PROMOTING READING SKILLS OF YOUNG ADULT EAL LEARNERS THROUGH VOICE RECOGNITION SOFTWARE

by

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Abstract

The growing international student population in post-secondary institutions in Canada calls for Academic Exchange Programs (AEPs) to focus on promoting reading skills of English as an Additional Language (EAL) students in order to help them read academic and non-academic texts more proficiently. The current study, conducted at a major western Canadian university, investigated the effectiveness of a computer-based software program called the Reading Tutor (RT) in enhancing the reading performance of EAL young adults.

A survey determined the reading preferences of participants and reading materials related to news articles were incorporated into the software. Two experimental groups, one (n=16) that self-reported a preference and the other that self-reported a non-preference (n=12) for such reading materials used the software over a period of eight weeks. A control group (n=14) served as a comparison.

Results showed that a preference for reading materials positively influenced the non-transfer and transfer of reading fluency skills for non-academic reading materials in a computer-based environment. These skills also transferred to academic texts. However, the gain in reading fluency did not result in gains in comprehension. There was also a positive gain in how students self-assessed their ability to read in English in both of the experimental groups when compared to the control group.

The survey also probed reading habits and found that students were in concentric domains of ESL and EFL, spending a majority of their time mainly reading in English for academic purposes. Reading for pleasure in English was only a small
part of the students’ reading repertoire. The model of Concentric Domains of Instructional Environments (CDIE) stemming from these results suggests that AEPs, such as the one in the current study, may benefit from reading programs that incorporate extensive reading of non-academic reading materials.

There appears to be a small number of studies investigating the effectiveness of computer-based literacy tools in promoting reading skills, among university EAL learners. This study makes a unique and valuable contribution to the understanding of such tools in promoting reading skills with student-preferred materials. In addition, the study adds to the understanding of reading habits of Japanese students in AEPs.
Preface

This study was reviewed by the UBC Behavioral Research Ethics Board and an ethics certificate (ref: H08-02092) was obtained to carry out the research.
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Dedication

To my family: Dad and Mom for emphasizing the value of education and my sisters Violet, Maureen, Pam and Rachel, brothers Nelson, Desmond and Steven for their constant support.
Chapter 1: Introduction

This introductory chapter presents the background, rationale and the purpose of the study. Sections of this chapter also include the research questions and significance of the study.

1.1 Introduction

Youth and young adults\(^1\) face the multiple tasks of reading and writing in a world that appears to require increasing and unprecedented levels of interactions with texts of various kinds in various modes. The term “high literacy” is used by some researchers to describe the skills adolescents need which are beyond basic literacy skills and include the understanding and application of how “reading, writing, language, content and social appropriateness work together” (Langer, 2001, p. 367). Young adults spend much of their time in and out of school reading and making meaning from texts. Reading fluency and comprehension play a critical role in their academic lives. In addition, with a growing number of English as an Additional Language (EAL)\(^2\) learners in secondary and post-secondary institutions in North America, promoting reading skills among EAL learners who appear to be at a risk of not acquiring such skills is a vital issue for educators (Slavin & Cheung, 2003).

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\(^1\) A Statistics Canada report (Matarazzo, 2006) describes the group ages 12-21 as youth and young adults in line with how the Canadian law defines this group. The author borrows this definition and presumes that the group that is the focus of this study, ages 19-21, would qualify as young adults. As there is no clear indication of the age at which a youth transitions to young adult, the definition of the Learning Disabilities Association of Canada (PACFOLD, 2007) for young adults, namely 16-21, will be assumed.

\(^2\) EAL is a term that is used in place of ESL (English as a Second Language), ELL (English Language Learners), and the derivative term TESOL (Teachers of English to Speakers of Other Languages). For a discussion and clarification of the terminology refer to section 2.1 of this document.
The value of computer-based literacy software tools in promoting reading skills in and out of classrooms is gaining increased attention. Researchers believe that the future of literacy learning “undoubtedly involves software and Internet technologies” (Coiro, Karchmer, & Walpole, 2006, p. 27). Computer assisted reading instruction offers the potential to assist students to become engaged (Singhal, 1998), and fluent (Hasselbring & Goin, 2004) readers. Computer-based reading tools are emerging as stable supplements to classroom instruction for students of different ages. Reading tools employing interactive computerized speech capabilities are also receiving growing attention (Ruffino, 2006).

This study explored the use of a computer-based Reading Tutor (RT) in promoting reading skills in EAL young adults at an International Academic Exchange Program (AEP) in a university setting.

1.2 Background and Rationale

There is an increasing ethnic and cultural diversity in the youth and young adult population in the classrooms of North America. For instance, in Canadian schools, particularly in urban areas such as Vancouver, over 50% of students have a home language other than English (Gunderson & Clark, 1998; Steffenhagen, 2007). The Association of Universities and Colleges of Canada (AUCC) also report on strong growth in international and immigrant students in Canada (AUCC, 2007). Enrolment in Canadian universities was reported to be at record high during the 2005-2006 academic year with young adults, aged 18-24, representing 64% of that enrolment and foreign students accounting for 15% of the growth in overall
enrolment (Statistics Canada, 2008). As a result of this growing diversity of students, an increasing number of Canadian youth and young adults find themselves in environments in and out of school where they are reading in a language other than their home or first language (L1).

