



**TEACHING AND LEARNING
RESEARCH EXCHANGE**

An Individualized,
Computer-Assisted
Language Experience
Remedial Reading
Inquiry:

*Can Inner-City Students
Make the Grade?*

Mary Anne Izatt Gambell
Gail Neurauter Sajtos

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Research Coordinator

Dr. Stirling McDowell Foundation

2317 Arlington Avenue

Saskatoon SK S7J 2H8

Telephone: 1-800-667-7762 or (306) 373-1660

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Introduction

THE SCHOOL ENVIRONMENT

Westmount Community School (WCS) is located in the inner city of Saskatoon. The community school designation is assigned to schools that meet specific socio-economic criteria that impact on students' school performance. WCS provides instruction to students from preschool to grade eight. During the time of the study the preschool for children ages three and four offered readiness activities five half-days per week. The full-time kindergarten program was divided into two half-day classes that were taught five days a week. Students in grades one to eight were grouped in multi grade classrooms known as "Families". One of the advantages of multi grade grouping at WCS was that teachers, familiar with the needs of their students, could provide continuous social and academic support with less interruption than with traditional annual grade changes. There were three Primary Families (grades one to three), two Intermediate Families (grades four and five) and one Senior Family (grades six, seven and eight). There was also a full-time communication classroom that provided language development instruction to students selected from all schools within the school division. Breakfast and lunch were offered to needy students. A clothing room supplied donated clothing free of charge to needy parents and guardians.

Student demographics at WCS were typical of inner-city schools. Many students lived with a single parent or guardian. Grandparents, particularly the grandmother, *Kohkom*, played an important role in raising their grandchildren and helping to provide family stability. There was a high degree of unemployment and many families relied on social assistance and community agencies. Approximately 60 percent of WCS students were of First Nation background, either Treaty status or Métis. The majority of students who attended WCS lived in the neighbourhood. Housing was often substandard and as a result, there was a high degree of student transience among the schools located within the inner-city core as families sought improved accommodation. There was also a fair amount of student movement throughout the year between the city and First Nation reserves.

THE CHALLENGE

Poverty and its concomitant social problems put these children severely at risk for school failure. Results of the Canadian Achievement Test (CAT-2) and the Canadian Test of Cognitive Ability (CTCS) administered system-wide at the beginning of our study (October 1998) indicated that almost two-thirds of WCS students were functioning well below their grade level placement. A relatively large number of students had limited language skills that further accentuated their learning difficulties. Student frustration was reflected in chronic absenteeism and tardiness. A disproportionate number of WCS students were behaviourally disordered. Many students were on long waiting lists for special programs that were always in high demand. A two-year system-initiated literacy and numeracy project began the same year as did our research. The school division's Literacy and Numeracy Project enabled the hiring of more Teacher Associates (TA) whose extra help improved opportunities for small-group individualization of instruction.

THE RESEARCH QUESTION

As teachers, we were well aware of the academic challenges that our students faced and we were strongly motivated to find a means of improving our students' chances for school success. Traditional methods of teaching literacy skills were often ineffective for several reasons. Often the content depicted a mainstream perspective that did not reflect our students' lives. Furthermore, texts that matched our students' reading abilities were usually presented in a picture book format with large font that appeared childish to our more mature middle years students. Also, beginning level reading topics were geared to the interests of younger students and for that reason were demeaning to older students' self esteem. Gunderson (1991) succinctly summarized our dilemma:

Generally, basal readers are inappropriate for beginning ... students... the typical ... series uses decontextualized language, bizarre sentence patterns, strangely repetitious language and stories that do not contain familiar cultural contents (p. 114).

The gap between our middle years students' reading levels and their grade placement indicated a need for intensive one-on-one reading instruction. We hypothesized that a language experience approach to reading instruction would eliminate many of the problems of relevancy we encountered with commercial texts. Voice activated computer software offered an innovative and promising solution to the difficulties associated with our students' literacy skills. Our research question **"Can students who are experiencing difficulties with learning to read benefit from a computer-assisted one-on-one language experience program?"** was our attempt to explore the possibilities of computer technology in developing literacy.

Background

Our research was a technologically updated version of Sylvia Ashton-Warner's seminal study with New Zealand Maori students. Like the students with whom she worked, many of our students were experiencing academic difficulties. Sociocultural issues factored heavily into our students' chances for school success. Many families, preoccupied with standard of living issues, had little time or energy left to deal with educational concerns. Frequent relocation to other neighbourhoods interrupted schooling. As a result, precious instructional time was lost and curriculum continuity was interrupted. Cultural issues also affected many indigenous students. First Nation and Métis students risked being exposed to cultural ambiguity or assimilation as they became immersed in mainstream schools.

As teachers, it was our experience that primary level reading materials, whether they were standard print or computer generated text, generally failed to meet the particular requirements of our less skilled readers. Too often, topic choice was geared to mainstream readers. More mature students were required to fit into a pre-programmed format that was frequently puerile and irrelevant to their experience. In her book, *Teacher*, Sylvia Ashton-Warner (1986) emphasized the importance of using students' own language to connect their personal experience to the abstract world of print. She described her students' first reading vocabulary as "organic". These first reading words were "organic" in the sense that they were central to the student's life experience. These key words moved students from their knowledge of familiar oral language functions to the unfamiliar concepts of written language. She described "organic" reading as the means of transition from illiteracy to literacy:

It's the bridge from the known to the unknown; from a native culture to a new; and, universally speaking from the inner man out. (p. 28)

Sylvia Ashton-Warner posited that emergent level reading materials must be written in the student's own language so that the content of those stories stem from the reader's world experience. It is this intimate connection to experience that speaks to emergent readers and holds personal interest for them. In this way, language experience stories provide the bridge from familiar language structures and personal experience to unfamiliar book language and vicarious experience.

First books must be made of the stuff of the child himself, whatever and wherever the child. (p. 35)

Adaptive technology such as specialized computer keyboards, touch screens and speech synthesizers have been widely used in special education to help students with physical and/or cognitive learning difficulties work more independently in mainstream classrooms. Speech recognition research was first developed in the 70's and available commercially in the 80's and 90's. However, it is a relatively new addition to the classroom. Early speech recognition systems were prohibitively expensive and fraught with technological difficulties. Recent advances in voice recognition accuracy have made this software a viable option for the classroom. Willis (1998) predicted in the *THE Journal (Technological Horizons in Education)* that the use of voice recognition technology in the school setting will "be so widespread as to be practically inescapable." The article described a variety of educational applications including interactive homework hot lines and speech therapy software. The Center for Applied Special Technology (CAST) described

several interactive reading software programs that develop comprehension skills by providing a variety of scaffolding aids including read-aloud stories, embedded dictionaries and encyclopedic background support.

The Trillium Speech-to-text Project implemented in Ontario by Lubert and Campbell (1998) used Dragon Dictate Version 3.0 speech recognition software with a group of severely learning disabled students. These students had limited reading ability and ranged in age from 11 to 18 years. Some of their findings are summarized here:

- Speech recognition is most effective with dysgraphia students (average readers/very poor writers) who are highly motivated, have a positive attitude and who speak clearly.
- It is important to use high quality microphones.
- Be sure to save voice files onto an external storage device in case of loss.
- Staff training is critical.
- Students need to be trained one-on-one for voice recognition to ensure that recognition errors are corrected and voice memory remains uncorrupted.
- Students tended to write longer text and use more enriched vocabulary with voice recognition software than they did with pen and paper. Advance organizers such as thought webs, mind maps and tree diagrams provided useful scaffolding for written work.
- Software that recognized discrete words was more accurate than products that were intended for continuous, fluent speech.

Purpose and Objectives of the Study

Our research aims were to:

1. determine the effectiveness of voice-activated computer software to develop positive attitudes toward reading;
2. develop students' confidence in their reading abilities;
3. develop oral reading fluency;
4. improve vocabulary and reading comprehension.

Research Methodology

DATA COLLECTION

Our project used a case study methodology that included both empirical and qualitative data. A student survey compared changes in students' attitudes toward reading at the commencement of the study and at the termination of the research. Running records and miscue analysis provided information regarding students' oral reading fluency and the kinds of strategies they used when reading. Standardized test scores of student performance administered at the beginning and end of the project provided benchmarks of students' oral reading fluency and comprehension skills.

