THE RELATIONSHIP BETWEEN LISTENING AND READING COMPREHENSION IN FIRST GRADE ENGLISH L1 AND L2 STUDENTS

by

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A thesis submitted in conformity with the requirements for the degree of Master of Arts
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ABSTRACT

The Relationship Between Listening and Reading Comprehension in First Grade English L1 and L2 Students
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The present study addressed a central question pertaining to the development of literacy for English as a Second Language (L2) students: Does L2 reading take on the same developmental trajectory as English as a First Language (L1) reading, or are there unique aspects of L2 reading which differ from the established L1 processes? The total sample (N= 108) was comprised of two groups: 72 L2 (Punjabi speaking) and 36 L1 (English speaking) first grade children, whose skills in the subcomponents of reading comprehension, including listening comprehension, were compared. Findings indicate that the primary skills which account for the variance in reading comprehension did differ for children in the two language groups. By beginning to define the developmental trajectories of the subcomponents of reading comprehension in L2 first graders, a basis for establishing a norm, or point of comparison, for normal progress in English literacy can be established.
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Chapter 1

INTRODUCTION

As North America’s population continues to grow in cultural diversity, so too do the numerous concerns with the educational well-being of children for whom English is not a first language. The number of children who must learn to become literate in a language and orthography different from their native language is soaring (Huss, 1995). In fact, already by 1984, Cummins cited that in several Metro Toronto school systems, more than half the students had learned English as a second language. Immigrant minority children with English as a Second Language (ESL) are an identifiable group of students, many of whom have traditionally not fared well within North American school systems (Bialystock, 1991; Gibson, 1987; Weber, 1991). Weber (1991) points out that historically North American educators viewed the knowledge of a first language other than English as a liability to learning, a factor in determining low intelligence, and an indicator of questionable academic potential. Until very recently, this view was evident within the school systems, wherein ESL children were over-represented in the special education streams. The high placement of many children with limited English proficiency in special education, relates not only to the above mentioned biases but also to the indiscriminate usage of psychological assessments, in particular, IQ tests (Cummins, 1986).

Recently, an alternate ‘warmer’ view of ethnic diversity has resurfaced (which dates back from Leopold in the 1930’s and Vygotsky in the 1960’s) that suggests that bilingualism may actually be a cognitive benefit rather than a burden (see Bialystock, 1991; Weber, 1991). Cummins (1979) has delineated the circumstances by which bilingualism may have negative or positive effects upon an individual. He has stated that negative cognitive and educational effects surface from ‘subtractive’ situations whereby the first language is gradually replaced by
increasing ability and use of the second language. This may result in the appearance of a “semi-
ingual” child who is not fully proficient in either language. In contrast, the positive effects of
bilingualism are related to ‘additive’ bilingual situations, whereby both languages are supported
and develop in parallel. As Diaz and Klinger (1991) have explained, according to Cummin’s
(1979) threshold hypothesis, a relatively high proficiency in two languages must be achieved in
order for the bilingual to incur the positive cognitive effects of bilingualism.

The changing social climate coupled with the increased awareness of the biased testing and
subsequent over-referrals into special education, have led to a cautiousness in the testing and
identification of ESL students as learning disabled for several years. The negative consequence,
however, is that the children who do indeed require special services are not being detected for
many years, during which time their problems may compound. In order to find an alternative
between these two historical extremes of over and under-identification, researchers must increase
their knowledge and understanding about the characteristics of “normal” reading development
among ESL students. The present study will address one of the most difficult and crucial tasks
facing the educators and researchers of ESL children; it will attempt to find the way to distinguish
between temporary difficulties due to limited English proficiency, and more permanent reading
difficulties that legitimate special education intervention (Hamayan & Damico, 1984). By
delineating the “normal” developmental trajectory of ESL reading acquisition, researchers and
professionals will thus be better able to correctly identify those ESL children who may indeed be
at-risk for reading disabilities.

The various complexities pertaining to the issue of how children acquire their reading
processes is attested to by the multitude of research which has arisen in this domain over the
past decades. Moreover, when children learn to read in a second language (L2), the
understanding of the process is made even more complex (Weber, 1991). The main assumption which presently dominates second language reading acquisition is that learning to read is fundamentally a single achievement which is transferable across languages (Durgunoglu, Nagy & Hancin-Bhatt, 1993; Weber, 1991). However, this assumption has led to L2 research frequently being dismissed as marginal or derivative from English as a first language (L1) research (Bernhardt, 1991). Bernhardt (1991) states that while the repeated comparisons with L1 reading can imply that the task of a non-native is to become a native, L2 reading is a “phenomenon onto itself, not a mapping task of replacing one mode of behaviour with another” (p.2).

Second Language Reading Research

The term ‘Bilingualism’ can signify one of three situations (see Wong-Fillmore, 1991). The first being that the L2 is learned through immersion or foreign language classrooms within a majority language environment. As a result of this research, the view has evolved that it may be beneficial to separate learning to read, from learning to speak, as it applies to English as an L2 (Weber, 1991). This view is in direct opposition to the long-standing conviction by L1 researchers, that progress in reading is directly dependent upon progress in the spoken aspects of the language (Adams, 1991). Studies with Canadian French Immersion classrooms show that children can learn to read in the L2 (French) which they are newly acquiring. Additionally, Geva and Clifton (1993), while studying second grade French Immersion students, found positive and significant correlations between all reading measures in the two languages, illustrating a transfer in reading skills. These results, which showed that L1 and L2 decoding skills are positively correlated, have been replicated even when the two languages have very different orthographies (Durgunoglu, Nagy & Hancin-Bhatt, 1993; Geva, Wade-Wooley & Shany, 1993; Miramontes,
The second situation is that the L2 is learned when individuals are submersed into a foreign culture. The research in this realm has been carried out mainly in academic settings with mature students who are already fluent readers in their native languages (Weber, 1991). The third situation is when young children learn two languages simultaneously in the home, or as is characteristic of many children of immigrant families, one language is learned in the home, and the majority language is picked up from the outside environment.

It is in regards to the last group of young children for whom Huss (1995) pointed out the dire need for additional beginning ESL literacy research in the field of reading acquisition. The developmental trajectories of ESL students learning to read, and the differences between them and their L1 peers have not been extensively researched. The emphasis has remained on most of the beginning literacy research being conducted with native English speakers, and most L2 research conducted with adults, who are already literate in their native language (Huss, 1995).

**Reading Comprehension**

Reading for comprehension and memory is a quintessential task to master in school. As much of our knowledge is acquired through reading, reading comprehension has been termed the “major common denominator” for learning (Daneman, Carpenter & Just, 1982). Byrne and Fielding-Barnsley (1995) describe reading comprehension as “perhaps the most ecologically valid measure of reading skill, and needs little justification” (p. 489). Furthermore, probably due to the importance that reading comprehension maintains in school learning, it is the skill most often demanded of students in order to demonstrate that they have indeed learned to read (Carr, Brown, Vavrus & Evans, 1990).

The majority of research in reading comprehension has focused on either how single variables relate to reading or how readers of differing abilities perform on measures of individual specific
factors (Saarnio, Oka & Paris, 1990). However, this has resulted in a lack of knowledge regarding how the various skills interact (Saarnio et al, 1990). Furthermore, Geva (in press) has noted that while focusing on the development of reading comprehension, there is a tendency for L2 researchers and teachers to attribute reading difficulties to the lack of L2 proficiency, while minimizing the role of word-recognition and decoding processes. Several studies (Geva & Siegel, in press; Geva & Wade-Wooley 1995; Hudelson, 1984) have demonstrated that ESL students can learn to decode and spell words which may or may not be part of their vocabulary without much difficulty even though their L2 proficiency is still developing. The gap in the literature exists when trying to ascertain the extent to which the necessary precursors of reading comprehension are tied to oral proficiency (Geva, 1996). For instance, Koda (1994) has noted that L2 readers with a high degree of oral proficiency do not always overcome deficient word recognition skills. Therefore, oral proficiency may "provide a necessary, but insufficient condition" for becoming a competent reader (p.16). The possibility that difficulties in L2 reading arise because of specific decoding difficulties warrants further examination.

The developmental stages in the acquisition of basic reading skills in L2 have not been thoroughly investigated (Geva, Wade-Wooley & Shany, 1993). Consequently, the central question pertaining to the development of literacy in ESL students remains whether L2 reading takes on the same developmental trajectory as L1 reading, or whether there are unique aspects of L2 reading which differ from the established L1 processes (Bernhardt, 1991; Koda, 1994).

According to Hoover and Gough's (1990) *simple view of reading* theory, which is based upon an L2 population, the ability to read skillfully is composed of two equal parts: linguistic comprehension and decoding ability. According to Hoover and Gough (1990), reading is differentiated from a general understanding of language, as a reader must decode the graphic
shapes into linguistic form. However, once the decoding is actualized, the reader must be able to understand the linguistics (i.e., meaning), for simple decoding is only a component of reading. Although general findings from L2 reading research suggests that children do not have to be orally proficient in English before they can read and write it (Geva & Siegel, 1995; Geva & Wade-Wooley, 1995; Hudelson, 1984; Koda, 1994), this will not render one a proficient reader. This phenomenon of readers who may be able to read a word yet not know its meaning has been termed "dissociation" (Just & Carpenter, 1987). Similarly, the simple view purports that linguistic comprehension is not of great utility to a reader if he or she can not decode. Thus decoding must be combined with linguistic comprehension to produce the processes that allow for maximum reading comprehension (Hoover & Gough, 1990; Just & Carpenter, 1987).

Authors of several studies have offered support for the simple view of reading. The results of a follow-up study (Byrne & Fielding-Barnsley, 1995) of preschool children who received phonemic awareness instruction revealed that this experimental group was ahead of the control group in reading comprehension in the second grade. Their regression analyses offer evidence that decoding and word identification contribute to comprehension beyond the variance explained by more general language skills assessed through listening comprehension measures. Another study conducted by Byrne, Freebody and Gates (1992), concluded that word identification accuracy was a strong predictor of reading comprehension, even when listening comprehension was controlled for (as cited in Byrne & Fielding-Barnsley, 1995). Connors and Olson (1990), through path analyses predicting individual differences in reading comprehension, have also concurred with the simple view, stating that word recognition and listening comprehension are indeed the major components of reading comprehension, and that the other skills related to reading comprehension are actually components of these two main components.
It is important to keep in mind Hoover and Gough’s (1990) assertion that the *simple view* of reading does not deny that reading is a complex process, but rather that these complexities can be broken down into two central parts of equal importance, neither of which are sufficient in and of themselves (p. 128).