Results of the most recent Adult Literacy and Life Skills (ALL) survey conducted by Statistics Canada revealed that literacy scores of young adults, ages 16 to 25, appear to have declined between 1994 and 2003 (Murray, Owen, & McGaw, 2005; Statistics Canada, 2005). In addition, “Lack of adequate literacy skills inhibits academic progress” in Canadian adolescents (Literacy BC, 2007). University level academic ESL or EFL students also appear to be hindered due to lack of proficient reading skills that limit their access to academic and non-academic texts (Gunderson, 2009).

With growing student diversity and international student mobility, educators and administrators in institutions such as the University of British Columbia (UBC) for instance, who are embracing plans of “new internationalism” -- promotion of international student exchange programs (Toope, 2008) -- should be concerned with issues related to reading instruction for EAL young adults and consider ways to promote the reading skills of such students in order to help them read academic and non-academic texts more proficiently.

This study was conducted in a western Canadian university with young adult international Japanese students (ranging in ages from 19 to 21) in an AEP. These groups of students (approximately 100) who are on an 8-month program during the fall and winter terms enroll for half of their program in language-across- the-
curriculum courses together with a variety of mainstream academic courses in the liberal arts. The course topics range from Canadian culture to academic writing. English reading skills are vital to their academic success in the program.

1.3 Statement of the Problem

Reading instruction through school years has traditionally focused on learning to read in early grades versus reading to learn in later grades including post-secondary classrooms. Among other reading skills and strategies, reading fluency and comprehension skills are formally taught in early grades. For instance, Integrated Resource Packages (IRPs) by the Ministry of Education of British Columbia lists reading with fluency and comprehension as an instructional goal in grade 2 (BCED, 2006b). Reading skills such as fluency or comprehension are however vital and relevant to students at any age. Lack of proficiency in these skills has been shown to hamper reading growth and overall achievement in higher grades (Kamil, 2003). Reading fluency appears to be an issue that concerns reading educators even in middle and secondary schools (Rasinski, et al., 2005). Lack of fluency in reading is also a challenge that young adult English as an Additional Language (EAL) learners face in secondary and post secondary institutions (Fraser, 2007). Non-EAL students appear to outperform EAL students in reading achievement tests (Edudata Canada, 2002). An increasing number of young adult EAL learners appear to be at risk of not acquiring literacy skills. In addition, Kitao & Kitao (1986, 1995) believe that Japanese college students may have challenges in
reading English. Reading fluency and comprehension skills may play an important role in their academic lives.

Readers’ interests and preferences of reading materials appear to be a contributing factor in keeping readers engaged in reading. Researchers believe that providing youth with easy access to reading materials that match their preferences may promote voluntary reading (Worthy, Moorman, & Turner, 1999). A majority of teens, for instance, who participated in the “2005 Teen Read Week Survey” agreed or strongly agreed that they read about topics they are passionate about (Swenor, 2006). Providing young adults access to reading materials that match their preferences may improve their reading skills and in turn positively influence their academic achievement.

Proficient reading skills are crucial to academic success in higher educational contexts. Given that English reading skills may be a challenge for Japanese college students such as those in the AEP program where the current study was conducted, it is important for institutions with such students to be engaged in understanding how to promote students’ English reading skills.

1.4 Statement of the Purpose

New technologies in the areas of computers and the Internet are proving to be viable solutions to create and enhance unique educational experiences for young learners in areas of reading and writing (Warschauer, Grant, Real, & Rousseau, 2004). The Reading Tutor (RT) is an automated speech recognition software program that displays stories on a computer screen, listens to learners read aloud and offers help when they have difficulty with texts (Project Listen, 2007). In a time
when “the reading education of English Language Learners has become one of the most important issues in all of educational policy and practice” (Slavin & Cheung, 2003), the RT offers an innovative way of using a computer-aided reading tool to enhance reading performance of EAL Learners. Results from a Social Sciences and Humanities Research Council (SSHRC) funded study of the RT with Hindi, Spanish, Mandarin and English heritage-language learners in Vancouver elementary schools have been promising (Reeder, et al., 2005; Reeder, Shapiro, Early, Kendrick, & Wakefield, 2008). All heritage-language groups experienced growth in reading performance and equaled, in reading measures, a comparison group who experienced a human-tutoring program (D'Silva, et al., 2005). The successful use of the RT to promote reading skills in elementary EAL students offers the possibility that this computer-based reading tool may also help older EAL learners. This study was designed to investigate how the RT can help in promoting reading skills in young adult EAL learners who are international students at an academic exchange program at a major western Canadian university. As the study was conducted in an education department, following the findings of the study, implications to and recommendations for the AEP will also be discussed.

1.5 Research Questions

The study was guided by the following questions:

1. What are the reading habits of young adult EAL learners studying in a university academic exchange program? What kinds of reading materials do they prefer reading?
2. How does the inclusion of student-preferred reading materials in a computer-based reading tool influence reading development of young adult EAL learners as measured by standardized tests?

3. In what ways will the systematic use of a computer-based reading tool with student-preferred reading materials increase reading fluency in young adult EAL learners? Will an increase in fluency be associated with an increase in reading comprehension scores as measured by standardized tests?