THE TEACHER-RESEARCH TEAM

The teacher-research team consisted of two resource education specialists, both of whom had completed postgraduate studies in learning exceptionalities. Gail had taught for 14 years, Mary Anne for 22 years. Each teacher taught part-time (0.5) at WCS. We adjusted our timetables so that we had overlapping days when we were both present at school. Approximately one hour of collaborative time was scheduled each week to update each other about student needs at school. Consultation included all the students with whom we worked and was not devoted exclusively to the students taking part in our computer project. Lunch breaks, free time before and after school, home visits, and telephone and e-mail exchanges also ensured continued dialogue. This collaboration gave us the opportunity to develop problem-solving strategies, administer diagnostic tests and follow up liaison responsibilities with other agencies and support services.

THE STUDENTS*

Student selection was based as closely as possible on the following criteria:

- We could anticipate a reasonable degree of commitment from the students and their parents or guardians in terms of homework and related assignments.
- Students' records would indicate regular attendance at school and consistent punctuality.
- There would be little likelihood of the family moving during the study.

These were our ideal criteria at the outset of the project and the teacher-researchers each chose a student who generally matched those requirements. The instructional phase of the project began in January 1998. Gail taught *Julie*, a grade four Intermediate Family student of First Nation ancestry, and Mary Anne taught *Jack*, also a First Nation grade four Intermediate Family student. Unfortunately, both students left the school after the first year of research. The following September Gail instructed *Edward*, a grade four Intermediate Family student, and

* Student pseudonyms are used throughout this report.

Mary Anne began teaching a grade six Senior Family student. However, the student was withdrawn from the project when she became increasingly disinterested in school and her attendance declined dramatically. In January 2000, *Melanie*, a grade four Intermediate Family student, replaced her.

JACK

Jack was 10 years old at the start of the study and was a year older than his grade four Intermediate Family classmates. He lived with his Auntie, who was a single parent, and his three younger siblings. Before moving to Saskatoon, he lived in a northern Saskatchewan community. His first language was Dene. *Jack* had been enrolled at WCS for three and a half years prior to the study. He attended school regularly, although frequently he arrived late for classes. He was enrolled in an English as a Second Language (ESL) class for slightly more than a year when he was in grade two. However, his ESL classes were terminated because he often missed the early morning transportation provided.

JULIE

Julie was an 11-year-old grade four Intermediate Family student who had attended WCS for a year and a half prior to her participation in the project. She lived at home with her parents and siblings. English was spoken at home. She had registered at WCS at the start of grade three and had received resource support in language arts and math since that time. Classroom teachers reported that *Julie* tended to be moody, defiant and uninvolved in classroom activities. However, she responded well in one-on-one or small group settings. *Julie* missed school frequently due to asthma. Absenteeism as a result of health problems and late arrivals impeded *Julie's* school performance.

EDWARD

Edward was an 11-year-old grade five Intermediate Family student. He lived with his mother and two younger siblings. English was spoken in the home. *Edward* had attended WCS for five years. He had received resource support along with classroom modifications throughout his schooling. *Edward* had repeated grade two and was a year older than his age appropriate peers. He had difficulty acquiring phonemic awareness skills and was late in mastering sound/symbol relationships. He required considerable direct instruction in phonemic awareness. Even with these interventions, *Edward's* oral language and literacy skills were delayed and he was working at a primary instructional level in language arts. *Edward* had recently started wearing glasses although, initially, he had been reluctant to wear them. He suffered from asthma. Poor attendance, late arrivals and disruptions in his family situation were intermittent concerns.

MELANIE

Melanie joined the project in January of the second year of the research. She was a nine-year-old Intermediate Family grade four student who had attended WCS for two years and was punctual for class. She lived with her grandmother and older sister. English was her first language and was spoken at home. Her grade level placement was consistent with her chronological age.

TIME LINES

Our research project extended over two years. The first four months, from September 1998 to December 1998, were allocated to a review of the literature. One full day per week was scheduled during those 13 weeks to conduct research. The final year and a half of the study was devoted to one-on-one assessment and instruction. Gail worked with her student four times a week. Timetabling adjustments resulted in Mary Anne teaching her student three to four times per week. Sessions were approximately an hour in length. In addition to the research project, both teachers provided collaborative instruction to their research students in small classroom reading groups four times a week.

INSTRUCTION

Student-created stories were based on stories read to them from trade books. Both the teachers and the students selected the books. The teachers took care to choose stories that were culturally relevant, age appropriate and, according to the information gained from the student surveys, interesting to the students. Student book selection was eclectic and included narrative and expository text and poetry.

A typical reading lesson began with a brief introduction to the book which included skimming the pictures, noting print features such as font styles or key words, and making predictions about the story based on the text and student experience. Next, depending on the difficulty of the text, either the teacher or the student read the story orally. After the reading, guided questioning and discussion included a review of story characters, plot and vocabulary. The books were used as a scaffold from which students developed their own ideas. During discussion, students were encouraged to connect their personal experience to the story. After discussion, students responded to these stories in a variety of ways. *Jack*, whose reading and writing skills were at an emergent level, enjoyed drawing pictures to illustrate aspects of his stories. *Julie*, *Edward* and *Melanie* usually summarized the stories or created their own stories based on the reading. Reading practice, vocabulary acquisition, phonological skill development and strategy building lessons were based exclusively on student stories. Language development consisted of word play activities such as rhymes, chants, letter/word substitutions or omissions and lots of talk about students' recollections and interests. Flash cards of key sight words and spelling patterns taken from students' stories were sent home for extra practice. Sentence sequencing and cloze activities focussed on strengthening students' understanding of grammar and semantics. In *Melanie's* case, instruction became increasingly oriented toward writing as her reading ability rapidly improved.

RATIONALE FOR INSTRUCTION

Lesson plans were based on a socio-psycholinguistic approach to developing reading competence that focussed on students' needs, interests and personal background. Trade books exposed students to enriched language and vocabulary and provided models from which students could develop a sense of story. By using the students' own dictation as the basis of reading instruction we could more closely match their reading material with their language experience, reading level and interests. We also hypothesized that a reading program that used

voice-activated software to generate print would add a highly motivational dimension to their learning.

INNOVATIVE POINTS IN THE APPROACHES USED IN THE RESEARCH

We expected that students would develop a stronger connection to print because the stories they dictated were their own. We anticipated that topics, which were personally relevant to our students, would encourage a greater sense of interest and commitment. Another important advantage would be the elimination of the frequent discrepancy between book language and the students' oral language. We predicted that the use of voice-activated software would bolster student confidence as it would allow them to work more independently than was possible in more conventional reading instructional settings.

Gathering and Analyzing the Data

DATA COLLECTION

Data were collected from several sources:

ASSESSMENT

- A self-assessment was given to each student. Students' attitudes towards their reading and their perceptions of their reading abilities prior to and after completion of the project were compared.
- Running records were used to assess oral reading fluency and reading strategies which students used in oral readings.
- Students' dictated stories provided longitudinal evidence of semantic and syntactic development.
- Standardized tests were administered at the beginning and end of the research to provide a quantitative analysis of student progress.

ANALYSIS

Data analysis included survey comparisons of attitudinal changes in students' perceptions of themselves as readers. Miscue analysis procedures and diagnostic test results were used to track students' reading progress. Examination of students' stories provided valuable information about their vocabulary and language development. Although *Julie* and *Jack* did not take part for the complete duration of the project, nonetheless, important insights were gained from their participation in the project.