The following skills which have been found to contrast between good and poor readers in L1 research are believed to comprise the sub-components and predictors of reading achievement. These variables, outlined below, were tracked in the present study to deem if they were of equal importance for determining success in L1 and L2 reading comprehension in the first grade.

**Phonological Awareness**

Phonemes are the abstract units of speech which represent the sound characteristics of spoken and written words. In their blended form, phonemes correspond with the printed word to represent the name of that word (Vellutino & Denckla, 1991). Tunmer and Nesdale (1985) argue that phonemic awareness implies word awareness, as the ability to reflect on phonemes presupposes the ability to reflect on words. At the beginning stages of reading, Stanovich (1986) explains that it is phonological awareness which is the primary specific mechanism that enables early success in reading.

In order for children to achieve independent reading levels, they must be able to phonologically recode unknown words in order to recognize them (Ehri & Wilce, 1983). Daneman (1991) specifies that there are two modes of recoding: the first, which is critical in the acquisition of reading skill, is independent of lexical access. A code is generated directly from print using spelling-to-sound rules. To ‘crack’ the code (e.g., mentally converting the word cat into /k/æ/t), one must sound out an unfamiliar word and the resulting code is used to access the meaning. The second phonological code is generated as a result of lexical access. Information about the word’s
pronunciation is stored in the lexical entry for the word, along with the information about the word's meaning and syntax. Thus, when the word is lexically accessed, so is its phonological code.

In the research which evaluates the etiology of reading disabilities, the most convergent evidence comes from studies which depict that as a group, poor readers tend to be inept at tasks that depend on proficiency in the phonological processing of printed words (Share, Jorm, Maclean & Matthews, 1984; Stanovich, 1986; Vellutino & Denckla, 1991). Furthermore, Vellutino and Denckla (1991) propose that phonological coding deficits could also be one of the sources of differences among reader groups observed on tasks evaluating the speed of naming familiar stimuli such as colours and familiar objects.

**Lexical Access**

Separate from the role which phonological awareness plays in the early stages of learning to read, the speed of lexical access is a distinct processing component (Geva & Wade-Wooley, 1995), which contributes variance to reading (Bowers & Wolf, 1993). Differences between good and poor readers become apparent during the accessing in memory of the name codes associated with visual input (Daneman, 1991). Blachman (1984) has shown that as early as kindergarten, the speed of colour naming is correlated with how many letters are learned in that year. Lexical access has likewise been deemed important for word recognition (Stanovich, 1991). Within the students’ lexical access, information about meaning and pronunciation of a word is accessed or retrieved from memory. Many studies suggest that the retrieval and rapid naming of this verbal information during lexical access is an important indicator of differences in reading ability (Bowers & Wolf, 1993; Fawcett & Nicolson, 1994; Stanovich, 1986).
Short Term Memory (STM)

It is assumed that STM plays an important role in reading through the phonological codes, as segments of words must be held in STM, while comprehension process are attuned on the actual words themselves. Researchers have found that unskilled readers tend to perform more poorly than skilled readers in short-term recall of letter strings, word strings, and sentences (see Mann, Liberman & Shankweiler, 1980), and researchers have attested to the importance of memory for reading comprehension (Stothard & Hulme, 1992). Bryant and Bradley (1985) have pointed out that it remains unclear whether memory ability affects one’s reading ability, or reading ability influences one’s memory capacity. However, it is clear that in general, poor readers perform word and sentence level recall tasks at a lower level than do good readers (Mann, Liberman & Shankweiler, 1980), and that short term memory skills are shown to be related to differences in reading ability in the fairly young age range (Stothard & Hulme, 1992). Some researchers have found that memory problems are not a major causal factor in the creation of comprehension difficulties identified in poor comprehenders through both listening and reading (Oakhill, Yuill & Parkin, 1986; Stothard & Hulme, 1992). Nevertheless, it has been claimed that within all studies of comprehension, it must be investigated whether memory deficits may underlie comprehension difficulties (Stothard & Hulme, 1992).

Word Recognition

Many researchers have claimed that word-decoding and word-recognition are the skills central to reading proficiency (Curtis, 1980; Juel, Griffith & Gough, 1986; Just & Carpenter, 1987), and can serve as the “major stumbling block” for beginning readers along the path to proficient reading (Saarnio, Oka & Paris, 1990). Word recognition is the central sub-process of reading (Stanovich, 1991), as it requires the combining and ‘unitizing’ of knowledge about the word’s meaning, its
phonology and its orthography (Bowers & Wolf, 1993). In the early grades, the level of mastery at recognizing words is the major determinant of reading achievement (Juel, 1991; Stanovich, 1991). The early attainment of decoding skills at the word level, has been shown to accurately predict later reading comprehension (Perfetti & Hogaboam, 1975; Tumner & Nesdale, 1985). Good comprehenders have been found not only to decode words more accurately, but also more rapidly than poor comprehenders (Perfetti & Hogaboam, 1975), converging with Adam’s (1990) repeated assertion that successful word recognition must be quick and effortless. Chall (1983) has claimed that when decoding is more efficient for beginning readers, better results ensue for word recognition, which in turn makes for better reading comprehension. However, as most of the evidence relating word recognition processes to reading ability is largely correlational, one must be cautious in implying a causal link between the two (Daneman, 1991). Skill at word recognition could cause increases in reading comprehension ability and therefore it is possible that good readers are exposed to more text and so become better at recognizing words. It is presently unknown if word recognition is a facilitator of, a prerequisite to, or a consequence of comprehension (Garcia, Pearson & Jiminez, 1994).

**Pseudoword Reading**

A pseudoword is a pronounceable letter string that conforms to the orthographic and phonological structure of the language under study, but is not a real word in the sense of being part of any ordinary language. As pseudowords do not have representations in the lexicon, their pronunciations must be assembled through phonological recoding rules. One of the tests that most clearly and consistently differentiates between good and poor readers is the speed and accuracy of decoding pseudowords (Daneman, 1991). The finding that poor readers are less successful in
reading pseudowords than good readers are has been observed in grades one through six (see Daneman for a review, 1991).

Vocabulary

Becker (1977) asserted that once decoding skills are mastered, the chief remaining factor for success in reading comprehension is vocabulary knowledge. Although the ensuing discussion focuses on the relationship between vocabulary and reading comprehension, it must also be kept in mind that vocabulary is a powerful index of oral proficiency, and thus serves as an important variable for listening comprehension as well. Vocabulary knowledge largely determines semantic processing, which is in turn central to comprehension (Koda, 1994). There is a clear and established relationship between reading comprehension and vocabulary knowledge (Anderson & Freebody, 1985), and consistent findings that skilled L1 readers have larger vocabularies than poor readers (Just & Carpenter, 1987). In many factor analytic studies, vocabulary has been found to be the single best factor predicting reading comprehension and has accounted for up to 80% of the predicted variance in L1 studies (Beck & McKeown, 1996; Johnston, 1983; Saarnio, Oka & Paris, 1990; Singer, 1982). In fact, Thorndike (cited in Anderson & Freebody, 1985), tested the strong relationship across 100,000 students from 15 countries and found that it held across all the various language groups.

Stanovich (1988) outlined the subtle and reciprocal connection between vocabulary and reading. Acquiring a large vocabulary can aid the reader in understanding text, which then contributes to becoming a skilled reader, and then through the reading process itself, the meanings of more words can be acquired and modified. Thus the more one reads, the more likely one is of improving their vocabulary and furthering their comprehension. This connection is in accordance with the instrumentalist hypothesis which claims that as knowing more words
enables text comprehension, vocabulary is directly important in a causal chain which results in text comprehension (Anderson & Freebody, 1985). In contrast, the *knowledge hypothesis* regards vocabulary as being reflective of the amount of exposure to the culture, and that it is this indirect knowledge of culture that is imperative to text meaning (Anderson & Freebody, 1985).

For L1 children, their oral vocabulary knowledge functions as the point of departure when learning to read (Johnston, 1983). Monolingual students usually have five to six years of learning and practice with oral vocabulary by the time they are taught to learn to read the words which they are already know in their spoken form. However, L2 students must begin to build a new set of oral labels for previously held concepts and so must learn oral vocabulary alongside their written forms (Bernhardt, 1991; Koda, 1994). Although little is known about vocabulary and reading comprehension in young L2 readers, the close relationship between the two has been replicated in research with older ESL subjects (See Alderson & Urquhart, 1984) which has shown a significant relationship between L2 vocabulary knowledge and L2 reading comprehension (Barnett, 1986; Koda, 1989). Although Brisbois’ (1995) study of L2 reading comprehension was carried out with adult ESL learners, she claimed that the “critical nature of vocabulary knowledge to L2 reading comprehension is apparent particularly at the beginning levels of language study” (p.581).

Anderson and Freebody (1979) explained that knowing the words allows for text comprehension, while not knowing them renders a reader unable to adequately proceed through the text. If children have to expend much of their cognitive capacity identifying unfamiliar words in the passage, less of their mental resources remains for building a model of meaning. Thus, limited vocabulary would indicate a limited ability to make the appropriate inferences while reading and to build appropriate models of meaning (Johnston, 1983). As Johnston (1983) and
Parry (1987) have pointed out, the lack of vocabulary knowledge and relevant background knowledge may subtly cause the reader to build a completely inappropriate model of text meaning without becoming aware of the problem. What results is not that inferences would not be made, but that inappropriate ones would be made.

**Listening Comprehension**

Hoover and Gough (1990) claimed that listening comprehension is the best measure of general linguistic comprehension. Likewise, Horowitz and Samuels (1987) have claimed that when students’ reading comprehension is assessed, the role of listening comprehension must also be examined in order to determine whether the reading problem is one of comprehension, decoding, or a combination of these. Apart from adequate decoding skills, if a child lacks the vocabulary to understand a passage of spoken language, he or she is unlikely to understand a similar passage of written language (Byrne & Fielding-Barnsley, 1995). Other researchers (Siegel, 1989; Stanovich 1989; Sticht & James, 1984) have suggested that listening comprehension assessment would be the best way to “establish discrepancies between the level at which students are reading, and the level at which they could ideally be reading” (from Carlisle & Felbinger, 1991, p.345). This is based on the “reasonable assumption that listening comprehension sets an upper bound for reading comprehension” (Byrne & Feilding-Barnsley, 1995, p.489). Thus, listening comprehension can be used as an estimate of reading potential. As Sticht (1979) posited, which is consistent with the simple view, reading potential is the level that the student may be able to achieve if their decoding and word recognition skills were improved (as cited in Carlisle & Felbinger, 1991).
The Relationship Between Listening and Reading

In the early years of schooling, L1 listening skills (termed "auding" to refer to process of listening to language and processing it for comprehension) are less predictive of reading skill than in the intermediate years of school (Just & Carpenter, 1987; Sticht & James, 1984). The relationship between the two increases with the amount of schooling (and presumably students' knowledge and literacy). Just and Carpenter (1987) outline that in the first grade, the correlation is .35; in second grade, it is .40, in grades four and above, it again increases to between .65 and .70, suggesting that once children have completed early reading instruction, their listening and reading skills are similar.