1.6 Significance and Outcomes of the Study

The potential of software-based literacy tools in enhancing literacy skills has been widely acknowledged (NICHD, 2000a). However, there seems to be only a small number of studies investigating the effectiveness of such tools, particularly among EAL young adults. Very few studies have examined the use of computer tools in promoting reading fluency skills; fewer have studied the association of reading fluency and comprehension in the context of a computer-based reading tool. The impact of using student-preferred reading materials on reading outcomes in the context of a computer-based reading tool is also an area that has not been researched. Tillman (2004) believes that software programs developed for reading instruction appear to be powerful tools, but suggests the need for more research to evaluate their effectiveness in promoting reading achievement in students. This study was designed to make a unique and valuable contribution to the understanding of the use of computer-enhanced reading instructional tools for young adult EAL learners.

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3 National Institute of Child Health and Human Development (NICHD)
1.7 Definition of Terms

*Reading Development:* Reading development in the context of this study is defined as the sum of the reading comprehension and vocabulary standardized scores on the Nelson Denny (ND) test.

*Reading Fluency:* Reading fluency as operationalized in the current study was the Curriculum –Based Testing (CBT) measure of the Words Correct Per Minute (WCPM) for passages used in testing and will be discussed in detail in chapter 3 of this document.

*Reading Comprehension:* Reading comprehension in the current study is the standardized comprehension score from the ND test.

*Reading Tool:* The term reading tool used in the context of this study is the whole package that includes the Reading Tutor software program on a PC platform with peripherals such as a head set with earphones and microphone.
Chapter 2: Relevant Theory and Research

This chapter reviews relevant research in the areas related to literacy skills, reading habits and reading preferences of EAL young adults. First some background information in the area of literacy skills of young adults is reviewed, followed by a section on the use of computers in promoting reading skills. Studies examining the reading habits and preferences of young adults are reviewed in the next section, followed by a discussion that reviews the relevance of the relationship of reading fluency and comprehension in the context of youth and young adults. A summary of the reviewed research concludes the chapter.

The integration of Information and Communications Technologies (ICT) into educational contexts has received increased attention in the last five to ten years. Authors of a Statistics Canada report on ICT integration in Canadian elementary and secondary schools claim: “education authorities and governments have recognized the importance of integrating ICT into teaching and learning both to prepare students for today’s economy and to make the most of new learning tools” (Plante & Beattie, 2004). In addition, software based reading tools offer possibilities in promoting literacy in and out of the classroom (Coiro, Karchmer & Walpole, 2006).

Reading interests of students also play an important role in their development as readers. For instance, “daily engagement in reading magazines, newspapers, and comics – a kind of reading that is perhaps less valued by school than fiction books – seems, at least in some cultural contexts, to be a fruitful way of becoming a proficient reader” (Kirsch, et al., 2002, p. 106).
2.1 EAL, ESL and EFL: Explanation of Terms

The current study was carried out at an international Academic Exchange Program (AEP) in a large western Canadian university with young adult Japanese students. These international students spent an eight-month educational sojourn at the university from September 2009 to April 2010. Further details on the participants are presented in chapter 4 of this document.

At the outset, it may be useful to explain the terms describing learners of English and their instructional contexts in the context of the current study. Gunderson (2009) clarifies the terms that are used to describe students learning English such as those who are part of the current study:

The term “English as a Second Language” (ESL) has traditionally referred to students who come to school speaking languages other than English at home. The term in many cases is incorrect, because some who come to school have English as their third, fourth, fifth, and so on, language. Some individuals and groups have opted for the term “Teaching English to Speakers of Other Languages” (TESOL) to represent better the underlying language realities. In some jurisdictions the term “English as an Additional Language” (EAL) is used. The term “English Language Learner” (ELL) has gained acceptance, primarily in the United States. The difficulty with the term “ELL” is that in most classrooms, everyone, regardless of their linguistic backgrounds, is learning English. (p.1)

For the purposes of this study the term EAL will be used. This term may be appropriate because some students in the AEP were involved in learning other languages during their sojourn - Mandarin for instance. Therefore EAL – English as
an Additional Language - is a suitable term. When other terms, such as ELL, are used in this document it is mainly to reflect the term as cited by the author of the study being reviewed.

Despite the use of different terms in literature to describe learners of English there appears to be a well defined way of describing the instructional contexts of English language learning. For instance, Gunderson (2009) suggests:

ESL is based on the premise that English is the language of the community and the school and that students have access to English models. EFL is usually learned in environments where the language of the community and the school is not English. (p.121)

Thus the term EAL will be used in this study to describe the students or learners and ESL and EFL will be used as discussed above to reflect their instructional contexts. These terms also serve to clearly distinguish the learner from the context. EAL students in the current study were sojourning in an AEP in an ESL context.

2.2 Young Adults, EAL Learners and Literacy Skills

The kinds and levels of literacies that young adults encounter in their academic and social contexts are unprecedented. Moore, Bean, Birdyshaw, & Rycik (1999) describe the kinds of literacy skills adolescents, and similarly young adults, will need in their personal, professional and academic lives in the 21st century:

Adolescents entering the adult world in the 21st century will read and write more than at any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct
their personal lives. They will need literacy to cope with the flood of information
they will find everywhere they turn. They will need literacy to feed their
imaginations so they can create the world of the future. In a complex and
sometimes even dangerous world, their ability to read will be crucial (p. 3).