THE STUDENTS

JACK

ATTITUDINAL ANALYSIS

Jack disliked reading and had developed effective avoidance strategies. For example, he often excused himself to go to the washroom during reading activities and usually left the classroom for extended periods. During independent reading activities he delayed selecting a book. Sometimes, he outright refused to read or participate in reading activities. Other professionals who had tried to work with him described him as "sullen" and "resistant". *Jack's* responses to "What I Think About Reading" were recorded verbatim in January 1999 (Appendix A). His description of a "good reader" indicated that he was aware of the interrelatedness of reading and writing. According to *Jack*, a fluent reader can read chapter books, spell, write poetry to her/his best friend and listen to the teacher and "the kid can write it down." Although *Jack* did feel competent in these areas, he took great pride in his

drawings which were usually very detailed. He was also proud of his neat handwriting skills and formed his letters slowly and carefully. He was aware of ways in which he could improve his reading, although some of the options he mentioned may not have been easily available to him. For instance, *Jack* knew there was a library downtown because he had visited the library with his class. However, in reality, the library was too far for him to normally visit. It was doubtful that *Jack* would have an expendable allowance to buy books. *Jack's* responses to the survey revealed that when he encountered difficulties with his reading he was unable to help himself. Instead, he depended on his teacher and friends for help. Fortunately, he had not yet lost complete interest in reading. He liked to read stories that were scary, funny or about sports. He also liked to read about kids at the First Nation band school and about those who lived in the city and about *Kohkom* and *Mos'hom* (grandmother and grandfather respectively). He liked reading magazines, comics and sports cards.

Jack's responses to the Attitude and Interest Survey recorded in May 1999 revealed his sense of reading inadequacy (Appendix B). Throughout the interview he rested his head face down on the table and refused to sit up. However, despite his frustration, he stated that he liked to read with a friend or in pairs rather than with a small group. This preference was supported in the classroom where he was paired with a reading mentor. One can assume *Jack* preferred to read silently rather than orally in order to avoid the embarrassment of making errors in front of his peers. He recognized a purpose for reading: "you could learn." He was beginning to develop some confidence in his ability to learn to read and felt more comfortable when he had the support of a friend who "can help me out with the letters."

READING DEVELOPMENT

A running record taken in February 1999 indicated that *Jack* had difficulty reading an illustrated emergent level reader. Analysis of his miscues showed that he relied heavily on the initial letter of words and on picture cues in his search for meaning. He matched initial letters with the pictures. For example, "spinach" was read as "salad". He substituted words which closely resembled the print: "do" was read as "don't" and "yuk" was read as "you". At times he focussed entirely on the picture and relied on his personal experience. For instance, "hamburgers" were read as "burgers" and then changed to "ham". Sometimes he just gave up with a shrug saying he didn't know.

Empirical evidence of *Jack's* reading entry level is minimal. He was excluded from the grade four CAT/2 standardized testing battery because his reading ability was too limited. Components of the Bader Reading and Language Inventory administered in June 1999 placed his reading level within the pre-primer range.

WRITING AND VOCABULARY DEVELOPMENT

It was apparent from *Jack's* stories and spontaneous speech, that his English language development was limited. *Jack's* story summaries consisted of a chronology of events related in simple sentence structure that lacked supporting detail. His stories of his adventures at the reserve with his pet dog, Chico, were his favourite topic and showed more promise. Chico was what Sylvia Ashton-Warner would have described as an "organic" word for *Jack*. Chico conjured heroic memories of wild storms on the lake at the reserve, compassion for a birthing dog and the friendship shared by a boy and his dog. Even so, these stories were related simply. *Jack* rarely used adjectives or adverbs to embellish his stories. The lack of

supporting context often made it difficult to understand the connections among events and the characters involved in his stories. Often *Jack* used pronouns whose referents were ambiguous and confusing. He also had difficulty with the past tense, particularly with irregular forms. For example, he used “sawn” for “saw” and “brung” for “bring”. In May 1999 a language assessment battery administered by the speech and language pathologist confirmed that *Jack* had a severe language deficit.

JULIE

When *Julie* started the project in January 1999, attendance and late arrivals were issues of concern. Her teacher also expressed concerns about *Julie's* limited involvement in class activities. Our student selection criteria for participation in the project were discussed with her parents. *Julie's* attendance improved after discussion of these concerns. However, a month later her attendance began to flag and the suitability of *Julie's* involvement in the research was discussed again. From then on until the end of term *Julie's* attendance improved. Unfortunately, *Julie's* family moved unexpectedly from the neighbourhood at the end of the term.

In a March 1999 survey *Julie* indicated that she thought a good reader knew “where to put the dots after a sentence” and “where to put capitals, punctuation”. She felt a fluent reader also knew “all the words to read a story”. She felt she “kind of read good” and liked to “read books to little kids”. *Julie* thought she could become a better reader if she “read good, read big stories” and “read to other students”. Her repertoire of books that she had read was limited to the books she had read during our project sessions and so when asked what she liked to read she replied, *Red Parka Mary*.

Julie responded well to the individualized attention of one-on-one instruction. She enjoyed the daily reading of trade books and the unhurried time to discuss her personal connections to the texts. *Julie* showed a great deal of personal pride in her stories and wrote enthusiastically of her family experiences. As the project progressed, *Julie* became more involved in her learning. She proudly reread her stories and trade books with her family. One day she came to school with a family history book from her First Nation Band, which she shared. It was obvious from her conversations that her family was very interested in her learning. *Julie* became more consistent about completing short homework assignments that included a variety of word study activities and rereading her stories to her family. *Julie* loved to share her family stories but often asked to have them typed for her because the articulation problems associated with her asthma interfered with the voice recognition accuracy of the computer software.

By the time *Julie* left WCS four months later, she was sharing her rich cultural and family experiences through her dictated stories. She wrote lovingly about her family as is described in her passages about her *Mos'hom* (Appendix C). *Julie* enjoyed reading these stories during the project sessions, to her classmates and at home to her family. The interest of *Julie's* family in her reading was evident when *Julie* proudly brought a new backpack with two new books to class. *Julie's* mother had purchased these items from a book club that *Julie* had recently joined. It was gratifying to see *Julie* excited about the prospect of receiving new books each month and to see her choose reading as a preferred activity.

READING DEVELOPMENT

Results of the Brigance Diagnostic Test administered at the beginning of the project indicated that *Julie* was functioning at a grade one level on the Word Recognition, Oral Reading and Spelling subtests. Her Reading Vocabulary Comprehension subtest score was at a grade two level. Informal observation of *Julie's* oral reading during project sessions revealed that *Julie's* ability to sound out new words was limited as she had not yet mastered vowel and consonant combination blends. Final test results were unavailable because *Julie's* family moved out of the neighbourhood abruptly. However, informal observations of her oral reading indicated progress in recognition of word family patterns and growing confidence when reading her own dictated stories.

WRITING AND VOCABULARY DEVELOPMENT

A language assessment in April 1999 indicated that *Julie's* phonemic awareness skills were at a kindergarten level. Her below average scores on all formal subtests also indicated that she had very poor receptive and expressive language skills. Her test results demonstrated a significantly impaired ability to process and recall auditory information.

The open-ended aspect of the language experience approach supported and enhanced *Julie's* personal writing style. *Julie* especially enjoyed poetry and her figurative language evoked beautiful images of familial love. Her poem about her grandmother movingly conveyed the close, intimate bond shared by a grandmother and a grandchild (Appendix D). Another poem about her *Kohkom* illustrates the continuity of the life cycle and creates a vivid picture of a grandmother who is integral to the family unit (Appendix E). Although *Julie's* vocabulary and syntactic skills required continued development, poetry seemed to free her from the problems she encountered with the standard conventions of prose writing. With those obstacles out of the way *Julie* was motivated to write and took pride in her writing success.

EDWARD

ATTITUDINAL ANALYSIS

Edward had difficulty sustaining his motivation and interest in academic activities, including reading. He enjoyed having stories read to him but was unable to persevere with reading on his own. Although he liked listening to stories, he had great difficulty reading independently. He described reading as "hard" in his responses to several surveys given to him in September 1999. In response to "When I can't read a word I can ..." *Edward* replied that he could "read hard books" and "try hard" to read it. *Edward* stated that he enjoyed many kinds of text but in fact he usually chose visually appealing materials such as comic books and magazines as other kinds of text were too difficult for him.