These findings are in line with the unitary view of comprehension which maintains that listening is the medium through which language comprehension initially develops (Carlisle & Felbinger, 1991). Sticht (1972) pointed out that children who are learning to read construct the meaning of the text by using their language comprehension skills. Thus when skillful decoding has ensued, reading and listening comprehension processing is the same, with the only difference being in the modality of delivery (as cited in Carlisle, 1991). Research carried out from this viewpoint often compares good and poor readers. According to Horowitz and Samuels (1985), many of these researchers have concluded that students with both listening and reading comprehension difficulties are likely to have general difficulties with language comprehension or overall cognitive functioning. In contrast, another view, termed the dual comprehension process, underscores the differences between the encoding of visual and auditory linguistic stimuli.

According to this view, the comprehension mechanisms function differently (Carlisle & Felbinger, 1991; Horowitz & Samuels, 1985). Graesser, Golding and Long (1996) have
explained that the change from oral to written language includes involvement, context, explicitness, error and feedback.

Danks and End (1987) have concluded through a literature review that listening and reading processes are both similar and distinct. They are the same by virtue of the fact that both are language comprehension processes that utilize the same set of strategies towards comprehension, yet they differ due to the extent of cognitive demands posed by the different mediums (p.291). First, the process of decoding results in different “organization and use of cognitive processes and strategies involved for constructing meaning”, than listening does (Carlisle & Felbinger, 1991). Those students who are poor at reading but not listening often have inefficient word-recognition processes (Adams, 1980; Perfetti & Hogobaum, 1975) which create a “bottleneck” in working memory. Second and perhaps especially important for L2 students, is the effect of missing “prosodic cues” in written text, which help a listener to access lexical, syntactic and semantic information (Adams, 1980; Schreiber, 1980). As the intonation, pitch, stress and pause of the spoken language signals are absent when reading, young readers must learn to compensate for the absence of these prosodic cues (Schreiber, 1980). Schreiber (1980) states that there is “clearly a mismatch between what is represented in the acoustic signal and what the graphic representation provides, or rather, fails to provide” (p. 181) and he strongly asserts that is it the ability to compensate for the absence of prosodic cues that enables a reader to achieve reading fluency.

Although the debate surrounding this reading/listening issue has not yet been resolved, what does remain clear is that for successful reading comprehension, students must possess adequate decoding and language comprehension skills. Further support for Hoover and Gough’s (1990) theory is derived from a comprehensive study conducted by Vellutino, Scanlon, Small and
Tanzman (1991), investigating poor and normal readers amongst a sample of older and younger students. The conclusion reached by the authors was that reading and listening comprehension draw upon equivalent cognitive and linguistic abilities in L1 students. Their findings indicate that the primary skills which account for the variance in reading comprehension differ for children with limited or advanced skill in oral reading. Vellutino, Scanlon, Small and Tanzman’s (1991) findings converge with Curtis’ (1980) results that for those children who were beginning readers or inadequate older readers, their reading comprehension depended largely upon their abilities in word recognition, while for advanced and adequate older readers, reading comprehension depended more upon their oral language comprehension abilities. Furthermore in the Vellutino, Scanlon, Small and Tanzman (1991) study, younger and less skilled readers had higher listening comprehension scores than reading comprehension, while older and more skilled readers’ performance was equal on both comprehension measures. Their findings are in accordance with Hoover and Gough’s (1990) assertion that once mastery is achieved in word decoding, reading ability largely depends upon their competence in text comprehension. Their findings also substantiate the claim that although word identification and comprehension processes are the two most robust predictors of reading comprehension, they carry differing weights of importance for beginning and more advanced readers (Sticht & James, 1984). Vellutino, Scanlon, Small and Tanzman (1991) conclude that oral and written language are “increasingly interactive and convergent systems” as children are essentially “recoding” an oral language they have already acquired (p. 126). Furthermore, they claim that word identification, listening and reading comprehension are all primarily language based skills and that the most important prerequisite for adequate facility in reading comprehension is adequate facility in word identification.
The above mentioned skills and abilities have all been independently identified to be important for reading comprehension, but they have not yet been assessed concurrently for L2 acquisition, nor for the comparison of L1 and L2 readers. By comparing reading and listening comprehension, the present study will determine the extent to which L1 and L2 readers differ from one another in their comprehension abilities, and will help to determine the impact of English proficiency upon these skills. Furthermore by examining if differences between L1 and L2 children exist regarding the weight of the subskills known to contribute to reading comprehension in L1, we can begin to delineate the "normal" trajectory for L2 students.

**Testing Comprehension**

Free recall assessment of comprehension in both listening and reading are often recommended in the literature (Bernhardt, 1991; Fuchs, Fuchs, & Maxwell, 1988; Horowitz & Samuels, 1985). Though answering free recall questions can place a heavy demand upon students' oral production skills, it is the most straightforward and sensitive assessment of the text-reader interaction (Bernhardt, 1991; Johnston, 1983). Support for the use of free recall in testing comprehension is based on the fact that text comprehension and recall are closely related. For what readers can understand from texts, they can also recall. There is general agreement that recall does reflect comprehension (Appel & Lantolf, 1994; Bernhardt, 1991). This is exemplified by a 1986 study that tested the validity of comprehension measures (Jenkins, Heliotis, Haynes & Beck, 1986, as cited in Fuchs, Fuchs & Maxwell, 1988), and showed that the free recall measures related comparably to the criterion-normed reading comprehension test.

It has been suggested that following free recall, additional information which the reader has stored in his or her memory can be accessed through probe questions (Johnston, 1983). Probe questions supply different information from the free recall procedure as they encourage further
processing of the stored information. Literal probes require the extraction of information which is explicit in the text, while inferential comprehension probes require readers to incorporate knowledge and experience in order to make sense of the text (Oakhill, Yuill & Parkin, 1986). Johnston (1983) claims that readers cannot be considered to have comprehended a passage if they can only give a rote recall of the elements of it. Only when logical connections have been established between the ideas in the text, can comprehension be demonstrated. Oakhill, Yuill and Parkin (1986) have claimed that the more inferences readers make, generally the more they comprehend. Of interest is Johnston’s (1983) statement that inferences which a good reader might make while reading may not be made by a poor reader until the probe itself suggests the value of making such an inference. For the above stated reasons, Johnston (1983) asserted that the best way to assess reading comprehension is to use two or three different types of measures, each based on a different assumption and with different sources of error.

The present study is of general significance because of the established fact that a child who reads poorly in the first grade is likely to continue to read poorly in subsequent grades (Stanovich, 1986). If hampered by poor decoding, the child is limited in what he or she is able to read, further limiting his or her decoding and vocabulary skills. This limitation is compounded through the child’s own frustration at not succeeding in reading. This ensuing downward reciprocal relationship has been dubbed the “Matthew effect” (Stanovich, 1986). As small differences in beginning readers compound into greater differences along their development (Stanovich, 1986), the early identification of young children at risk for reading disabilities is imperative. For this reason, it is important to establish how the decoding abilities and the increasing language proficiency of young L2 students merge to account for reading comprehension. As Horowitz and Samuels (1987) contend, without comparing and contrasting oral and written language — the acts
of listening and reading — it is virtually impossible to chart the development and acquisition of literacy.

The Present Study

The primary goal of this study is to begin to define the developmental trajectories of the subcomponents of reading comprehension in L2 first graders. This will effect the formation of a basis for establishing a norm, or point of comparison, for normal progress in English literacy. The theoretical framework informing this study is that the contributions of L2 linguistic comprehension ability and L2 decoding and word recognition skills foster the development of adequate reading comprehension.

Research Questions:

1. Will the L1 and L2 groups differ in their performance on predictor variables of reading comprehension?
2. Will there be L1-L2 differences in listening and reading comprehension rates at the end of grade one? Will these differences be global or will they depend on the nature of the comprehension questions (i.e., recall, factual, inferential)?
3. Are listening comprehension (i.e., language proficiency) and decoding skills equally important in explaining individual differences in reading comprehension scores in the L1 and L2 groups?

Predictions:

1) Just and Carpenter (1987) have asserted that individual differences in vocabulary primarily reflect exposure to language. If this is so, it is predicted that as the L2 students gain vocabulary knowledge across the school year, their comprehension processing skills will increase as well, a process which would be reflected both in their listening comprehension and reading comprehension scores. In fact, one may expect that the rate of growth from the Fall to the Spring
of the school year will be more pronounced in the L2 group. Nevertheless, the L1 group is expected to perform better on the listening comprehension measures due to their higher levels of English proficiency.

2) As most students, regardless of their language background, are beginning formal instruction in reading in the first grade, it is predicted that any differences between L1 and L2 students in decoding at the beginning of the year which could result from an unfamiliarity with the alphabetic system will disappear by the end of the year.

3) L2 students may have more difficulty than the L1 students on the free recall questions due to their lower L2 proficiency and the concomitant heavier demands on their working memory. I expected however, that by the end of the school year, the L2 students' comprehension abilities would improve, and that they would be able to correctly answer the same number of factual and inferential questions as the L1 group.
Chapter 2

METHOD

Sample

This study is part of a larger longitudinal research project (Geva, in press) undertaken to assess the general literacy development of ESL children in the primary grades as compared to native English speaking students. It was conducted in a suburban area of the large Metropolitan city of Toronto which has predominantly Punjabi and low-income students. According to the school board statistics, the Punjabi student population currently reaches approximately 46% in the area in which the research was carried out. The present study focuses solely on this population of L2 beginning readers, in accordance with Mattes and Omarck’s assertion (cited in Hamayan & Damico, 1984) that L2 students’ language performance should be compared with the performances of students that share common cultural and linguistic experiences. Focusing on only one L2 population also reduces the possible effects of differing cultural and linguistic variables on L2 performance that commonly arise among different populations of L2 learners.

Procedure

Information and consent letters were sent to the parents of all grade one children in four schools in the same school district. Based on the returned consent forms, there were 115 first grade children tested in the Fall of 1996, two months following their entry into grade one. From the pool of Punjabi students, only those children with at least 4 months’ experience in an English educational setting were included, ensuring minimum exposure to the English language in a school setting.

All children were tested in the Fall and Spring of the 1996/97 academic year to allow for the tracking of similarities and differences in the development of literacy skills over the school year.
At each time period, children were tested individually in a quiet room in their schools, on four to five separate occasions, in order to complete the battery of literacy and reading acquisition measures.