In the wake of these growing literacy demands the need for proficient literacy skills
appears to be crucial. However, proficient literacy skills appear to be elusive to a
number of adolescent and young adult learners. In the United States (US), the
National Assessment of Educational Progress (NAEP) reports that around 24% of
eighth-grade school students read below the basic level and 66% read below the
proficient level (Lee, Grigg, & Donahue, 2007). In addition, 40% of high school
graduates lack the reading and writing skills that employers seek (Berman, et al.,
2005). Results of a statistics Canada survey on Adult Literacy and Life Skills (ALL)
indicate a declining trend in literacy scores of young adults ages 16 to 25 between

The numbers of EAL learners of all ages in North American classrooms are
on the rise. Post-secondary and higher education institutions in Canada, for
instance, are seeing a growing diversity in their student enrolment (Komarnicki &
Tibbetts, 2008). Numbers of young adult foreign students in Canadian universities
were reported to be at record high levels during the 2005-2006 academic year with
students aged 18-24 representing 64% of that enrolment (Statistics Canada, 2008).
Numbers of young adult foreign students in Canadian universities are steadily
growing and the AUCC foresees a “strong increase” in students wanting to enroll in
Canadian higher education institutions in the coming decade (AUCC, 2007, p. 28).
Canadian universities are gearing towards this trend of increased student mobility between international campuses. The University of British Columbia (UBC) for instance has tripled the number of international students in their graduate and undergraduate programs from 2000 in 1997 to 6000 in 2007 and has internationalization as one of its prominent objectives for the upcoming years (Toope, 2008).

Reading skills play a significant role in the educational experiences of International students in North American universities. Gunderson’s (2009) evidence indicates that university level academic ESL or EFL students are either looking to increase their general abilities in English or in reading and comprehending content material in their academic subject areas. These students are often frustrated due to lack of adequate reading skills that limit their access to even general reading materials such as books, magazines, newspapers, novels, periodicals and the Internet. International students may also be disadvantaged despite having sometimes “four years of ESL or EFL instruction, including English reading instruction” (p.51).

The trend of growing numbers of international students in Canadian universities appears to include growth in the number of students from Asian countries. Japan is one of the “top 10 countries that account for 60% of all international students in Canada” (AUCC, 2007, p. 17). Kitao & Kitao (1986, 1995) suggest that: “Japanese people who have studied English believe that they can read English well but cannot speak it. Since so many people believe it, it has become an axiom” (p. 2) thereby implying that although perceivably better at reading than
speaking English, Japanese college students may still have challenges in reading English. These challenges may restrict their access to academic and non-academic English reading materials during their educational sojourns in Canadian universities. In addition, the English pedagogical background Japanese students come from focuses on the grammar-translation approach (Morita, 2010). Given the background of grammar-translation, these students are conditioned to translating English texts word for word into Japanese and memorizing grammar rules. Reading fluency may be a missing, yet needed, skill for students from such backgrounds.

Grant & Wong (2003) suggest that there appears to be a “performance chasm” in reading achievement and that EAL learners are consistently outperformed in reading competence by their native English counterparts at elementary, secondary and college levels. They believe that “as the population of language-minority students grows and higher levels of literacy are expected for all students, more must be done to help English learners achieve educational parity with native English speakers” (p.386). It appears that the reading achievement and reading instruction of EAL learners is an important issue for all educational policy and practice (Slavin & Cheung, 2003).

2.3 Computers, Reading and Young Adults

Authors of a report by the National Reading Panel (NRP), a panel convened by the National Institute of Child Health and Human Development (NICHD) to evaluate the approaches to reading instruction, concluded that studies they reviewed report “positive results suggesting that it is possible to use computer technology for
reading instruction” (NICHD, 2000b, p. 6.1). Soe, Koki & Chang (2000) believe that the benefits from computer aided instruction in reading are “better and more comfortable learning for students, since they learn at their own pace and convenience; opportunities to work with vastly superior materials and more sophisticated problems; personalized tutoring; automatic measurement of progress; and others” (section 1, paragraph 6). In addition, they believe that computer-based reading tools may be positively impacting reading achievement. However, whereas the authors of the NRP support the use of computers for reading they also caution that there appear to be many questions that still need to be answered (NICHD, 2000b).

2.3.1 Computer Software Programs and Reading Skills

Computer-based reading software tools currently available include mainly drill and practice, tutorial and dialogue types of software programs (Oliver, 2003; Soe, et al., 2000). Drill and practice type software allows students to work through exercises that reinforce specific skills. Tutorial types offer information and instructional material on concepts similar to what a teacher would provide in addition to presenting practice exercises. The dialogue type is interactive software where the student interacts with the computer or software and the computer in turn gives the student feedback as they progress through readings and exercises. Dialogue software programs can “record, interpret, and respond to a student’s reading” (Oliver, 2003).

