you do if you don't know a word?"

Of those responses that suggested a total lack of strategy, 11% of the poor readers and 5.5% of the good readers reported that they would simply "skip it" if, when reading, they came across a word that they didn't understand. The remaining participants in the study all reported using some strategy for resolving word comprehension failures.

As shown in Table D-11, 44% of the remaining poor readers indicated that they employed externally-oriented strategies, i.e., "ask someone" or "look it up in a dictionary". Of the remaining good readers, only 29% employed externally-oriented strategies.

Table D-11

Resolution Responses

readers	strategies external	internal
poor	7	9
good	5	12

Internally-oriented strategies, i.e., "use contextual cues" or "sound it out", were employed by 56% of the poor readers and 71% of good readers. There was no significant difference between the two groups on this item.

8. Reading mode.

Awareness of reading mode was assessed by the question: "Which is quicker: reading out loud, or reading to yourself?"

As shown in Table D-12, all of the good readers responded that reading to oneself was quicker, "much quicker", while only 72% of the poor readers chose this response.

Table D-12

Reading Mode Responses

readers	reading out loud	reading to yourself
poor	5	13
good	0	18

A Fisher's exact probability test yielded a $p = .0454$, therefore the assumption was made that there was, in fact, a significant difference, albeit marginal, between the two groups of readers on this item.

APPENDIX E

Attitudes Toward Computers (ATC) Inventory

(Raw Scores)

ATC Inventory

P.N.	G.I.	U	Factor1	Factor2	T.I.
1	5.00	5.00	5.00	5.00	5.00
2	3.20	4.00	3.60	4.00	3.73
3	3.20	4.60	3.90	4.40	4.07
4	3.60	4.20	3.90	3.60	3.80
5	4.40	4.80	4.80	4.60	4.73
6	3.40	4.20	3.80	4.00	3.87
7	4.40	4.80	4.60	3.80	4.33
8	3.20	4.40	3.80	4.40	4.00
9	4.80	5.00	4.90	4.20	4.67
10	4.80	4.40	4.60	4.20	4.47
11	4.60	4.80	4.70	3.00	4.13
12	4.80	4.60	4.70	4.60	4.67
13	4.40	4.20	4.20	4.20	4.20
14	4.20	4.60	4.40	4.40	4.40
15	3.80	4.40	4.10	4.60	4.27
16	4.40	4.20	4.30	3.40	4.00
17	4.20	4.60	4.40	4.00	4.27
18	5.00	5.00	5.00	4.40	4.80
Totals	75.40	81.80	78.70	74.80	77.41
Mean	4.19	4.54	4.37	4.16	4.30
S.D.	0.63	0.31	0.45	0.48	0.37

Note.

P.N. = participant number
G.N. = general interest
U = usefulness
F1 = factor 1 = 0.5(G.I. + U)
F2 = factor 2 = comfort
T.I. = total inventory

APPENDIX F

Woodcock Reading Mastery Scores

Woodcock Reading Mastery Scores

Student[a]	Post	Pre	Diff	Diff^2
1	6.00	4.80	1.20	1.44
2	4.00	3.30	0.70	0.49
3	7.50	5.40	2.10	4.41
4	3.60	2.50	1.10	1.21
5	4.30	2.80	1.50	2.25
6	10.00	7.80	2.20	4.84
7	4.90	3.40	1.50	2.25
8	3.40	1.90	1.50	2.25
9	2.30	1.50	0.80	0.64
10	8.60	3.20	5.40	29.16
11	2.00	2.00	0.00	0.00
12	3.50	2.20	1.30	1.69
Totals	60.10	40.80	19.30	50.63
Means	5.01	3.40	1.61	4.22
Std. Dev.	2.41	1.73	1.28	7.65

Note. Diff = difference between post/pre scores.

[a]Students 1-6 = adolescents, and students 7-12 = adults

APPENDIX G

Informal Reading Inventory

Adult Reading Interest Inventory

[Heathington, B.S., & Koskinen, P.S. (1982). Interest inventory for adult beginning readers. Journal of reading, 26(3), 252-256.]

Directions: Tell your student that you would like to find out what he/she wants and needs to read about. Explain that you will read some possibilities out loud and that she/he has five choices: "very little", "a little", "neutral", "much", or "very much". Read the items to your students. Circle the number (1 to 5) which most accurately describes your student's reaction to the item. At the end of each of the three categories, ask for further interests which were not on the list.

Name/Number of Participant _____

Date _____

I would like to read about . . .

		Very little				Very much
a.	animals	1	2	3	4	5
b.	auto mechanics	1	2	3	4	5
c.	child care	1	2	3	4	5
d.	cooking	1	2	3	4	5
e.	famous people	1	2	3	4	5
f.	history	1	2	3	4	5
g.	law	1	2	3	4	5
h.	mystery	1	2	3	4	5
i.	politics	1	2	3	4	5
j.	religion	1	2	3	4	5
k.	romance	1	2	3	4	5
l.	science fiction	1	2	3	4	5
m.	sewing	1	2	3	4	5
n.	sports	1	2	3	4	5
o.	travel	1	2	3	4	5
p.	tv/movie personalities .	1	2	3	4	5
q.	westerns	1	2	3	4	5

I would also like to read about:

_____

I would like to read . . .

		Very little				Very much
a.	comic books	1	2	3	4	5
b.	crossword puzzles	1	2	3	4	5
c.	dictionary	1	2	3	4	5
d.	hardback books	1	2	3	4	5
e.	letters	1	2	3	4	5
f.	magazines	1	2	3	4	5
g.	manuals	1	2	3	4	5
h.	newspapers	1	2	3	4	5
i.	pamphlets	1	2	3	4	5
j.	paperback books	1	2	3	4	5
k.	textbooks	1	2	3	4	5
l.	tv listings	1	2	3	4	5

I would also like to read:

_____

I need to read . . .

		Very little				Very much
a.	ads	1	2	3	4	5
b.	application forms	1	2	3	4	5
c.	Bible/Torah/Koran/etc...	1	2	3	4	5
d.	bills	1	2	3	4	5
e.	cheques	1	2	3	4	5
f.	coupons	1	2	3	4	5
g.	dictionary	1	2	3	4	5
h.	homework/school books ..	1	2	3	4	5
i.	labels	1	2	3	4	5
j.	letters/mail	1	2	3	4	5
k.	manuals	1	2	3	4	5
l.	maps	1	2	3	4	5
m.	menus	1	2	3	4	5
n.	newspaper stories	1	2	3	4	5
o.	recipes	1	2	3	4	5
p.	street signs	1	2	3	4	5
q.	telephone directory	1	2	3	4	5
r.	work orders/contracts ..	1	2	3	4	5

I also need to read:

VITA

Surname: Groves

Given names: Jocelyn Ann

Place of Birth: Ocean Falls, BC

Date of Birth: January 22, 1941

Educational Institutions Attended:

University of British Columbia	1959-1963
Malaspina College, Nanaimo, BC (part-time)	1973-1982
Malaspina College, Nanaimo, BC (Vocational Division)	1986-1987
University of Victoria, BC	1987-1990

Degrees, Diplomas, Certificates Awarded:

B.Sc.	1963	UBC
I.S.D.*	1982	Malaspina College
Certificates:		
Microcomputer Applications	1987	Malaspina College
Microcomputers at Work	1987	Malaspina College

*Individually Selected Diploma-Cost Accounting/Financial Management/Computer Programming.

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Author: [redacted]

JOCELYN ANN GROVES

SEPTEMBER 17, 1990

(Date)