As the focus of the present study is on ascertaining the normative trajectory of reading comprehension, scores of 6 children (3 from each language group) were not included in the final analyses due to suspected reading disabilities. These 6 children displayed 0 growth rate on the decoding measures from the Fall to the Spring testing periods, yet their listening comprehension scores were within one standard deviation of the mean for each respective group. Another 5 children who moved to other districts in between the testing periods were also excluded from the data analysis. The final sample of 108 comprised 72 children (26 males; 34 females; mean age 77.21 months) whose first language was Punjabi (L2), and 36 children (14 males; 21 females; mean age 75.75 months) who were native English speakers (L1). The level of non-verbal intelligence of all participants was assessed by the Matrix Analogies Test (MAT) (Naglieri, 1985). When compared across the two groups the mean MAT score was 13.61 for the L1 group and 10.59 for the L2 group. A One-way ANOVA performed on the MAT IQ scores revealed no significant differences among the two groups ($F = 3.39, p = .07$), therefore any differences between the groups can reasonably be assumed to not be accounted for by IQ.

During the Fall testing period, children's listening comprehension was assessed. In the Spring testing period, both listening and reading comprehension were assessed at different times. Reading comprehension subtests were not administered in the Fall as it was assumed that the students would be unable to proceed through the texts at this early stage of their literacy development.
Several predictor measures utilized in the larger study pertain to the present study of listening and reading comprehension. These include oral proficiency measures of vocabulary, real and pseudo-word decoding, phonological processing measures, a measure of speed of lexical access, and a measure of nonverbal intelligence.

**Predictor Measures**

1) *Vocabulary* was measured through two tasks:

   a) The Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1981) is an age-related measure of receptive vocabulary, whereby the child has to choose which one of four pictures corresponds to a test word spoken aloud by the experimenter. There are 175 items on the test. When 6 out of 8 consecutive responses are incorrect, the task was discontinued. Each correct response received one point.

   b) The Expressive One Word Picture Vocabulary Test (EOWPVT) (Gardner, 1990) is a measure of expressive vocabulary whereby the child is asked to say the word which corresponds to the picture placed before him or her. This task has 100 items. This task was discontinued when 8 consecutive incorrect responses were given. Each correct response received one point.

2) *Phonological Processing* was measured through three tasks:

   a) Phoneme deletion-segmentation task (SEG) assessed the ability to reflect and manipulate the components of words. A modified version of the Rosner Auditory Analysis (RAN) test (Rosner & Simon, 1971) was used which contained 20 items. The child was asked to repeat a spoken word, and then to repeat it again without certain specified phonemic elements either at the beginning, ending or medial position of the words (e.g., "Say leg. Now say it without the /l/."). This task was discontinued when five consecutive incorrect responses were made. The maximum score was 20 with one point given for each correct response.
b) Rime recognition task (RIME) assessed the ability to match sounds at the beginning of words. Each trial had a target one-syllable word followed by three choices, and children had to choose the word that began with the same sound as the target word. Children were asked questions such as, “Which sounds like cop? Star, mop, or flash?” Children were given all trials, with each correct response receiving one point. The maximum score was 18.

c) Awareness of onset (first consonant or cluster) in one syllable words was measured with an odd-word task (ODD). All 18 items, e.g., “Which word is different from the other two? Vin, vip, bin?”, were asked with each correct response receiving a point, for a maximum of 18 points. On all three of these measures children received practice trials. Any incorrect response was countered by the experimenter with an explanation and the correct response. On the experimental trials, feedback as to the correctness of a response was not given.

3) Speed of Lexical Access was measured with the Rapid Automatized Naming (RAN) task (Denckla & Rudel, 1976). Children were presented with a card consisting of several rows and columns of 5 letters, each appearing 10 times in random order. Children had to name the letters as quickly as possible. The time (in seconds) to name all the letters on the card was recorded.

4) Word Decoding and Recognition

a) The word recognition subtest of the WRAT-R (Jastak & Wilkinson, 1984) was used to assess how many words the children could read in English. This subtest is made up of a list of 75 unrelated words. The short, high-frequency words at the beginning of the list gradually become longer and less frequent. The children continued reading the words on the page until 10 consecutive words were read incorrectly.

b) An experimental reading list (XRD) consisting of 16 high frequency words (e.g., cats, was) and words containing phonemes which are not present in the Punjabi language, e.g., /v/ in word
initial position, and soft /th/, (Bhatia, 1993) was developed. It was designed to further assess word recognition skills. Children were asked to read all the words on the list.

c) The Word Attack subtest of the Woodcock-Johnson (Woodcock, 1987) reading battery (WA) measures the ability to apply phonic and structural analysis skills in order to pronounce unfamiliar words. This test, which consists of 45 words, was discontinued when 6 consecutive responses were given. These three measures called for responses that were either correct or incorrect, with each correct response receiving one point.

4) Verbal Short Term Memory was measured with an auditory attention span task (AAS). Children listened to increasingly longer lists of unrelated highly frequent/familiar English words, which they were required to repeat orally. Each word recalled within a string received a point.

Standardized scores available for the standardized tests were not used in the analyses for two reasons. First, this is a developmental study and standardized scores are adjusted for age, thus, raw scores were more suitable to note development over time. Second, it would be inappropriate to use norms for tasks normed on L1 children for L2 children.

Dependent Measures

Comprehension

The Durrel Analysis of Reading Ability (1970) was used to comprise a series of short stories for both listening and reading comprehension. At each of the Fall and Spring testing sessions, the Listening Comprehension subtest consisted of three passages of increasing difficulty which were read aloud to the students. Both sets of passages utilized were of equivalent levels (according to Durrel, 1970). Each of the passages was followed by 6 questions consisting of 1 recall, 4 factual and 1 inferential question. In the Spring, the Reading Comprehension subtest was identical to the
Fall Listening Comprehension subtest. The passages and questions can be found in Appendix A. No assistance with or correction of decoding was provided to the children.

Prior to the administration of the comprehension tests, children were informed that they would hear (or read) some short stories. They were told to pay close attention to the stories as following each one they would be asked some questions. Each of the three stories was succeeded by the following recall question: “Tell me all you can remember about the story”. The free recall was followed by factual and inferential questions. All questions were asked and answered orally. The answers were tape recorded. No feedback was given to the children regarding the correctness of their responses.

The short answer comprehension questions required recall of information contained in idea units of thematic importance. Importance was determined by me and a group of graduate students also working on the larger project who had analyzed the stories. I drafted literal and inferential questions to the passages and gave them to a group of fellow graduate students to determine if they were of equal value across the stories. This method was chosen because, as Carlisle (1991) pointed out, there are few standardized, norm-referenced tests which compare listening and reading comprehension adequately.

**Scoring**

Children’s answers were transcribed and then scored by two native-English speaking raters who were blind to group membership. For the recall questions, the raters were required to determine the mapping between ideas in the recall and the idea units of the passage, and to give one point for each unit recalled. Answers were scored as correct if they matched or were paraphrases of the answer that I had provided during development of these tasks (as per Fuchs, Fuchs & Maxwell, 1988). There was an 85% agreement rate between the raters; however,
following discussion in regards to the answers which were not initially agreed upon, the raters were able to reach a full consensus on all protocols, and these resulting ratings were used for analyses. Each factual and inferential question was scored as correct or incorrect.

In the analyses, the dependent variables were defined as the total performance, based on the responses to the full set of questions, on either listening comprehension or reading comprehension. In all of the comprehension measures the scores were converted into percentages. In regression analyses, reading and listening comprehension alternate as the criterion and predictor variables for each analysis.
Chapter 3

ANALYSES AND RESULTS

Predictor Measures

This chapter outlines the similarities and differences between the L1 and L2 children on the predictor variables of reading comprehension, and on the listening and reading comprehension measures, across the grade one school year. The relationship between listening comprehension and reading comprehension for both language groups is also analyzed. As well, the predictors of reading comprehension are compared for the L1 and L2 children.

This section describes the results pertaining to the research question of whether the L1 and L2 groups differed in their performance on the predictor variables of reading comprehension. T-tests were conducted to examine whether any significant differences existed between the L1 and L2 groups. The t-tests results are displayed in Table 1 along with the different mean values of the predictor measures comparing the L1 and L2 groups, although they will not be individually reported below. A series of repeated measures Analysis of Variance (ANOVA) were also performed to examine the effects of language group (L1, L2) and time (Fall, Spring) on the various predictor measures.

Reported in Table 1 is the expected finding that in the Fall, on both the PPVT receptive vocabulary and the EOW expressive vocabulary measures, the L1 children displayed significantly more word knowledge than their L2 peers. In the Spring, the large and significant differences between the groups on the vocabulary measures remained. For both the receptive and expressive vocabulary tasks, ANOVA analyses revealed significant main effects for both time \( F(1,105) = 96.36, p < .001 \); \( F(1, 105) = 48.12, p < .001 \) respectively], and language group, \( F = 78.50, \)
Although no significant interaction was found for group by time \([F = 1.68; F = .01, p's > .05, \text{ respectively}]\). As both receptive and expressive vocabulary knowledge increased significantly, the advantage of L1 on vocabulary measures was maintained at the end of first grade.