With recent technological developments literacy software tools are becoming increasingly sophisticated and interactive through the use of multimedia and speech-
recognition technologies. Reading Tutor (RT), for instance, a reading software program used in this study, includes as its central feature speech recognition capabilities. The RT is a “tool to improve literacy -- an automated reading tutor that displays stories on a computer screen, and listens to children read aloud” (D'Silva, et al., 2005; Project Listen, 2007).

2.3.2 Multimodality and Reading

The discussion of computers and reading is incomplete without a discussion of the multimodality of texts that is afforded through computer-based tools. This is also particularly relevant in discussions of literacy skills in young adults because they are immersed in digital texts and technologies such as the Internet, text-messaging, podcasting and video games in their daily lives.

Over a decade ago the New London Group (NLG) coined the term “Multiliteracies” and advocated the notion that called for a shift in viewing literacies from being purely print based to include other materials and modes such as art, digital texts and the Internet (New London Group, 1996). Texts, particularly, in multimedia and electronic hypermedia are augmented by visual, audio and spatial attributes that offer multiple modes of interaction. “Meaning is made in ways that are increasingly multimodal – in which written-linguistic modes of meaning making are part and parcel of visual, audio, and spatial patterns of meaning (Cope & Kalantzis, 2000, p. 5)”. Modes such as multimedia and electronic hypermedia have gained significant attention in the last decade. Indeed, some researchers have decried the notion that digital texts are printed texts supplanted by audio or visual attributes.
They emphasize that these texts are unique modes that offer a wide variety of symbol systems and hence might be engaging in ways that printed texts do not offer (Reinking, 2001). As noted above while computer-based reading tools may provide personalized tutoring to learners they also may be engaging for young adults as they interact with texts in multiple modes.

Warschauer et al (2004) successfully used multimedia technologies and the Internet with grades six to eight students at a school in Maine. The highly heterogeneous group of immigrant and refugee students who were English Language Learners worked with laptop computers and the Internet that helped them in “academic literacy through promotion of independent reading, support for language scaffolding, involvement in cognitively engaging projects, and student analysis and creation of purposeful texts in a variety of media and genres” (p. 535). Their success was reflected in high reading and writing standardized test scores.

Reinking (2001), in a 2-year research project with middle-grade students, used a program called Hypercard (a Macintosh program that is used to create “inter-linked” texts that can incorporate graphics and audio) to create multimedia reviews of books they read. Nine classrooms from three schools were part of the research project and two classrooms using the Accelerated Reader were part of a comparison group. Results revealed “statistically significant effects” in favour of the classrooms with the multimedia project over the comparison group.

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4 Accelerated Reader is a “program aimed at increasing students’ reading by providing computer-based tests to determine if a student could receive credit for reading a book” (Reinking, 2001, p. 213).
Working with “struggling”\textsuperscript{5} middle-school students (seventh and eighth grade) on a 2-year project, O’Brien, Beach & Schraber (2007) found that using digital tools and producing digital products and performances in a reading and writing class fostered more literacy engagement in adolescents when compared to traditional ways of reading texts and passages and responding to questions.

Despite the widely acknowledged potential of literacy-based software there appears to be only a few studies in key areas of the use of computerized reading interventions (Tillman, 2004). The authors of the NICHD (2000b) report believed that ICT and multimedia technologies were motivational and engaging agents in reading, but speculated that their value was likely to decline as students became increasingly familiar with these technologies. However, recent trends and studies discussed above indicate the contrary, especially in the case of young adults who find themselves immersed in a world with constantly changing and evolving modern digital technologies that increasingly demand the development of new competencies and literacies. However, given the benefits of using literacy-based software it is also important to recognize that such tools should supplement not supplant teachers (Balajthy, 1996b) or more traditional forms of reading instruction.

2.4 Reading Preferences and Habits of Young Adult Learners

A knowledge of reading material preferences as well as reading habits of young adults is valuable in providing them with fruitful reading experiences. Further,

\textsuperscript{5} “Struggling” adolescent readers are those who seem to lack the skills and strategies of competent readers and are constantly in the process of \emph{struggling} to catch up with their competent peers (O’Brien, 2006).
engaging in reading materials such as newspapers magazines and comics, not
necessarily school-based, may aid students in becoming proficient readers (OECD
are important to both native English speakers and EAL learners, and that reading of
high interest materials may promote reading skills in EAL learners.

2.4.1 Interest and Preference

Galda, Ash & Cullinan (2000) believe that reading research has used the
terms reading preferences and interests interchangeably and emphasize the need to
understand the distinction between them in studies of reading preferences.
Summers & Lukasevich (1983) describe reading preference to be more “passive”
while reading interest is believed to have a more “dynamic quality” (p. 348). As a
result, “preferences are what readers like to read whereas interests indicate what
they are actually selecting to read” (Galda, Ash, & Cullinan, 2000, p. 367).
Educational psychologists distinguish between two distinct types of interests namely
personal and situational. Personal (also called individual) interest is based on pre-
existing knowledge, personal experiences and emotions while situational interest is
situation based and influenced by curiosity, novelty or salient informational content.
Situational interest usually precedes personal interest and might be responsible for
“catching” attention while personal interest “holds” attention (Flowerday, Schraw, &
Stevens, 2004). Reading preferences refer to reading materials that would have the
situational interest of young adults while personal or individual interest is the

\(^6\) Organisation for Economic Co-operation and Development
dynamic component which when acted upon would contribute to reading engagement. Once acted upon, this interest is what is called *actualized individual or personal interest* (Worthy, et al., 1999).