Edward found it difficult to elaborate and develop his story ideas. However, he did take pride in his stories once they were completed. His favourite stories were those about his life at his father's home and stories about the lake up north. On several occasions he wrote letters to his father and was very pleased once when he received a reply. He responded enthusiastically to adventure stories that described experiences similar to his life up north at his father's lake. At the beginning of the

project *Edward* enjoyed using the computer to compose his stories. However, his enthusiasm waned as he became frustrated with the inaccuracies of the voice recognition training sessions, which required him to speak slowly and distinctly. In the early stage of the project, *Edward's* attendance was consistent and he displayed a strong effort and interest in the project activities. His classroom and small reading group progress showed limited but steady improvement. In the second half of the year *Edward's* interest in school declined generally. He was fatigued and frequently missed school. He had difficulty maintaining his interest in the project and in classroom activities. *Edward* required considerable prompting and guidance to keep him on task. Near the end of the project *Edward'* preferred to have his stories typed rather than dictated.

Despite *Edward's* overall disinterest in school, he retained a degree of interest in the project. He wrote, "I like writing stories about me and Dad and Grandpa...writings easier to work with because you can tell what's you want to on the mike. Reading my stories over and over helps me read better because I get faster." When asked what he found challenging about the project, *Edward* wrote, "It was hard to correct mistakes when the computer wrote it." In spite of these difficulties *Edward* felt he "would say another kid to do it because it's fun. It helps you to learn to read sometimes because it's easier to read your own stories."

READING DEVELOPMENT

When *Edward* first started with the project he said that he used a variety of reading strategies such as picture cues, rereading when the story didn't make sense, looking for word parts, asking himself questions when he was confused or asking someone else to help him. However, during testing it was noted that *Edward* focussed on initial letter phonemes and prediction strategies to help him decode unfamiliar words. He was learning to self correct but tended to pay little attention to the printed text, often omitting significant words and phrases. He had difficulty reading emergent level text. He slowly sounded out each word as he tracked the text with his finger. The Bader Reading and Language Inventory Graded Reading Passage test result indicated that he was reading at a grade one frustration level.

Edward's ability to sequence sounds in encoding and decoding was limited. His auditory and visual spelling scores on the Bader Reading and Language Inventory ranged from primer to grade two level. He spelled "fed" as "fad", "pep" as "paet", "were" as "wret" and "wish" as "sesc". *Edward's* Canadian Abilities Test (CAT/2) scores were at the first stanine on all reading, spelling and language subtests. Examination of his performance on the Woodcock Reading Mastery Test indicated that he had difficulty with consonant blends and tended to reverse letters.

Edward's June 2000 test results indicated some limited progress. His Bader Diagnostic Spelling test results remained within the primer to grade two level. However, his errors were beginning to more closely approximate the correct spelling. For example, "wish" was spelled correctly and "were" was spelled as "wir". *Edward's* word recognition score on the Bader Reading and Language Inventory had advanced from grade one to grade two. His Graded Reading Passage score had progressed from a grade one frustration level to a grade two instructional reading level. *Edward* was using a greater variety of reading strategies: sounding out, rereading, reading ahead, using word parts and self correcting his errors. Woodcock Reading Mastery Test comparisons did not indicate as much growth as the Bader Reading and Language Inventory. *Edward's* Word Identification subtest scores increased from a 1.7 grade level to 1.9 grade level. His other subtest

scores remained the same or had decreased slightly. The validity of the Woodcock Reading Mastery Test results are questionable because *Edward* was tired and unmotivated during the testing. The Bader Reading and Language Inventory phonics subtest results indicated that *Edward* showed improvement in his ability to blend and segment words. His visual and auditory discrimination skills had also improved. However, *Edward* continued to have difficulty reading nonsense words and phonemic clusters.

WRITING AND VOCABULARY DEVELOPMENT

Edward had difficulty generating ideas for writing. His stories were brief and lacked descriptive detail. He needed a great deal of support in developing his ideas and sequencing the events in his stories. The opportunity to listen to stories read aloud and to answer guided questions during discussion of the story helped *Edward* develop a frame of reference for his stories but writing remained a challenge for him.

MELANIE

ATTITUDINAL ANALYSIS

Melanie was a friendly, outgoing student who was highly motivated and eager to improve her reading. A comparison of her responses to entry and final stage attitudinal surveys provides valuable insight into her growth and development as a reader. When *Melanie* began the project she had a variety of effective reading strategies at her disposal when she experienced difficulty with text. She stated that she could, "... sound it out, skip the word and if it doesn't make sense I can read and if it doesn't make sense I can ask the teacher." However, in practice, "sounding out" was the predominant method she used. She said that she could "... read good by trying to sound out the word." She added that to improve her reading, "I can listen to the teacher 'cause if she asks me to read I can sound them out." *Melanie's* responses to one of the first surveys indicated that she also set purposes for reading. She said, "I can read about stuff and I can learn how to invent stuff." In a final survey she added new skills to her repertoire. "I can type on a computer with my teacher, I can do research." A statement at the end of the project indicated she had also integrated oral language and writing into the reading process. "A good reader can be a storyteller and they could be a story writer."

Early in the study *Melanie* said that she did not read at home. At the end of the project *Melanie* described the extent to which she included reading in her daily life:

I read once a week when I have nothing to do and when I am waiting for somebody. I read at school. Sometimes I read books to my baby cousin and when I'm feeling a little sick.

In an initial survey, *Melanie* described a good reader: "He could read well. He doesn't have to sound out the words." In a final survey her switch to the pronoun "she" suggests that *Melanie* has internalized the process for self-reference.

She reads nice and loud and fast. And she's not shy when she reads.

She doesn't giggle. She doesn't laugh. She feels proud about herself 'cause she can read a chapter book to the whole class.

Her burgeoning self-confidence is evident as she details her reading competence.

I can read a chapter book. I could read books you can enjoy. I could read in front of a group.

READING DEVELOPMENT

When *Melanie* first began the project her oral reading was characterized by many repetitions and hesitations as she slowly and carefully “sounded out” each word. Her comprehension was adequate and continued to improve as she enthusiastically participated in discussions of the stories she read as well as the stories that she wrote herself. Her reading fluency had improved considerably by the end of the project. However, her reading miscues indicated that she continued to rely heavily on graphophonemic cues. Although she did not habitually correct errors that interfered with meaning, her repetitions were usually self corrections. Regular reading practise was all that was needed at the end of the project to strengthen and maintain her progress.

At the beginning of the study, the Alberta Diagnostic Reading Battery indicated that *Melanie* was reading continuous text at a grade three level. Within six months of the study she was reading at a grade four instructional level. The Bader Graded Word List indicated a grade two level of competency at the start of the study and a grade four ranking in the final stage of the project. Both of these final scores matched her grade level placement.

WRITING AND VOCABULARY DEVELOPMENT

Melanie's writing required continued attention to develop. She had difficulty with writing conventions, especially spelling, and these problems hampered her writing fluency. It was interesting to note a significant difference in quality between her project writing assignments and her class reading group writing. She was animated and enthusiastic about her project writings and enjoyed discussing the context of her family stories. She put a lot of effort into elaborating her ideas and stories, which usually evolved over the course of several days and sometimes weeks. In contrast, her abbreviated class reading group assignments lacked the effort and detail of her project writings. Whereas *Melanie* readily revised her project writings, she balked at doing the same thing with her class reading group assignments.

Results

TECHNOLOGY

This research was a first step in using voice-activated software in reading instruction. The answer to our research question, “**Can students who are experiencing difficulty with learning to read benefit from a computer-assisted one-on-one language experience program?**”, is a qualified “Yes”. The technology offers potential as a method of providing individualized language experience reading practice for less skilled readers. However, contrary to our expectation that students would be able to work more independently with the support of computer technology, we discovered that the voice-activated software currently available had limited application for less skilled readers. However, with further refinement the technology holds much promise as a viable instructional option.

Regardless of the software drawbacks, students were motivated by the technology. They enjoyed the novelty of seeing their own words converted to print on the computer screen. *Melanie’s* enthusiasm is evident in the sign-off *Melanie.com*, which she created for herself. At the end of the project *Edward* and *Melanie* were proficient with the *Word Train* function of the software which improved the voice recognition capabilities of the program. As well, they had learned to use the *Spell Mode* and *Word History* functions to correct voice recognition errors. The punctuation and spelling format of the software functions increased both students’ awareness of these conventions and they began to adhere to these conventions more regularly in their writing.