Table 1
Means and Differences between Means of Fall and Spring Predictor Variables (Raw Scores) by Language Group

<table>
<thead>
<tr>
<th></th>
<th>L1*</th>
<th></th>
<th>L2b</th>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M diff</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT</td>
<td>FALL</td>
<td>70.31</td>
<td>14.21</td>
<td>43.06</td>
<td>16.2</td>
<td>27.26</td>
<td>8.49***</td>
<td></td>
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<tr>
<td>PPVT</td>
<td>SPRING</td>
<td>78.83</td>
<td>12.25</td>
<td>54.94</td>
<td>15.71</td>
<td>23.89</td>
<td>7.99***</td>
<td></td>
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<tr>
<td>EOW</td>
<td>FALL</td>
<td>48.83</td>
<td>12.74</td>
<td>29.27</td>
<td>11.83</td>
<td>19.57</td>
<td>7.88***</td>
<td></td>
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<tr>
<td>EOW</td>
<td>SPRING</td>
<td>54.92</td>
<td>12.57</td>
<td>35.32</td>
<td>14.08</td>
<td>19.60</td>
<td>7.06***</td>
<td></td>
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<tr>
<td>AAS</td>
<td>FALL</td>
<td>33.47</td>
<td>5.88</td>
<td>31.47</td>
<td>5.94</td>
<td>2.00</td>
<td>1.65***</td>
<td></td>
<td></td>
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<tr>
<td>AAS</td>
<td>SPRING</td>
<td>36.08</td>
<td>6.79</td>
<td>34.26</td>
<td>6.11</td>
<td>1.82</td>
<td>1.40***</td>
<td></td>
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<tr>
<td>RAN</td>
<td>FALL</td>
<td>47.26</td>
<td>18.98</td>
<td>45.90</td>
<td>15.87</td>
<td>1.36</td>
<td>0.39***</td>
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<tr>
<td>RAN</td>
<td>SPRING</td>
<td>36.44</td>
<td>11.53</td>
<td>34.44</td>
<td>9.20</td>
<td>2.00</td>
<td>0.98***</td>
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<tr>
<td>ODD</td>
<td>FALL</td>
<td>10.08</td>
<td>3.00</td>
<td>9.90</td>
<td>2.78</td>
<td>0.18</td>
<td>0.31***</td>
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<tr>
<td>ODD</td>
<td>SPRING</td>
<td>10.78</td>
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<td>11.04</td>
<td>3.08</td>
<td>-0.26</td>
<td>-0.39***</td>
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<td>RIME</td>
<td>FALL</td>
<td>8.36</td>
<td>2.84</td>
<td>7.18</td>
<td>2.34</td>
<td>1.18</td>
<td>2.28*</td>
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<td>RIME</td>
<td>SPRING</td>
<td>10.42</td>
<td>3.22</td>
<td>9.71</td>
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<td>0.71</td>
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<td>SEG</td>
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<td>0.44***</td>
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<td>SEG</td>
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<td>10.82</td>
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<td>-0.59</td>
<td>-0.69***</td>
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<td>WA</td>
<td>FALL</td>
<td>6.51</td>
<td>7.68</td>
<td>5.01</td>
<td>6.31</td>
<td>1.49</td>
<td>1.07***</td>
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<tr>
<td>WA</td>
<td>SPRING</td>
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<td>9.42</td>
<td>10.43</td>
<td>9.14</td>
<td>1.70</td>
<td>0.91***</td>
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<td>WRAT</td>
<td>FALL</td>
<td>4.78</td>
<td>3.96</td>
<td>3.67</td>
<td>3.10</td>
<td>1.11</td>
<td>1.60***</td>
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<td>WRAT</td>
<td>SPRING</td>
<td>7.89</td>
<td>4.46</td>
<td>7.78</td>
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<td>0.11</td>
<td>0.12***</td>
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<tr>
<td>XRD</td>
<td>FALL</td>
<td>4.78</td>
<td>4.79</td>
<td>3.40</td>
<td>4.38</td>
<td>1.38</td>
<td>1.49***</td>
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<tr>
<td>XRD</td>
<td>SPRING</td>
<td>10.39</td>
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<td>0.87</td>
<td>0.82***</td>
<td></td>
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</tr>
</tbody>
</table>

Note: PPVT = Peabody Picture Vocabulary Test  EOW = Expressive One Word Vocabulary Test

*n = 36  b n = 72

*p < .05  **p < .01  ***p < .001
On the Auditory Attention Span, there were no significant differences between the groups either in the Fall or Spring. ANOVAs revealed that there was a main effect for time \(F(1,106 = 15.02, p < .001)\), although there was not a main effect for language group \(F = 3.37, p = .07\), nor was there a significant interaction for group by time \(F = .02, p = .90\), indicating that both groups improved significantly their ability to hold unrelated words in their short term memory.

Similarly, on the RAN task, the groups did not differ significantly in terms of the average speed required to name all the letters in the Fall or the Spring. ANOVAs indicated that language group did not have a significant effect on the RAN, \(F(1,102) = .65, p = .42\), yet there was a main effect for time \(F = 89.55, p < .001\), as both the LI and L2 groups were able to name the letters more quickly in the Spring than in the Fall. There was no significant interaction for group by time \(F = .32, p = .57\).

For the phonological processing measures, results show that at the Fall and Spring testing periods, the performances of the L1 and L2 groups did not differ significantly on the oddity or segmentation tasks. Although in the Fall the L1 group performed significantly better on the rime matching task than the L2 group did, by the Spring, this difference was no longer significant. Although the differences are not statistically significant, it is interesting to see that by the Spring, the L2 group’s scores on both the oddity and the segmentation tasks began to exceed those of the L1 group’s, but with larger standard deviations, suggesting that this occurred particularly for some of the L2 children. ANOVAs indicated a main effect for time on these three phonological processing skills (oddity, rime matching and segmentation skills), \(F(1, 105) = 5.9, p < .05; F(1, 105) = 44.26, p < .001; F(1,105) = 70.40, p < .001\), respectively]. There was not, however, a main effect of language group for any of these three measures \(F = .02; F = 3.27; F = .02, p’s > .05\), respectively], nor were there any significant interactions for group by time.
Language status (L1 or L2) was not a significant factor in first graders' performance on these phonological processing tasks, except for the rime task at the initial point of testing.

As seen in Table 1, at both the Fall and Spring testing periods, there were no significant differences amongst the L1 and L2 children on the three decoding measures. Decoding skills in both groups improved significantly from the Fall to the Spring on pseudoword decoding (WA), and word recognition (WRAT and XRD). ANOVAs revealed that time had a significant effect on each of these measures \( F(1, 105) = 81.89, p < .001; F(1, 106) = 147.0, p < .001; F(1, 104) = 228.91, p < .001 \), respectively. However, once again, language group did not have a significant effect on decoding abilities \( F = .98; F = .65; F = 1.38, p's > .05, \) respectively] and there were no significant interactions for group by time \( F = .00; F = 2.82; F = .54, p's > .05, \) respectively]. These findings confirm the prediction of the present study and findings of previous L2 research (Geva & Siegel, 1995; Geva & Wade-Wooley, 1995; Hudelson, 1984; Koda, 1994), that the child's native language does not seem to affect the number of English pseudowords and real words that young school children are able to decode.

To summarize these findings, of all the predictor variables, language group had a main effect only on oral proficiency as measured through vocabulary knowledge. The L1 students knew more English words overall than the L2 students did.

**Comprehension Measures**

This section answers the research questions of whether there were L1-L2 differences in listening and reading comprehension scores, and whether these differences were global or dependent upon the nature of the questions asked. The means and standard deviations for the comprehension measures are displayed in Table 2.
Four children in the L1 group and 9 children in the L2 group were excluded from the analyses involving reading comprehension due to missing data as a result of administrative errors. Although these children read with great difficulty, they were able to read parsed pieces of the stories, yet despite the task administration protocol, they were not asked the comprehension questions.

Table 2
Means and Standard Deviations of Three Comprehension Measures by Language Group

<table>
<thead>
<tr>
<th></th>
<th>LC-F</th>
<th>LC-S</th>
<th>RC-S</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
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<tr>
<td>Total Comprehension Scores in Percentages (Of 39)</td>
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<tr>
<td>L1</td>
<td>35</td>
<td>53.33</td>
<td>13.35</td>
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<tr>
<td>L2</td>
<td>71</td>
<td>40.30</td>
<td>18.06</td>
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<tr>
<td>Free Recalls in Percentages (Of 26)</td>
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<tr>
<td>L1</td>
<td>35</td>
<td>43.74</td>
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<tr>
<td>L2</td>
<td>71</td>
<td>32.23</td>
<td>17.72</td>
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<tr>
<td>Factual Questions in Percentages (Of 9)</td>
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<td>35</td>
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<tr>
<td>L2</td>
<td>71</td>
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<td>Inferential Questions in Percentages (Of 3)</td>
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<td>L1</td>
<td>35</td>
<td>79.05</td>
<td>21.52</td>
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<tr>
<td>L2</td>
<td>71</td>
<td>62.91</td>
<td>31.65</td>
</tr>
</tbody>
</table>

Note. LC-F = Fall Listening Comprehension  LC-S = Spring Listening Comprehension  RC-F = Spring Reading Comprehension

For the following analyses, total scores on listening comprehension in the Fall, listening comprehension in the Spring, and reading comprehension in the Spring were converted into percentages. T-tests were conducted to determine whether any significant differences existed
between the groups, and to see the growth of each group’s listening comprehension scores across time. These were followed by repeated measures ANOVAs: listening comprehension scores in the Fall and Spring were analyzed in order to examine the effect of language group and time, while the scores of listening comprehension and reading comprehension in the Spring were analyzed to examine the effect of language group and modality of the comprehension conditions. Following these analyses, the total scores were broken down according to the type of question asked, in order to discern if group differences existed when the children were asked to recall the stories, or when factual or inferential information was addressed directly through the comprehension questions.

**Total Scores**

Children’s total scores were compiled by adding their scores on the free recall, factual and inferential questions. These scores, out of a possible 39, were converted into percentages. There was a main effect of language group \([F(1, 104) = 12.10, p < .001]\) on listening comprehension, with the L1 group achieving higher total scores than the L2 group in both the Fall and Spring. ANOVAs also revealed a main effect for time on listening comprehension \([F = 6.91, p = .01]\). For listening comprehension, the language group by time interaction effect was nearly significant \([F = 3.40, p = .068]\). T-tests illustrated that the L1 group did not display a significant increase in their total scores from Fall to Spring, \(t(34) = -.51, p = .61\), but the L2 group did, \(t(70) = -3.80, p < .001\). This suggests that by Spring, although the differences between groups remained statistically significant, L2 children were either comprehending more information from the stories and/or were better able to answer the questions, probably due to their increased English proficiency. This interaction may have reached statistical significance had the L1 group been comprised of a larger sample.
ANOVA revealed a significant main effect for language group \( F(1, 93) = 4.50, p < .05 \) on total comprehension scores across modalities in the Spring, favouring the L1 group. The ANOVA also revealed a significant modality (listening vs. reading) effect on total scores \( F = 4.82, p < .05 \), with total scores for both the L1 and L2 children being higher in the listening comprehension than reading comprehension condition. There was no significant interaction for group by modality \( F = .35, p = .56 \).

**Free Recall Questions**

For the free recall comprehension measures, all means reflect scores in percentages of a possible score out of 26. ANOVA on free recall measures revealed a significant language group effect for listening comprehension \( F(1, 103) = 8.09, p = .005 \); L1 children were able to recall more information than the L2 children both in the Fall and Spring. As shown in Table 2, the L1 and L2 groups improved their free recall in the listening comprehension condition from the Fall to the Spring. ANOVA confirmed that there was a significant effect of time on free recall ability, \( F(1, 103) = 27.53, p < .001 \). It is important to note that, as seen in Table 2, the difference between the means of the two groups was less pronounced in the Spring than in the Fall, suggesting that as the L2 group was gaining in proficiency, the gap between the scores of the two groups seems to have been gradually decreasing.