Interest appears to be a contributing factor in engaging students in reading. Researchers believe both *situational and personal or individual interests* may be positively linked to how students engage with texts (Flowerday, et al., 2004). While *situational interest* lies in the reading materials, actualized *personal interest* can be encouraged by providing students with easy access to reading materials that match their *preferences* (Worthy, et al., 1999). The current study used reading preference as a term describing what students like to read.

A majority of teenagers (65% of 962 respondents of which 237 were male) who participated in the “2005 Teen Read Week Survey” on the “Smartgirl” website agreed or strongly agreed that they read about topics they are passionate about (Swenor, 2006). A well informed knowledge of reading preferences is therefore essential in promoting reading in young adults. Studies that highlight some prominent preferences of youth and young adults reading materials are discussed in the following paragraphs.

**2.4.2 Reading Preferences of Youth and Young Adults**

Reading preferences of children and young adults have been a topic of interest for over half a century. Reading preferences have been determined mainly by open-ended surveys, reading logs and bestseller lists (Worthy, et al., 1999). The
following sections review studies involving youth or young adults ranging from ages 15-25.

In 1994 and 1998, the Council of Ministers of Education of Canada (CMEC) as part of the School Achievement Indicators Programme (SAIP) surveyed 13- and 16-year old Canadian students across the nation on school literacy. The 1994 data were analyzed by Gambrell & Hunter (2000) to reveal gender differences in reading preferences. Of the 36,000 students surveyed, half answered a reading questionnaire and the other half a similar questionnaire on writing. It was found that 16-year old boys had a greater predilection for reading sports in daily newspapers than girls. Preference for romance novels and short stories increased in girls from 13 to 16 with 61% of 16-year-old girls interested in these genres. Popular fiction and bestsellers were less preferred as boys grew older, but increased as girls went from 13 to 16. While 20% more girls preferred poetry and song lyrics than boys at age 16, both genders showed an increase in this preference from 13 to 16. Both genders also showed a preference for materials about contemporary issues. However, girls were found to be more eclectic readers with broader and wider reading tastes. Generally, trade publications such as bestsellers, popular-fiction, spy, crime and suspense stories were more influential on 13- and 16-year-olds’ reading interests than school language arts curricula. A report on the 1998 SAIP survey, although not reporting on gender differences in preferences, also revealed that fiction and magazines remained the most favoured types of reading materials for 13- and 16-year olds (CMEC, 1999). The large scale nature of the SAIP surveys make them important to the understanding of the reading preferences of Canadian young adults,
however, they mainly reflect the preferences of “English-Canadian adolescents” (p.1).

The results of a survey of 214 students aged 10 to 15 in the US (44.4 % male and 53.7 % female) conducted by the Young Adult Library Services (YALS) also revealed that among leisure reading materials periodicals such as magazines and newspapers topped the list. While a majority of males preferred magazines pertaining to sports, cars and wrestling a majority of females preferred fashion and beauty magazines (Hughes-Hassell & Lutz, 2006). Similar results were found in a survey of 715 students ages 10-15 in an urban middle-school in a large north-eastern city in the US. In addition to magazines, comic books and Internet materials were also favourite reading materials (Hughes-Hassell & Rodge, 2007). Magazines of topics related to teens, cars, sports, fashions and people were also reported as popular preferences by urban adolescents in the study conducted by Pitcher et al (2007). Results of a survey of 8,152 school children (5,463 of which were ages 12-16) in England also revealed that magazines were the most preferred materials for outside school reading for both girls and boys and websites were in the top four preferred reading materials for both genders (Clark & Foster, 2005).

Findings of a survey in Nova Scotia with 159 students from grades 8 to 11 (gender and grade equally balanced) revealed that magazines and newspapers are still a popular choice among this age group, although newspaper reading might be on the decline. In addition, girls appeared to read significantly more fiction books than boys (Howard, 2006). Results of another survey of 1,963, Canadians 16 years and older from across the nation revealed similar trends with women showing a
greater preference for mystery, suspense and detective novels over men who preferred science fiction (Createc, 2005).

Results of such studies occasionally reveal conflicting trends. Some studies point to a drop in print-based reading among young adults with the onset of digital technologies such as the Internet, videogames, mobile phones and DVDs, while others have found no significant drop with regards to reading habits due to the Internet (Createc, 2005; Hopper, 2005). Some researchers suggest that reading among teens is not declining but how teens read might be changing implying that blogging, text messaging and reading online magazines might be on the rise (Braun, 2007).

2.4.3 Reading Preferences of EAL Young Adults

Only a few studies have focused exclusively on the kinds of reading materials that are of interest to young adult EAL learners. Carmiciotolli (2001) believes that there is a paucity of research in the area of reading preferences in higher education EFL learners. The author of this document has found a limited number of studies that discuss the reading preferences of EAL learners, some in International EFL university settings. However, given that the target group for this study is international students who are mainly academic sojourners in a Canadian university, these studies are relevant and helpful to the understanding of reading preferences of EAL young adults.