LANGUAGE EXPERIENCE

The language experience approach to reading instruction was successful in developing positive student attitudes toward reading. This teaching method provided a meaningful link between the students’ language and cultural experiences and the school curriculum. One-on-one instruction with the voice-activated software fostered student and teacher rapport and supported integration of students’ oral language with the reading and writing process. In terms of the discrepancy between book language and students’ spontaneous speech, *Melanie* clearly preferred the naturalness of her own speech patterns to that of commercial reading texts (Appendix F). The process approach encouraged students to write about things that they cared about and placed them at the centre of the interaction. Students were intimately involved with the text as they chronicled their own experiences. These connections affirmed the relevancy of their unique cultural perspectives and personal interests. Their collective stories focussed on the “organic” elements at the core of their lives. *Jack* enjoyed relating stories of the adventures he shared with his pet dog, *Chico*. *Julie’s* poetry and stories described the love and closeness of her family. Her writing highlighted her family’s pride in their cultural heritage. *Melanie’s* stories included vivid descriptions of the costumes and traditions of Pow Wow dances (Appendix G). *Edward* related exciting stories of hunting and canoeing adventures with his father (Appendix H). Family issues and values surfaced in their writing as *Edward* revealed his deep love and longing for his separated father (Appendix I), and as *Julie* and *Melanie* articulated their high regard for their nurturing grandmothers (Appendix J).

LITERACY INSTRUCTION

The effect of language development on the acquisition of reading and writing competencies was apparent very early in the study. Initially, we had intended to use the students' stories as springboards for instruction. However, we discovered that our students often lacked the vocabulary necessary to expand their story ideas. In that sense the students benefited from exposure to trade books which offered them models of enriched vocabulary and a variety of sentence structure and phrasing.

Problems and Limitations

TECHNOLOGY

The three software programs which we examined in our study required considerable reading and technological expertise. The voice recognition training texts were well beyond the reading capabilities of our students. The teachers were required to read the text aloud to the students who then dictated the words into the microphone. The correction of voice recognition errors was also a complicated and often inaccurate process that required constant teacher supervision. We also discovered that the microphones which were included with the software packages were inadequate. Voice recognition errors decreased substantially after we bought more expensive and better quality microphones.

ATTENDANCE

From the outset of our research we were cognizant of the economic and sociological factors which had an impact on our students' school performance. We understood that these variables were beyond our control. Many of the problems and limitations of our research reflected the vagaries of our student's lives.

During our discussions of possible research candidates we were well aware of the importance of working with students whom we could rely on staying with the project until its completion. We chose to work with *Jack* and *Julie* because they had attended WCS for relatively extended periods. *Jack* attended school regularly, although he often arrived late. His sessions were scheduled later in the day to compensate for this problem. *Julie* missed a fair amount of school due to asthma. However, her positive attitude and enthusiasm offset this limitation. Her family was excited and supportive with helping her with her homework and enriching her knowledge of their family history and heritage. Unfortunately, *Julie's* family moved out of the neighbourhood and she enrolled in another school after the first year of the project. *Julie's* mother wanted *Julie* to remain in the project but she was unable to make alternate arrangements to do so. *Jack's* family left the following summer and he and his family moved back to the north.

Reflections

COLLABORATIVE INQUIRY

The action research model recognizes,

... the importance of treating the teacher as an agent of change with respect to her or his own learning, whilst at the same time providing some form of professional support (p. 84).

Our research provided us with an opportunity to reflect on our beliefs about teaching and how these beliefs are translated into our busy day-to-day teaching lives. Working with a partner enhanced the learning process. As we discussed our research question we shared valuable experience and insights we would not have gained if we had worked independently. The collaborative research model complemented our unique perspectives and different approaches to teaching and problem solving. Our discussions often took unexpected turns as we reorganized our thoughts and developed deeper understanding of the reading process. These paradigm shifts were important aspects of our learning that changed and improved our study. We also developed a more conscious awareness of the interactive nature of the teaching and learning process. The terms “teacher as learner” and “learner as teacher” applied equally and appropriately to everyone engaged in the project including our students who shared their experiences and perspectives with us in their storytelling.

Preparation of the final report was a vital part of our learning. Writing about our experience and preparing the Microsoft Power Point computer slide presentation required focus and initiated reflection about the best teaching practice. Taking ownership of the complete process helped us to clarify our thinking and uncover false assumptions.

CULTURAL RELEVANCE

Student stories were about their personal experiences. Their stories reflected their interests, values and pride in their heritage. Parents and grandparents became involved in the educational process as they proudly shared information about their cultural traditions with their children and grandchildren. These family conversations were highly motivational and many times students added more detail to their writing after discussing their stories at home. It was a delight to discover a rich cultural aspect of our indigenous students’ lives which we may not otherwise have shared to such an extent.

Recommendations

STUDENT ATTENDANCE

Student attendance impacts directly on student achievement. Poor attendance not only results in students missing valuable instruction but may also indicate a lack of follow-up support at home. As teachers in the inner city, our responsibility to provide creative educational solutions for these children's learning needs is critical. It is important that we capitalize on the time that we spend with our students when they are in the classroom. The active recruitment of volunteers, mentors, service clubs and community agencies is recommended as a means of providing surrogate support for students during the school day in order to develop their abilities to full potential.

TECHNOLOGY AND SUPPORT

Further product development is required before the present software is compatible for school-aged readers. Suitable training texts with graduated levels of reading difficulty need to be geared to the reading needs and abilities of young students. Vocabulary and command functions also need to be simplified to meet the less sophisticated writing convention requirements and skills of young children. Such user friendly modifications would result in a software product that is more applicable to the educational needs of the elementary school setting.

Technological literacy needs to be supported with trained in-school personnel. School-based computer expertise is needed to prevent valuable time being wasted while waiting for computer repairs. The initial technological problems we had in setting up and operating the software underscored the importance of having readily accessible in-school support available. The high cost of computer technology also makes it imperative that computers be fully utilized in order to gain maximum educational dollar value.

Implications for Further Research

Our research highlighted the significance of language competence in the development of literacy skills. Students experiencing difficulties with learning to read and write need to be prompted and encouraged to talk and to elaborate their ideas. Mowbray and George (1992) described the importance of talk not only as a means of communicating ideas but also as the means by which students learn, “Talk is both the engine that brings ideas into being and the fuel that keeps them going” (p. 17).

Language-delayed students have a difficult course to follow as they try to develop their receptive and expressive language competencies alongside their reading and writing skills. As we worked with our students, we became very aware of the vital importance of including listening and discussion activities in reading and writing instruction. The benefits of classroom talk in a variety of classroom situations, including ESL and English as a Second Dialect (ESD) settings, were explored in the three year Peel TALK project (Booth and Thornley-Hall 1991). The teachers who participated in the project reported that increased classroom talk promoted students’ self-esteem and confidence, improved students’ listening and speaking skills and enhanced their problem-solving skills. Demographic trends in Saskatchewan indicate that the issue of ESD students’ language needs will escalate in urban areas as more indigenous families move to the city. These predictions, coupled with our research results, point to the need to continue to examine effective ways to develop language competence in the classroom and to provide early intervention opportunities for young children.

This research replicated many of the findings of the Trillium Speech-to-text Project cited earlier. The Trillium project found that speech recognition software was most effective with average readers who experienced difficulties with writing. Our research results also indicated the greater potential of using voice-activated software with more fluent readers. *Melanie*, whose reading skills were stronger than the other three students involved in the study, improved her reading fluency and comprehension skills significantly during her six month participation in the project. Her progress suggests that voice-activated software currently available may be best suited for more skilled readers. Continued research with speech recognition software modified to meet elementary children’s needs is suggested as the next step.

ENDNOTE:

Throughout this text we have used the words *Kohkom* and *Môs’hom* as referenced in Anderson, A. (1997). *Metis Cree Diction*. Edmonton, AB: Duval House Publishing as these matched the pronunciation used by our students. We recognize that this usage may not match that of other Cree speakers.

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Appendices

Appendix A

What I Think About Reading

A good reader can...

spell. A good reader can read a chapter book. A good reader can write a poem to their best friend. A good reader can listen to the teacher and the kid can write it down.