An ANOVA focusing on the Spring data with group and modality as the independent variables revealed that the language group effect was not significant in the Spring \( F(1, 92) = 1.88, p = .17 \), as the L2 group had improved substantially on their free recall abilities. As can be seen in Table 2, both the L1 group and the L2 group performed significantly better in the Spring on the recalls in the listening comprehension condition than in the reading comprehension condition. The ANOVA revealed a main effect for modality \( F = 20.48, p < .001 \) with listening
comprehension scores higher than reading comprehension scores in both language groups. There was no significant interaction for group by modality \((F = .35, p = .56)\).

**Factual Questions**

Nine factual questions were asked across the 3 stories within each modality. These were coded as percent correct (out of 9). On listening comprehension in the Fall and Spring, there was a significant language group effect \([F(1,104) = 14.77, p < .001]\); the L1 group answered more factual questions correctly than the L2 group did. However, as can be seen in Table 2, factual question scores did not change much from the Fall to the Spring on the listening comprehension measures with both language groups, though the L1 group’s scores declined slightly. The ANOVA confirmed that time did not have a significant effect \((F = .79, p = .38)\).

ANOVA's performed on the percentage of correctly answered factual questions in the Spring across modalities revealed a significant main effect for language group \([F(1, 91) = 5.60, p < .05]\) and significant modality effect \((F = 957.5, p < .001)\). L1 children were more successful in correctly answering factual questions than the L2 group. However, contrary to expectations, both the L1 children and L2 children were better able to correctly answer factual questions in the reading comprehension condition than in the listening comprehension condition. This unexpected result may indicate that the factual questions or the listening material may have been more difficult in the second listening comprehension condition than in the first listening comprehension condition (which also served as the reading comprehension condition).

**Inferential Questions**

There was one inferential question asked for each story, for a possible total score of 3 across the 3 stories (within each modality). On listening comprehension in the Fall and Spring, there was a significant language group effect \([F(1, 103) = 5.11, p < .05]\); the L1 group answered more
inferential questions correctly than the L2 group did. However, as seen in Table 2, both groups’ scores were much lower in the Spring than in the Fall. The significant time effect \((F = 178.42, p < .001)\) suggests once again that the inferential questions or the listening material may have been more difficult in the second listening comprehension condition than in the first listening comprehension condition. Another possibility may be that asking only one inferential question per story was not sufficient to adequately represent children’s inferential abilities. ANOVAs performed on the percentage of correctly answered inferential questions in the Spring across modalities revealed a significant main effect for language group \([F (1, 90) = 7.54, p < .005]\). In the Spring, the L1 group were still more successful in answering inferential questions correctly than the L2 group. However, due to the suggested differences in the level of difficulty of the inferential questions or comprehension material, the significant modality effect \((F = 44.80, p < .001)\) indicated that children in both language groups achieved higher scores in the reading comprehension condition than in the listening comprehension condition.

The Relationship Between Predictor and Comprehension Measures

A summary of the correlations among the three comprehension measures and the individual predictor measures (total raw scores) can be found in Appendix B. As the reader may recall, many of the skills (i.e., vocabulary knowledge, phonological processing, decoding) were assessed with a number of measures, therefore it was necessary to employ data reduction procedures to run proper regressional analyses. In addition, the high intercorrelations among the variables assessing each skill further indicated the need for conducting factor analyses. Results from the series of factor analyses provided strong support for the hypothesis that the individual groups of measures would all have high loadings on a given factor. Three factors were formed: vocabulary knowledge (VOCAB), consisting of the PPVT and EOW loadings, phonological processing
(PHON), consisting of the SEG, RIME and ODD loadings, and decoding (DECOD), consisting of the WA, WRAT, and XRD loadings. Separate factor scores were calculated for the Fall and Spring. The results of this series of factor analyses are summarized in Appendix C.

The newly formed factors were correlated with the three comprehension measures within each of the groups in order to determine the relationships among the predictors and comprehension measures in the Fall and Spring. Listening comprehension in the Fall is hereafter referred to as LC-F, listening comprehension in the Spring as LC-S, and reading comprehension in the Spring as RC-S. The correlations are displayed in Table 3.

Table 3
Intercorrelations Matrix of Comprehension and Predictor Factors in L1<sup>a</sup> and L2<sup>b</sup> Students

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<th>6.</th>
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Note.  F = Fall  S = Spring  RC = Reading Comprehension  LC = Listening Comprehension
<sup>a</sup>n = 32  <sup>b</sup>n = 63  <sup>a</sup>.05  <sup>b</sup>.01  <sup>c</sup>.001
The differences between the correlation coefficients in the two groups for the comprehension measures are notable. In particular, for the L1 group, the correlation between RC-S and LC-F is not significant, nor is the correlation between RC-S and LC-S. However, for the L2 group, positive and moderate correlations were found between RC-S and LC-F and between RC-S and LC-S.

For the L1 children, the amount of vocabulary knowledge they displayed in the Fall had little correlation with their reading comprehension scores six months later, although this relationship was already significant for the L2 children. In the Spring, vocabulary knowledge was significantly correlated with RC-S for both the L1 and L2 group.

For the L1 children, moderate and significant correlations were found between RC-S and phonological awareness in both the Fall and Spring. For the L2 group, there was also a moderate correlation between Fall phonological awareness and RC-S, and a strong relationship between Spring phonological awareness and RC-S. This finding suggests that the predictive role played by phonological awareness may be more important for the L2 group than the L1 group.

Strong correlations were found between Fall decoding and RC-S for both the L1 group and the L2 group. The strength of the correlations increased in the Spring for decoding and RC-S for both the L1 group and the L2 group. Notably, of all the predictor factors, decoding at both time periods had the most consistent pattern of correlations with RC-S for both language groups.

As would be expected, the correlation of LC-F with vocabulary knowledge in the Fall was significant for both the L1 group and the L2 group. For LC-S, the relationship with vocabulary knowledge in the Spring remained significant, albeit somewhat lower for both the L1 group and L2 group. For the L1 group, the correlations among phonological awareness at both the Fall and
Spring LC-F and LC-S were not significant. This pattern differs markedly for the L2 group, where positive and significant relationships were found among the phonological awareness and listening comprehension combinations. Phonological awareness and listening comprehension both tap into the skills of being able to process verbal information and keep it in working memory. Thus, the moderately predictive role of phonological processing skills in L2 listening comprehension suggests that these skills may play a more important role in explaining individual differences in listening comprehension for the L2 children because of their less developed L2 phonology, than for the L1 children.

Predictors of Reading Comprehension

For the purposes of this study, hierarchical regressions were run to see the extent to which skills in oral proficiency, as measured through listening comprehension, and decoding abilities (using the DECOD factor, i.e., combined from WA, WRAT, and XRD scores) would account for reading comprehension scores within each of the two language groups. Note that by entering listening comprehension scores first into the regression analyses, a conservative approach is adopted. That is, if listening comprehension would account for most of the variance on reading comprehension, one would expect that little additional variance would be accounted for by other variables. As seen in Table 4, in the first regression analysis, LC-F was entered on Step 1, and Spring Decoding entered on Step 2. For the L1 group, LC-F was not a significant predictor and did not account for any of the total variance in RC-S. In contrast, and notably, the Spring Decoding factor explained almost 70% of the variance in RC-S. However, for the L2 group, LC-F was a significant predictor explaining 13% of the variance, and Spring Decoding explained an additional 57% of the variance in RC-S.
Table 4

**Significant Predictors of Reading Comprehension for L1 and L2 Students**
*(Hierarchical Regression)*

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<th>ΔR²</th>
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<tr>
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<td>.71</td>
<td>.70</td>
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</table>

*Note.* LC-F = Total Fall Listening Comprehension
DECOD-S = Spring Decoding Factor (Word Attack, WRAT, Experimental Reading List)
*p < .005 ***p < .0001

Table 5

**Significant Predictors of Reading Comprehension for L1 and L2 Students**
*(Hierarchical Regression)*

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<th>F</th>
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*Note.* LC-S = Total Spring Listening Comprehension
DECOD-S = Spring Decoding Factor (Word Attack, WRAT, Experimental Reading List)
**p < .001 ***p < .0001
The next regression analysis, displayed in Table 5 was conducted with LC-S entered first, followed by the Spring Decoding factor. This regression examined the effects of comprehension and decoding skills at the same time period upon RC-S. For the L1 group, this regression yielded results almost identical to the first one. Once again, LC-S was not a significant predictor and did not account for any of the variance. The Decoding factor explained 69% of the variance in RC-S. That is, for the L1 children, listening comprehension at either time period carried no weight in explaining their RC-S scores. Rather, a substantial proportion of the variance is explained by the decoding factor. For the L2 group, LC-F, measured at the beginning of grade one, was already shown to be a significant predictor of the RC-S abilities at the end of that grade, explaining 13% of the variance. LC-S explained 22% of the variance in RC-S, which was almost 10% higher than LC-F accounted for. When the decoding factor was entered in the second step, an additional 50% of the variance on RC-S was explained. What is interesting to note is that with the passage of time, there was a slight decrease in the variability of scores of the L2 children, as there were fewer children answering none or very few of the comprehension questions. Thus, the importance of listening comprehension skills for the prediction of reading comprehension increased over time for the L2 children, and the importance of decoding skills lessened somewhat, probably because decoding on its own is less dependent on English proficiency.

The hierarchical regression analyses summarized the role of the two proposed primary variables that related to individual differences in reading comprehension according to the simple view. Indeed, they explained a large proportion of the variance (about 70 to 72%). In a second series of stepwise multiple regression analyses, I assessed the contributions of the other predictor variables to reading comprehension. The results of the Stepwise regressions are displayed in Tables 6 and 7.
As can be seen in Table 6, of all the Fall variables entered into the step-wise regression, only two emerged as significant predictors for the L1 group, explaining 61% the variance in reading comprehension, \( F(2,26) = 22.85, p < .0001 \): the Decoding factor explained 52% of the variance, while the speed of letter naming (RAN) explained an additional 9%. For L2 reading comprehension, the four predictor variables (Decoding factor, listening comprehension, speed of letter naming (RAN) and the Phonological factor) together explained 67% of the total variance for reading comprehension, \( F(4,56) = 31.74, p < .0001 \). When the model was complete, decoding accounted for 48% of the variance, listening comprehension added another 9%, speed of letter naming (RAN) an additional 8%, and phonological processing explained a further 2%. Factors which the computer analyses left out of the regressions for both groups were vocabulary knowledge and short term memory.