Lipp & Wheeler (1991) believe that engaging EAL learners in extensive reading of high interest materials will promote reading skills. International students,
ranging from ages 18-32, from ESL programs from four universities in the US were participants in a survey that probed reading interests. Two-hundred-and-six students participated in this survey and 29% of the participants were students from Japan. The favorite reading areas or topics for these EAL learners under non-fiction included world problems, sports, travel and academic subjects. Areas or topics of interest under fiction included action/adventure, history, mystery novels and short story collections. The authors of the study believed that these EAL learners preferred more non-fiction areas because their primary motive was to read for knowledge rather than read for pleasure. Based on the results the authors recommend that instructors should focus on the kinds of areas of reading preferences of EAL students in order to help them become better readers. This study is important and relevant to the current study as it highlights the preferences of university level students with 29% of the group being Japanese students.

Mokhtari & Sheorey (1994) surveyed 158 international, both undergraduate and graduate, ESL students at a university in mid-western US. All students had a minimum Test of English as a Foreign Language (TOEFL) score of 500 (undergraduates) or 550 (graduates). The participants completed a reading habits and preferences survey that included items that probed the kinds of English reading materials, academic and non-academic, the students read through their school week. College textbooks, research papers, technical reports and journal articles were among the choices of academic reading materials, while books, newspapers and magazines were among the choices of non-academic reading materials. It was found that while high English proficiency students (proficiency measured by TOEFL
score) read significantly more academic materials than the low English proficiency students there was no statistically significant difference between these groups on the non-academic materials read. The study also found that students wanted to improve their reading comprehension skills and be able to “read their academic study materials at higher reading speeds” (p. 60). Participants also reported that they would “welcome an emphasis” on reading skills in their college courses suggesting that university programs need to consider an emphasis on reading skills for ESL students. This study surveyed participants on both reading habits and reading preferences to obtain a better understanding of the reading patterns of university students, a strength that was incorporated into the current study. There were, however, no follow-up interviews with a smaller group of the participants to qualify their responses.

Camiciottoli (2001) conducted a study at the University of Florence with 182 EFL students who were business majors. The participants responded to a survey questionnaire on their English reading habits and choices of reading materials. Although the survey questionnaire probed students’ frequency of reading English materials and attitudes towards reading in English, it was administered in their native language – Italian. The four prominent types of reading materials preferred by the group were books, magazines, newspapers and lyrics to pop/rock songs. Results also revealed that “lack of time due to studies” as the most frequently listed reason (29.4%) for not reading in English. However, “not knowing what to read” (17.2%), “no access to English books” (12.5%) and “too difficult to understand” (12.5%) were also among the six most prominent reasons for not reading in English. Whereas this
study highlights preferences for some prominent reading materials like newspapers and magazines and compelling reasons for not reading in English it should be noted that participants in this study were Italian business majors and the results may be representative of this specific group.

As discussed earlier, youth and young adults are now increasingly reading online materials. A study at the Chia-Nan University of Pharmacy and Sciences in Taiwan with 124 (16.1% male and 83.9% female), randomly selected EFL learners, mainly between the ages of 20 and 23, revealed that a majority of 62% of the participants most frequently read online material (Shen, 2006). Other reading materials included print-based newspapers, magazines, textbooks and novels. Reading email was the most frequent reading habit for 50% of the participants behind online reading materials. Although not clearly broken down into English and L1 reading, the kinds of reading materials participants in the study reported reading online included news, magazines, e-book, stories, journal articles, movie reviews, horoscope, weather, health, comic strips, jokes, fashion, sports, food and jobs. However, from the list, news, email, movie reviews and fashion news were the types of materials most read. This study provides a diverse list of reading content that is preferred by young adult EFL learners. There is however no clear indication of how much of the reading was associated with English or students’ first language (L1). Like in Shen’s (2006) study, another study, although not exclusively involving EFL learners, but with college students in Taiwan, also reported that newspapers, magazines and bestsellers were the most popular reading materials among college students (Chen, 2007).
English reading habits of university students, 25-29 years of age enrolled in the Bachelor of Arts, English Language and Literature Studies (B.A.ELLS) program at the University Science Malaysia (USM), were surveyed using a questionnaire that covered items probing the kinds of English reading materials that were preferred by the group. Of the 63 respondents who were enrolled in the first year in the program, a majority (69.8%) read English academic materials (English language Training (ELT) and literary works) for 3-5 hours per week while the other types of reading materials included comic books, magazines, newspapers and novels (Kaur & Thiagarajah, 2000). Favourite types of novels were horror, romance and mysteries. Female students reported reading magazines on fashion, home, motherhood while the male students read magazines like *Time* and *Newsweek*. Students both male and female read local English newspapers. When asked about the reasons behind reading in English, a majority of the respondents (85.7%) listed that they read because they felt it would improve their English language proficiency. The other reason why 74.67% of the respondents read in English was to get good grades in their academic courses, presumably with content in English. Although the age group of the participants, as described by the study is representative of “mature students” ages 25-29, it is of interest to the current study because it was conducted in a university setting.