I can...

I can draw.
I'm good at writing.
I can read my stories.
I can read flashcards.

How I can be a better reader ...

I can practise every day.
I can get a book from my classroom, in the library downtown.
I can buy a book.

When I can't read a word I can ...

Ask my teacher.
Ask some of my friends.

I like to read ...

about kids on the reserve, in the city, Kohkom, Môs'hom.

I like to read ...

comics, magazines, sportscards.

Appendix B

Attitude and Interest Survey

1. How do you feel when you are asked to read?
I don't like to.
2. Do you like to read aloud if the teacher asks you?
No, 'cause I don't like this.
3. Do you read at home?
No, just sometimes, dinosaurs.
4. When do you like to read – morning, after school, night?
None.
5. Do you like to read in small groups or in pairs?
Pairs.
6. Would you rather read alone or with a friend?
A friend. They can help me out with the letters.
7. Would you rather read silently or out loud?
Silently.
8. How would you feel about writing about a story you read?
I can't even write.
9. Is reading in school fun?
Yes, you could learn.

Appendix C

Môs'hom's Blessing

I miss my môs'hom. He taught me a lot of things like not to tease our culture. He taught me not to swear at others. He taught me to be kind. My grandpa used to always say when he was bringing out that sweetgrass ... "Now, when you are about to be your mother's age ... I'm blessing you." Bless means when someone wants you to be careful in your life. Thank you grandpa for telling me this story.

Julie
March 3, 1999

Appendix D

Grandma's Voice

Let me hear my Grandma's voice
Whispering in my ear.
A soft and kind voice
A happy voice
Funny stories
She hears my Grandpa all along
She hears him in the wind
At night
Whispering in her ear
My Grandma still thinks
She has babies on her bed
Maybe they're babies she lost,
Or maybe me.

Appendix E

McKenzie's Moccasins

Kohkom waits outside the door
making moccasins
dipped the black dust
she rubbed it on the bottom of the moccasins
beading red and blue into a diamond.

Granddaughter inside the door
hands holding mine and mom's
hurting, squishing so tight
"oh no, baby's coming"

Kohkom outside the door
Stitching the fur inside
Stitching and waiting
Waiting and stitching
Finally the last stitch

Granddaughter inside the door
breathing fast
through the pain
breathing and waiting
waiting and breathing
Finally the baby
McKenzie

Julie
April 1999

Appendix F

Making Sense

Dear Grandma:

I like working on a computer because you can learn more about reading. I don't like reading in a book because sometimes it doesn't make sense. It doesn't make sense because in this book it didn't make sense because it went –

“Boy.”

“Mom.”

“Don't.”

“Like.”

“Berry.”

The sentence didn't make sense because there were words missing from the sentence.

Love,
Melanie

P.S. I love you.

Appendix F

The Round Dance

Last week I went to Regina for a round dance. A round dance is when a whole bunch of people play drums and sing Pow Wow and you have to go around in circles until the song is over. You don't have to dance if you don't want to and anybody can go up and dance. Even children could go up and dance. And after you can sit down and have a rest or you could get some fresh air.

My Grandma, my two sisters, my dad, my cousin, my best friend, Ricky, and my relatives, the L___, were at the round dance. Me and my cousin danced for a few rounds and my Grandma danced for one round, but my dad didn't even dance one round!

Melanie

February 2000

Appendix H

Up North

I went to my reserve with my dad. We went fishing. On my first try I caught lots of fish. They were hard to get because some fish stayed in the deep end. I used a gold wire to catch a fish and I put the wire on the stick. You have to wind the wire up. Then you put the stick and wire together, then you have a snare. You have to grab a long stick first, tie the wire around the stick, then you have a snare. You walk in the water. If you have shorts on wear pants because you get cold and there's lots of rocks. You have to be careful not to scare the fish away. You have to be slow at putting the snare around its neck but the big ones you have to collect fast. You put the fish on the shore and let the older people do the rest. They skin it, they take out the insides of it and you can eat the eggs that's left, the fish eggs. You have to knock it out with a stick. Then fry it and eat it.

Edward

Appendix I

Dad

More than anything else, I want to be with my dad because he takes me everywhere, even to the mall if he has a bit of money. He gives me lots of money. He takes me to the trapline to catch deer and moose. He cares about me a lot. He takes me places and lets me stay up late. He loves me so much and I feel the same.

Edward

October 1999

Appendix J

Selected Writings by Melanie.com

My Grandma Is The Best!

My Kohkom Is Good

My Kohkom is good at telling stories.
My Kohkom is good at raising kids.
My Kohkom is good at making bannock.
My Kohkom is good at making soup.
My Kohkom is good at sewing.
My Kohkom is good at helping people.
My Kohkom is good at listening.
My Kohkom is good at school.
My Kohkom is good at homework.
My Kohkom is good at being organized.
My Kohkom is good at being respectful.

Melanie.com

Dear Grandma:

What are you going to do today? Can we go to auntie's house and go see baby?
After that, can I go visit my friend, Amy?

On Friday, are we going to go to Regina to see Ashley get her award for being a
great role model?

Love,

Melanie

I Use My Eyes, Nose and Ears

I use my eyes
To see the skies.

I use my nose
To smell my toes.

I use my ears
To hear the deers.

Melanie.com

The Round Dance

Last week I went to Regina for a round dance. A round dance is when a whole bunch of people play drums and sing Pow Wow and you have to go around in circles until the song is over. You don't have to dance if you don't want to and anybody can go up and dance. Even children could go up and dance. And after you can sit down and have a rest or you could get some fresh air.

My Grandma, my two sisters, my dad, my cousin, my best friend, Ricky, and my relatives, the L___, were at the round dance. Me and my cousin danced for a few rounds and my Grandma danced for one round, but my dad didn't even dance one round!

Melanie

My Grandma and I

My Grandma and I
Went for a walk
To my Auntie Wanda's house.

We saw one bus.
Then a baby started to fuss.

We saw two bikes
Under two lights.

We saw three Canada geese.
I hope they live in peace.

We saw four rabbits in a pet shop.
Then they started to hop.

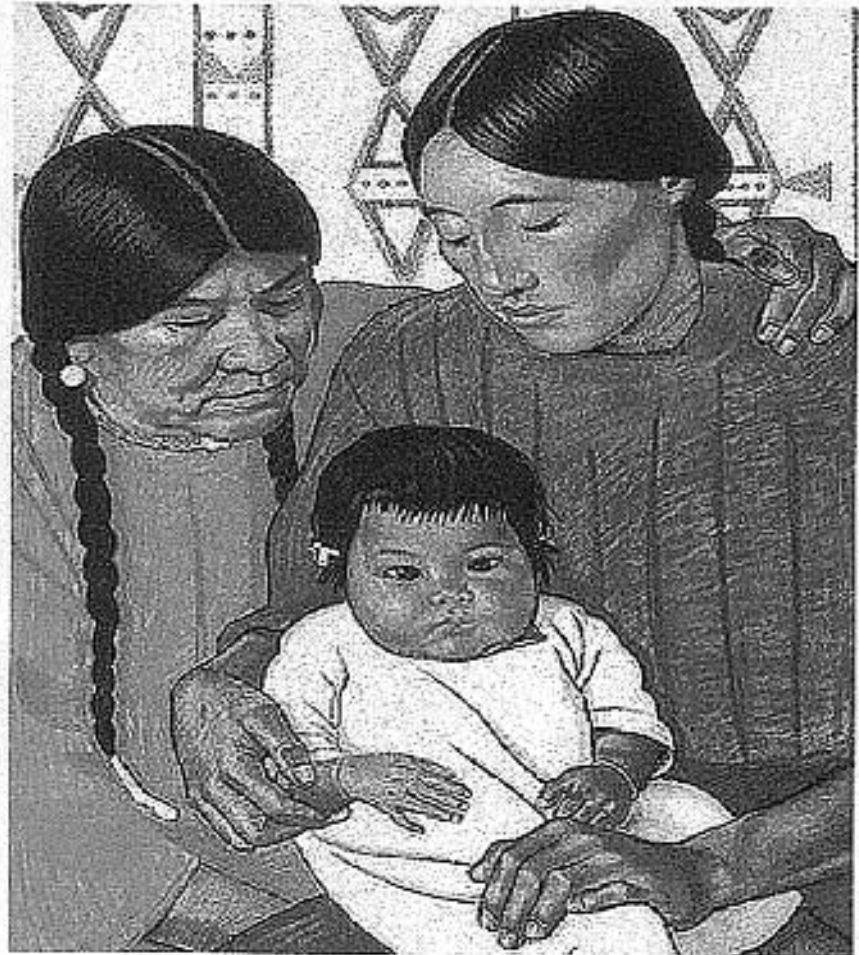
My Grandma and I
Went for a walk
In the city.