Table 6

Significant Fall Predictors of Reading Comprehension for L1 and L2 Students (Stepwise Multiple Regression)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>( R^2 )</th>
<th>Adj. ( R^2 )</th>
<th>( \Delta R^2 )</th>
<th>( F )</th>
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<td></td>
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<tr>
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<td>31.74</td>
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Note. DECOD = Decoding factor (Word Attack, WRAT, Experimental Reading List)  
LC-F = Total Fall Listening Comprehension  
PHON = Phonological Awareness factor (Oddity, Rime, Segmentation)  
*p < .0001 for all variables
Table 7

**Significant Spring Predictors of Reading Comprehension for L1 and L2 Students**
*(Stepwise Multiple Regression)*

<table>
<thead>
<tr>
<th>Variable</th>
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*Note.* DECOD = Decoding factor (Word Attack, WRAT, Experimental Reading List)

LC-F = Total Fall Listening Comprehension

PHON = Phonological Awareness factor (Oddity, Rime, Segmentation)

*p < .0001 for all variables*

A similar pattern emerged when Spring predictor variables were entered into the stepwise regression analyses, although the total variance explained for both groups was augmented due to the increased weight of the decoding factor. As seen in Table 7, for the L1 group, 71% of the total variance for reading comprehension was explained, \( F(2, 29) = 39.00, p < .0001 \). The decoding factor explained 67% of the variance, and speed of letter naming added an additional 4%. For L2 readers, 81% of the total variance in reading comprehension was explained, \( F(4, 58) = 66.55, p < .0001 \). The same variables which were significant predictors in the Fall were again significant in the Spring, although the ordering of the Spring variables within the analysis was slightly altered. Decoding accounted for 66% of the variance, with phonological awareness explaining a further 8%. Spring listening comprehension added an additional 4%, and finally speed of letter naming an additional 3%. This finding indicates that for these L2 students, oral proficiency, as measured through listening comprehension might be interconnected with other
factors such as their phonological processing and speed of letter naming in reading comprehension performance.

It was surprising that the computer analyses did not deem vocabulary knowledge an important predictor variable for reading comprehension. Perhaps this was due to the global effect of listening comprehension, which incorporates various aspects of language proficiency, including vocabulary knowledge. To test this, an additional stepwise regression analysis was carried out with listening comprehension as the criterion variable. Results indicated that for Fall listening comprehension, Fall VOCAB explained 29% of the variance in listening comprehension for L1 students, $F(1, 32) = 14.56, p < .001$, and 37% of the variance for L2 students, $F(1, 69) = 41.78, p < .001$). When Spring listening comprehension served as the criterion variable in stepwise multiple regressions, Fall listening comprehension was a significant predictor for both groups, although vocabulary was not, indicating that the types of vocabulary knowledge I had assessed indeed may be embedded within the listening comprehension measure. For the L1 group, LC-F was the only significant predictor which explained 17% of the variance in LC-S, $F(1, 28) = 7.94, p < .05$. For the L2 group, LC-F explained 34% of the variance, and RC-S added a further 7%. Together these two variables explained 41% of the variance in LC-S for the L2 group, $F(2, 60) = 22.88, p < .001$).
Chapter 4

DISCUSSION

The primary focus of this study was on the effects of language proficiency on the relationship between listening and reading comprehension scores of young school children who were either native speakers of English or L2 learners of English with a Punjabi background. The effects of language proficiency on children’s performance on various linguistic and cognitive tasks often associated with reading performance (i.e., vocabulary knowledge, listening comprehension, decoding, short term memory, speed of letter naming, phonological processing skills) were also examined in the Fall and Spring of grade one. Certain L1-L2 differences emerged but did not appear across all measures. As might be expected, there were L1-L2 differences on vocabulary knowledge as well as listening comprehension. This underscores the fact that at the outset of this study, the L2 children differed from their L1 peers only in their English oral proficiency. Furthermore, these differences continued to exist across the school year.

In the Spring, the L2 children’s total listening comprehension scores continued to lag behind those of the L1 children. However, the gap between the two groups on total listening comprehension scores diminished considerably by the end of the year. It is notable, that, as predicted, across the school year the L2 group improved in their vocabulary and listening comprehension skills. In other words, the L2 children displayed a significant improvement in their listening comprehension from Fall to Spring. On the measures used in this study, no such improvement was evident for the L1 group. It is interesting to note that from the scores for the L1 group on the listening comprehension measures administered in the Fall and Spring, it is clear that the range remained identical (28% to 82%). Presumably, because these L1 children had listened to the English language from birth, it is not surprising that their abilities did not increase
dramatically over the relatively short time span of the present research. For the L2 children, the listening comprehension scores in the Fall ranged from 0% to 74%, while in the Spring, the range of their scores increased to a range from 8% to 82%. This reflects a significant shift for the L2 children, who presumably were gradually becoming more accustomed to and proficient in the English language.

It was of interest to note that a few months after formal literacy instruction was introduced in their classes, there were no differences between the two groups on decoding skills involving real word and pseudoword reading, suggesting that L2 does not have a "blanket" effect on the reading performance of young L2 learners. That is, in spite of clear and strong indications of L1-L2 differences in oral proficiency, these beginning L2 readers did not differ from their L1 counterparts on phonological processing skills, nor on short term memory ability and speed of letter naming.

In the L1 literature, it is customary to find that for young readers, listening comprehension scores are higher than reading comprehension scores. It was therefore of interest to discover whether this pattern was consistent with these young L2 readers. When listening and reading comprehension processes in the Spring were compared, the language group of the child had a significant effect on total scores with the L1 students achieving higher scores than the L2 children. As well, the L1 and L2 children alike achieved higher listening comprehension scores than reading comprehension scores in the Spring. In this study, the pattern noted for L1 was essentially the same for L2 learners, as both groups achieved higher scores when they did not have the added cognitive demands associated with word recognition and decoding.

Johnston (1983) has argued that by combining a variety of comprehension measures, one can gain a clearer picture of what and how a reader comprehends. In line with this contention, the
present thesis examined whether language group and time effects were general or dependent upon the type of comprehension question presented. In particular, the research question asked was whether the L1 and L2 children would differ on their abilities to answer free recall, factual and inferential questions. On the comprehension measures, L2 readers were expected to have difficulty with the free recall question because of their lower oral proficiency and the subsequent higher demands the question placed on their working memory. Although the L1 students were able to recall more information than their L2 counterparts in the listening comprehension conditions, the differences between the groups lessened considerably over time. However, when free recall ability in listening and reading comprehension was compared in the Spring, language group no longer had a significant effect on the children’s recall abilities. Thus by the Spring, the L2 children had acquired sufficient L2 oral proficiency to enable them to recall approximately the same amount of information as the L1 children.

For the factual and inferential questions, regardless of modality and time, the L1 group maintained its advantage over the L2 group. By the Spring, the groups were equally adept at understanding and recalling the gist of the stories, but the L2 group was less successful than the L1 group in grasping and recalling details in the stories and making the appropriate inferences. It appears that the L1-L2 differences in terms of total comprehension scores in the Spring were affected mainly by differences in ability to answer factual and inferential questions, but not by differences in the free recall of the stories.

One of the research questions motivating this study was to investigate the claim that reading comprehension is built upon the ability to comprehend oral language plus decoding skills. Specifically, I wanted to examine its validity with young L2 learners. However, the hierarchical regression analyses did not confirm the role of listening comprehension for the L1 students,
although they obviously had the oral language skills necessary to understand the passages they heard and read. In fact, the L1 children’s listening comprehension scores and vocabulary knowledge factor scores at either time period did not explain any of the variance in their reading comprehension (in spite of moderate and significant correlations between vocabulary measures and reading comprehension). Instead, decoding skills accounted for 70% of the variance. The present finding can be explained by reference to Curtis (1980), Vellutino, Scanlon, Small and Tanzman (1991) and Sticht and James (1984), who maintain that word identification and comprehension processes are weighted differently as determinants of reading ability in beginning and advanced readers. The above mentioned L1 researchers have all reported that reading comprehension is determined primarily by word identification and decoding processes in children at early stages of reading skills acquisition. Comprehension skills usually explain variance in reading comprehension only in older students who are decoding with automaticity. In that respect, then the results pertaining to the L1 group provide a verification of findings in other L1 research.

Nonetheless, even listening comprehension in the Fall was a significant predictor of L2 children’s reading comprehension in the Spring, explaining 13% of the variance. Furthermore, listening comprehension scores in the Spring explained even a higher proportion of the variance (22%) on reading comprehension scores in the Spring. When decoding skills were added, 70 to 72% of the total variance in reading comprehension was accounted for in the Fall and Spring, respectively. These findings are in line with the contention of several L2 researchers (Bernhardt, 1991; Hoover & Gough, 1990; Johnston, 1983), that for L2 students, listening comprehension and word recognition are both important determinants of early reading comprehension.
That the patterns observed for L1 and L2 students were not identical is interesting. It can be understood by considering the level of language utilized in young students' reading materials. The language often consists of high frequency, short words which are not taxing to the L1 student's linguistic comprehension. However, even these high frequency words and simple grammatical structures may be new to the L2 student. Repeatedly, Horowitz and Samuels (1985, 1987) have pointed out that when trying to understand a foreign language, much attention is used trying to identify unfamiliar or partially familiar words and phrases. As a result, the message and meaning may only be partially comprehended, and so individual differences in language proficiency appear to be an important condition of comprehension for beginning L2 readers.

Stepwise multiple regressions also provide evidence for different emphases being associated with various components in reading comprehension among L1 and L2 students. For the L1 children here, of all the Spring variables, decoding and speed of letter naming were the only significant predictors selected, explaining 71% of the variance of reading comprehension performance. This represents an increase of only 2% of the overall variance explained from the hierarchical regression where decoding on its own explained 69% of the variance. However, additional predictors played a role in explaining L2 reading comprehension: decoding skills accounted for a large proportion of the variance, explaining 66%, but phonological processing skills added a further 8%. Listening comprehension scores explained an additional 4% of the variance, and speed of letter naming added another 3%. Together these four predictors accounted for 81% of the L2 children's reading comprehension scores. That is, contrary to the simple view theory, for the L2 children, other factors contributed to the variance in their reading comprehension above and beyond listening comprehension and decoding.
What is critical to note is that for these L2 children, oral proficiency was not the primary predictor of their reading comprehension ability. Chitiri, Sun, Willows and Taylor (1992) and Durgunoglu, Nagy and Hancin-Bhatt (1993) cautioned against using L2 oral language proficiency to predict reading performance. Their cautions appear to be supported by the present results. The present study extends this conclusion particularly to reading comprehension. It appears that predictions of L2 reading comprehension would be relatively inaccurate if one were to rely solely on listening comprehension indices. Instead, a better picture of what drives reading comprehension in young L2 learners can be achieved by considering, along with listening comprehension, factors such as decoding skills, phonological processing skills and speed of letter naming.