My Grandma and I
Love each other.

Melanie.com

Appendix K

Edward's Book
MAY 2000



Family

I know how to drive a truck and van and a car. My uncle J. teaches me how to control his truck. Mostly times the steering wheel steers for me and he teaches me how to put it in neutral or drive or second or first or park. I drive fast. Sometimes when we go to my reserve my uncle tells me to drive fast so I floor it. My dad gets scared of my driving but my dad thinks it is fun.

My dad likes to take lots of walks. My dad likes to play football with me and then we play water balloons.

.....
I went to Prince Albert.

I saw a deer get hit by a car and a wolf and five birds eating a dead deer.

My aunties V. and M. are my best aunties. My uncles J. and J. work at the casino.

They are cool. My uncle J. drives crazy.

.....
I went to Devil's Hill to slide on a GT and go snowboarding. There's one big hill that goes as fast as a car but you have to watch out for trees. Snowboarding is dangerous. Devil's Hill is the best hill in P. A. Devil's Hill gots too many trees that's why they call it Devil's Hill. You have to steer yourself.

I got my Dad a birthday present that is a candle holder that is a log.

.....
We went to see my aunt to drop M. off. Me and my Dad and grandpa went to hitchhike and my uncle picked us up. We went to my reserve to hunt geese but we missed the geese and ran into a beaver and the Beaver got mad and it bit my paddle. I tried to shake it off but it wouldn't come off so my Dad shot it and blood came out. The bullet hit me and gave me a bruise.

.....
I got my dog Sharptooth when I was two years old. My dog is part wolf. My dog Sharptooth is smart at playing games. I play a game called tag.

My dog is white. My dog stepped in a trap and she was dying slowly so my Dad had to shoot my dog.

.....
My dad and me like to play football and he likes to play lots of games like pool, soccer and go swimming. My cousin T. likes to play water guns.

I can't wait to go to my reserve for Christmas. I already got him a present. I made a clock owl with real feathers. We'll have a feast over and over and over with different kinds of meat like rabbit, white deer and moose, muskrats.

My Dad is a half chief and my uncle J. is full chief and they take care of my reserve. They take bad people out of the reserve.

I got a dreamcatcher for my Dad and its got red beads and blue beads and brown leather. And it's heavy. I make the string to hold the dream catcher to hold the bad dream.

My cousin T. and S. and T. and N., they went to Little Red for Christmas. My cousin got for Christmas a stack of books and a play station game.

My cousin T. always gets his lunch money stolen from these big kids. One day they never stole his money. Then I told T. not to give those kids his money and I gave my money to T. They tried to steal my money but I wouldn't let them. Then I picked up my little cousin T. and S. and T. and I told them to run. T. didn't want to so I picked up T. and ran with him.

I was driving crazy. I rammmed into a tree. Once my dad said I wish I could drive like you. Then I went down the hill but my dad said no so I turned away from it but then I flew down. I can't wait to go down it.

My uncle, J., picked us up in P. A. He went back to his reserve at Montreal Lake. We had a big band there. A guy came into the wedding. He thought it was the right wedding to go to, but it wasn't so then my dad said, "You can't be here." Then my dad got punched, then he punched back. He was going to be punched again my dad ducked. So the guy punched my uncle J. in the ear by mistake. My uncle punched him really hard and gave him a bleeding nose and knocked him out. Then they threw him out and they let the wedding go on until 1:00.

I want to be an artist with my dad and grandpa and win a million dollars.

More than anything else, I want to be with my dad because he takes me everywhere, even to the mall if he has a bit of money. He gives me lots of money. He takes me to the trap line to catch deer and moose. He cares about me a lot. He takes me places and lets me stay up late. He loves me so much and I feel the same.

Dear Dad,

I miss you. I hope you will come to Saskatoon and visit us.

M. misses you, too. She wishes you will come down for the school holidays.

Lately I have been playing in the puddles. An old man named S. he gave us three teddy bears. One was a clown, the other one was named Teletubby and Aladdin.

Love, Edward

Dear Dad,

I might come down on Friday the 22nd. You got to be at M.'s place so you will have letters, a drawing, lots of writing and a picture of me on the computer.

.....

Dear Dad,

How are you doing? Me I'm doing all right. I'm getting good at tricks on my bike. It is fun going down the stairs. I like to do tricks on my bike down the stairs. I'm getting skinnier. I had fun on my bike. So what are you doing? I will continue telling you some more later.

I found a bike in the alley like me and you and grandpa found one time. It's a mountain bike and it's green and black and gots horns. I put on the bike my name.

I work for my uncle G. I pickup garbage and leaves and fridges and R. got his skateboard. I'm trying to make enough money to buy a skateboard. And I like taking stuff to the garbage dump.

Love, Edward

.....

Dear Dad,

We are moving to P. A. My mom said we will be moving there because it's too noisy in Saskatoon. I'll be a lot closer to visit you instead of having to spend money on the bus. Mom can visit her cousins and her sisters.

I go to a lot of powwows and I'm used to singing with a powwow drum. I'm a good drawer and I draw skateboarders with mosquito heads and flies.

P.S. We might sell my cats for \$15.

Love, Edward

.....

Fun and Friends



On the weekend I went swimming at Harry Bailey. I got over my fear. I jumped off the orange diving board. I was scared to go off the orange diving board.

.....

I went to swim at the University. I got to swim in the deep end. My classroom got to go swimming at the University in grade 5. I pushed M.D. off the curve and she was crying.

.....

The wedding of I and K.

They met at the mall. They got married on Valentine's Day.

I and K went to I's house to watch W.W.F. And they lived happily ever after.

.....

I am going to play with friend's dog named Shadow and it's a black sheepdog. It almost had my cat for lunch. My cat jumped inside the screen because it had a little rip in it; then the dog made the screen hole bigger. I'm going to let my cat outside with the dog to play with it. They should make good friends. I just hope the dog won't eat the cat. I'll thank the dog for not eating my cat.

.....

I am making an alien mask. We are finishing up the mask today. I am making a football trophy and I get to finish them. We get to paint the alien and football trophy.

I was in a food court when an alien fell from the thin air and came crashing through the window ceiling. The alien landed on my lunch and stared at me and said, "Sorry, I will buy you a lunch." He looked like a greenish alien with a big head and was ten feet high. His eyes looked green and his skin was wrinkly. The alien was really nice inside even though he looked mean and scary.

We were looking for water for the alien named Ian. I introduced myself and said, "My name is Colin". We went for a walk. I said, "Let's go bowling". Ian accidentally threw the ball backwards and hit the person that was taking care of the bowling alley because he was slimey. Then we decided to leave the bowling alley and to go watch a movie called Mission to Mars. After the movie the alien got homesick so a couple of weeks later the mother and Dad came to pick up Ian. Dad was really happy. They went home with their magic powers and Ian said goodbye.

"Goodbye Ian."

"Good-bye Colin."

"I'll hope you will come back."

.....

One night I was watching TV. The Simpsons were on. I went to play with my friends. All of a sudden a blizzard hit. The snow was blowing. Five friends disappeared. I got blown into a pole. I was looking for my friends named I., E., W., C. and R. I found a clue; C.'s winter jacket. I called out a search party. They found C., I., W., E. and R. in the garbage bin. So they took a couple weeks to remember us and how to speak because they blew real far. I got an award for finding them in the garbage bin.

The End

.....

I go snowboarding. I like to go snowboarding. I am really good at snowboarding. I am good at doing tricks. I go home and my Dad is making hot chocolate to warm me up.

I like to draw pictures of lions with roses in the middle.

I know how to draw tattoos bracelets.

I know how to make tattoos with clear deodorant and black.

.....

I went to Winnipeg. On the way I saw five or ten buffalo and or ten hawks on a pole and grass.

Me and E. were drawing the buffalo.

They were newborn and they were very still.

.....

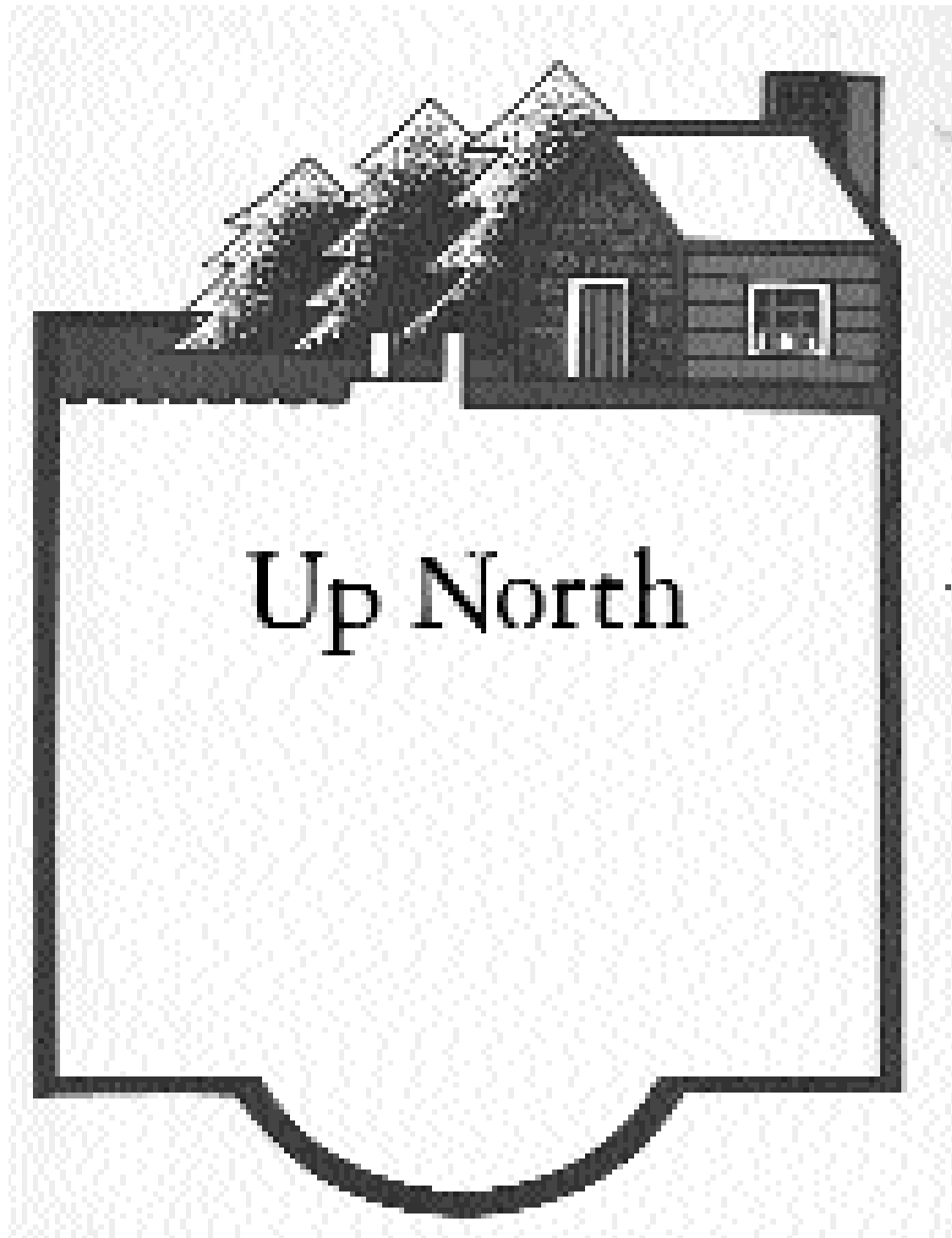
My skateboard is the best at olies. I can do a kick flip.

My skateboard is my favorite toy. I can do lots of tricks on my skateboard. I can lift my skateboard over things like my sister's shoe. On my skateboard is the trunks. On top of the skateboard is the deck.

.....

I am good at climbing. I can climb as high as the school, higher than my house. I can swing off a tree to my house.

I'm good at running. I can run to school and back home. I could draw mutants that I don't even know and people shooting at it but they dodged them. The mutants kill the good guys.



I went to my reserve with my dad. We went fishing. On my first try I caught lots of fish. They were hard to get because some fish stayed in the deep end. I used a gold wire to catch a fish and I put the wire on the stick. You have to wind the wire up. Then you put the stick and wire together, then you have a snare. You have to grab a long stick first, tie the wire around the stick, then you have a snare. You walk in the water. If you have shorts on wear pants because you get cold and there's lots of rocks. You have to be careful not to scare the fish away. You have to be slow at putting the snare around its neck but the big ones you have to collect fast. You put the fish on the shore and let the older people do the rest. They skin it, they take out the insides of it and you can eat the eggs that's left, the fish eggs. You have to knock it out with a stick. Then fry it and eat it.

.....

We play games up North

- handy cat stick it's a game of tag throwing the stick. A cat stick is soft and easy to break
 - watching the bats they have very protective of their baby bats.
-

You have to get bullets, supplies, and jack knives and warm blankets and jackets and matches. We hunt in the winter. It's much easier to hunt because you can find its tracks. The snow on my cabin was as high as my cabin. The wolf got on my cabin and was walking around. And we had to go out of the porch to kill it but there was wolves out there, only eight of them in a pack. My uncle ran over one, they jumped in the box of the truck. He drove real fast and put the brakes on and the wolves went flying.

.....

Christmas up North

My Dad lets me drive a skidoo around the cabin. Christmas morning we have to go outside to open up our presents. We go on the roof to watch the sun go up and we go to find a moose. We kill the moose and have a feast.

My dad has a plane and he flies it lots over the lake. We saw deer down below and we saw moose. Then we went flying over our cabin and we saw a loose dog or wolf. Then we asked our grandpa, "What is that?" He said, "It's a wolf." My dad said, "Eric, go get the gun." Then we shot it in the head. We left it by a bear thing. Then we came back the next day, a bear was eating it. My dad stepped on a twig and cracked it. The bear looked at us and we started to run. The bear was still eating. Then we ran to the cabin. We got there. We got my uncle to come with us. My uncle drove us back. We got four guns so I could have one, my dad could have one, and my uncle could have one and my grandpa could have one. Then we killed the bear and we had a good feast.

.....

My reserve has no fountains or sinks. My Dad has to go to the lake with a pail and scoop and puts the water in the pail. My reserve has a bridge that sings. It keeps the animals away from the lake so the people won't get diseases or sick. It sounds like spirits singing because my dad hides the radio really good. My reserve has real thick ice. My dad has to chip the ice with an axe or a chainsaw.

.....

I was out for adventures. I saw eagles and many fish. Then I climbed this big rock. Then I saw little chipmunks and squirrels. My dad called me when I was five and there was something following me and I started to run. It was only a baby bear cub. Then I started to laugh. The next day I went to find the baby cub and my dad said, "Watch out for traps. Don't step in one." But then my dog stepped in a bear trap. My dad had to kill the dog because it was dying slowly. I buried it by my tree.

THE END

Appendix L

HARDWARE AND SOFTWARE SPECIFICATIONS

Hardware

IBM with Pentium II Processor

64.0 MB RAM

Software

Via Voice Gold

Dragon Naturally Speaking Preferred

Dragon Classic

**2317 Arlington Avenue
Saskatoon SK Canada S7J 2H8
Phone: 306-373-1660
Toll Free: 1-800-667-7762
Fax: 306-374-1122
E-mail: mcdowell@stf.sk.ca**

www.mcdowellfoundation.ca