In fact, the results of this thesis indicate that the single best predictor, explaining a significant and substantial amount of variance in reading comprehension performance for both the L1 and L2 students, was decoding skills that involve integrating knowledge about English phonology and orthography. This finding concurs with other research (Chall, 1983; Juel, 1991; Stanovich, 1991) that for beginning L1 readers, reading comprehension depends crucially upon skills at the word-level. The present results extend this conclusion to include L2 beginning readers. For the present L2 sample, decoding skills contributed substantially to reading comprehension on top of the variance explained by more general language skills. This finding has direct educational implications, suggesting that in addition to developing students’ oral language skills, teachers should stress the importance of developing strong decoding skills for all their grade 1 students, irrespective of their language backgrounds. In addition, by developing good word recognition skills, L2 learners may also benefit from vocabulary learning through extensive text reading (Stanovich, 1998). The L2 students’ proficiency in English, measured in this study through both
vocabulary acquisition and listening comprehension, increased dramatically over the school year. It appears to only be a matter of time before the L2 children might catch up with their L1 peers. However, it can not be forgotten that these L2 students were not identical to their L2 peers. Although they may have been able to decode words at the same level, by the end of the school year, there were still differences in their listening comprehension abilities and especially in their vocabulary knowledge.

Limitations

A short discussion of some of the caveats of this study is in order. First, in terms of research design, the ordering of the stories presented for comprehension was not varied in spite of possible ordering or learning effects. In fact, many students' listening comprehension scores increased from the first to the second story, although the second story seems to have been more complex. However, as a learning effect, or “test-wiseness”, may have been apparent in all the comprehension batteries, I decided to proceed from the more simple to the more difficult stories. For example, in Oakhill, Yuill and Parkin's study (1986), participants quickly learned that their recall for passages was to be tested. Thus, had the most difficult story been given first in this study, it would not have been possible to know if any performance effects were due to being unfamiliar with the task or the inherent complexity of the passage.

A second methodological concern arose regarding the factual and inferential questions used for the different comprehension measures. Both groups were able to correctly answer more factual and inferential questions on the first listening comprehension measure (and reading comprehension measure) than on the second listening comprehension measure, which involved different stories. Although attempts to ensure that the stories across the two listening comprehension conditions were comparable by using a widely used published test, it appears that
the stories and/or questions in the Spring listening comprehension condition were more complex than those administered in the Fall. It may be that drafting comparable comprehension questions for different stories is a more difficult task than it seems. However, the dearth of standardized measures containing passages rather than unrelated sentences for young students, often leaves researchers with no choice but to draft questions themselves. Nonetheless, initial validation studies of these tasks would, in hindsight, have been helpful to assure their comparability or equivalence.

Third, Johnston (1983) has claimed that reading comprehension assessment has an inherent major cultural bias because cultural differences in background knowledge can cause students to make different assumptions. This factor must be taken into consideration for although the stories utilized in this study were matched according to the same level of difficulty for L1 students, it can not be assumed that they are appropriate or equivalent in terms of content to the L2 students. Although it was beyond the scope of this study, an assessment of background knowledge regarding the information in the passages might have helped to resolve this issue.

Fourth, many L2 researchers have stressed the importance of testing children in their native language as well as the target language, in order to assess the level of proficiency in the L1 and the degree of transfer between languages (Durgunoglu, Nagy & Hancin-Bhatt, 1993; Hamayan & Damico, 1984). However, in this study, as in many school boards, the lack of assessors who speak the same language as the children, combined with limited funding and limited instruments, has rendered testing in the L1 virtually unfeasible. Nevertheless, attempts were made to ensure that specific aspects of English phonology where Punjabi children may have difficulty were investigated (e.g., by including English phonemes absent in the Punjabi language on phonological awareness tasks and on the experimental reading list). As well, although the L1-L2 transfer of
reading skills is an important aspect of L2 research, the present study focused on grade one students who were just beginning formal reading instruction in the L2 without having developed L1 reading skills. Therefore the transfer of decoding skills from L1 to L2 was not a relevant or major factor related to the main research questions here.

Although this study has established a baseline for one group of Punjabi students’ prerequisite skills for reading comprehension in the first grade, it would be beneficial to replicate and extend this study with other Punjabi students and students of diverse language backgrounds to assess the applicability of these findings to other populations. The present L2 sample, was, of course, not representative of other L2 learners of English with different L1 backgrounds, so the present findings are restricted in their generalizability. Moreover, as Gibson (1988) noted, Punjabi students may be more successful than other L2 populations in school, a point which may further limit the generalizability of these results. As well, future studies should include longitudinal designs which allow for longer developmental trajectories.

Conclusions

By establishing a normative curve of growth in L2 reading development, it will be easier for teachers to correctly identify those L2 children who are not proceeding at the same rate as their cohorts. For instance, this study has shown that L1-L2 differences were evident only for the oral proficiency measures of vocabulary knowledge and listening comprehension (this finding is supported by the recent research of Geva, Wade-Wooley, Mack, & Sidhu, 1997). However, as the L2 group demonstrated swift progress on these indices, a lack of improvement across the school year may indicate potential difficulties, especially at grade one. Likewise, substantial differences in the decoding skills of individual L2 students compared with their L1 counterparts by the Spring of grade one could indicate the possibility of being at-risk for reading difficulties. Finally, although
the present L1 students were more successful than the L2 students on both listening and reading comprehension at the end of the school year, these differences were mainly revealed when they were asked about the details of the stories. Results from this study indicate that L1 and L2 children should be able to recall approximately the same amount of information from stories they hear and read. By becoming aware of these “red flag” indicators, we can attempt to ensure that the students who are in need of special assistance can be identified earlier, so that they can begin to receive such help at the outset. Only by early identification can we help to offset the numbers of L2 children in our school system who end up in the spiraling downward cycle because of small differences in their grade one reading skills.
REFERENCES


APPENDIX A
Stories and Questions Used for
Fall Listening Comprehension and Spring Reading Comprehension

1. My Cat

I have a big white cat. She drinks milk. She sleeps in a chair. She does not like to get wet.

1. Tell me everything you can remember about the story.

2. What animal is the story about?

3. Where does the cat sleep?

4. Is it a girl cat or a boy cat?

5. What do you think would happen if the cat got wet?

2. The Dog

A little brown dog ran away from home. He played with two big dogs. They ran away from him. It began to rain. He went under a tree. He wanted to go home but he did not know the way. He saw a girl he knew. The girl took him home.

1. Tell me everything you can remember about the story.

2. What animal is the story about?

3. Who did the dog play with after he ran away?

4. What did the girl do for the dog?

5. How did the dog feel when he did not know how to get home?
3. Summer Fun

In the summer we have fun with Mrs. Green's garden hose. On hot days we put on shorts or bathing suits. Then Mrs. Green turn the hose on us. Sometimes she lets one of us hold the hose. But we have to be careful not to let the water splash around. Once we let it splash on a man going by, and he was angry. After that we were more careful with the hose.

1. Tell me everything you can remember about the story.
2. Why do the children like going to Mrs. Green's house?
3. What does Mrs. Green let them do sometimes?
4. Why does Mrs. Green let them play with the hose?
5. Why do the children have to be more careful with the hose?
6. If the children are not more careful with the hose, what can Mrs. Green do?

Stories and Questions Used for Spring Listening Comprehension

1. My Playhouse

I have a playhouse. I made it out of a box. I put a big flag on top. The flag is green.

1. Tell me everything you can remember about the story.
2. What is the story about?
3. What is the playhouse made of?
4. What is on top of the playhouse?
5. Why put a flag on top of the playhouse?
2. **The Hen**

A hen had six yellow chicks. One morning she took them for a walk. They looked for something to eat. They found some seeds and sand. A dog came to play with them. The hen did not like the dog. She flew at the dog and made him run away.

1. Tell me everything you remember about the story.
2. How many chicks are there?
3. What were the hen and chicks looking for?
4. Who came to play with them?
5. Why did the hen not like the dog?

3. **Waiting**

Two children got off the bus. There was nobody at the bus stop to meet them. So they sat down to wait. A few minutes later an old blue car came around the corner. The children's mother was in it. She got out and said she was late because she couldn't get the car started and she had to fix it. They all go into the car and drove home.

1. Tell me everything you can remember about the story.
2. How long did the children wait?
3. How did the mother feel in this story?
4. Why was the mother late?
5. Why was it a good idea for the children to sit down?
Table 1

Intercorrelations Matrix of Comprehension and Vocabulary Indices for L1* and L2* Students

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\*n = 32  \*n = 63

Note. L1: Correlations above .40 are significant at p < .05. Correlations above .43 are significant at p < .01. Correlations above .57 are significant at p < .001.

L2: Correlations above .37 are significant at p < .01. Correlations above .41 are significant at p < .001.

F = Fall  S = Spring  RC = Reading Comprehension  LC = Listening Comprehension
Table 2

Intercorrelations Matrix of Comprehension and Decoding Indices for L1* and L2** students

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<td>3. LC-S</td>
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<td>6. WRAT-F</td>
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*a = 32  b = 63

Note. L1: Correlations above .40 are significant at p < .05. Correlations above .43 are significant at p < .01. Correlations above .57 are significant at p < .001.

L2: Correlations above .28 are significant at p < .05. Correlations above .31 are significant at p < .01. Correlations above .41 are significant at p < .001.

F = Fall     S = Spring     RC = Reading Comprehension     LC = Listening Comprehension
Table 3

Intercorrelations Matrix of Comprehension and Phonological Indices for L1 and L2 students

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<td>.69</td>
<td>.69</td>
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<td>-.13</td>
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<td>-.04</td>
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n = 32  n = 63

Note. L1: Correlations above .33 are significant at p < .05. Correlations above .43 are significant at p < .01. Correlations above .54 are significant at p < .001.

L2: Correlations above .22 are significant at p < .05. Correlations above .33 are significant at p < .01. Correlations above .40 are significant at p < .001.

F = Fall  S = Spring  RC = Reading Comprehension  LC = Listening Comprehension
Table 4

Intercorrelations Matrix of Comprehension and other Predictor Indices for L1^a and L2^b Students

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<th>6.</th>
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^a n = 32  ^b n = 63

Note. L1: Correlations above .33 are significant at p < .05. Correlations above .42 are significant at p < .01. Correlations above .54 are significant at p < .001.

L2: Correlations above .22 are significant at p < .05. Correlations above .30 are significant at p < .01. Correlations above .42 are significant at p < .001.

F = Fall  S = Spring  RC = Reading Comprehension  LC = Listening Comprehension
APPENDIX C

Factor Loadings

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IMAGE EVALUATION
TEST TARGET (QA-3)

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