Allen & Ingulsrud (2003) surveyed 297 first- to fourth-year male and female students at a college in a provincial city in Japan on reading preferences particularly related to manga comics and found that manga held a “dominant position in the reading practices of college-age people in Japan” (p. 681). The preference for this
reading material appears to be strong in both male and female young adults in Japan. This study also highlighted that the preference for reading manga comics was stronger than for reading books. The closely-related backgrounds of the participants of this study and the current study made the preference to read manga comics an important item to be included in the survey for the current study.

The studies reviewed under this section mainly used a survey questionnaire to probe reading preferences. A follow up of these responses with interviews may have helped uncover some preferences that were not part of such surveys. The current study used questions in the follow-up interview to further probe students’ reading preferences.

2.4.4 Reading Habits of EAL Young Adults

The extant research in the area of reading habits of young adult college or university students especially in North American higher educational context is scant. The short review that follows includes studies from around the world to provide a basic understanding of the reading habits of young adult students. Reading habits as discussed below are related to time spent in reading academic and non-academic materials. Studies have used various terms ranging from extra-curricular, leisure and pleasure reading to describe non-academic reading and curricular, for instance, for school-related or academic materials.

Mokhtari & Sheorey (1994), the study that was also discussed under reading preferences above, surveyed 158 international, both undergraduate and graduate, ESL students at a university in mid-western US reported that graduate students
spent on average 16.9 hours per week on academic reading compared to 11.3 hours spent on the same by undergraduate students. In non-academic reading graduate students spent on average 6.1 hours per week when compared to 6.5 hours spent by undergraduate students. Gallik (1999) conducted a survey in a liberal arts college in central Texas. Results of the survey revealed that 63% of first-year college students reported that they indulged in recreational reading for less than 2 hours a week when their classes were in session and only 8% reported reading between 6-10 hours per week. The study however did not focus on non-academic reading.

Chen (2007) studied the reading habits of college students in Taiwan through the National Survey of College student life. First-year and third-year College students, 32,792 and 29,406 in numbers respectively, responded to the survey. The average hours spent in extracurricular reading was reported as 10.71 hours per week for first-year students while third-year students spent 12.74 hours a week. The survey instrument in the study did not clearly probe the languages in which the students did their extracurricular reading. The current study therefore used specific survey items to ensure that reading habits in both English and Japanese were surveyed.

Karim & Hasan (2007) surveyed 127 first- to fourth-year university students from the IT and Arts disciplines at a international university in Malaysia. On average students reported spending “about seven to nine hours per week” on reading. While no clear distinction was made between academic and non-academic reading, authors conjectured that a majority of this time spent could be attributed to reading academic materials. Authors also reported that the Internet was a major source of
reading materials suggesting a possible shift of preference from reading in print to reading on screen. Shen (2006), discussed above, also reported a similar trend where EFL college students read more online than offline.

Liu (2006) conducted a study at the San Jose State University in California with professionals like scientists, engineers and teachers as well as graduate students at the university who formed a large part of the respondents to a survey that probed their reading habits. The 113 respondents were in the 30-45 age range. Results of the survey highlighted that a majority (83%) of the respondents reported that the time spent in reading on screen is on the rise. Liu (2006) believes that “with an increasing amount of time spent on reading electronic documents, the screen-based reading behavior is emerging” (p. 705). While reading on screen as reported by respondents is on the rise it also is important to note that the study reported that more of the on-screen time was spent in browsing, scanning selective reading and non-linear reading, while less time was spent on in-depth and concentrated reading. A majority of the respondents (over 80%) also reported printing out electronic documents for reading. The findings of Liu (2006) suggest that the nature of screen-based reading might involve reading short texts rather than long documents. While the age group in Liu’s (2006) study is considerably different from the target group of the current study, results suggest the need to look into how much time university EAL students spend reading in print and on screen.
2.4.5 Summary of Reading Habits and Preferences

In summary, knowing about reading preferences as well as reading habits of youth and young adults may be useful in providing them with reading materials that they are able to engage with more effectively. A review of the relevant literature shows that there are a number of common topics that interest students ages 15-25. Newspapers, magazines and song lyrics appear to be among preferred reading materials while current events, travel, contemporary issues, history, movie reviews, sports and fashion are topics that young adults prefer in the area of non-fiction. Action, adventure and mystery novels are popular kinds of reading materials under fiction. Manga comics appear to be a popular reading preference in Japanese college students. Camiciottoli (2001) believes that access to reading materials may have “an important role at the level of higher education and perhaps deserves more attention” (p.148). Not knowing what to read and having no access to reading materials may affect the amount of English reading of EAL learners as seen in some studies.

An important issue to remember is that although preferences for reading materials such as magazines, newspapers, comics and popular fiction appear to be a consistent finding in young adult research, researchers point out that “preference and interest are highly individual phenomena that change from reader to reader and book to book, but at the same time are embedded in social norms and expectations” (Galda, et al., 2000, p. 367). However, generally studies in reading preferences over the years have shown that although preferences have broad patterns, gender and age are factors that have consistently had considerable influence on reading
preferences (Galda, et al., 2000; Howard, 2006; Mertz, 1975; Summers & Lukasevich, 1983) From research reviewed here it is clear that certain groups or types of individuals have common reading preferences for instance, another consistent finding appears to be that girls read more than boys (Createc, 2005; Howard, 2006).

The preferences discussed in this section concern mostly leisure reading or reading that is done outside of school-based reading which has been associated positively with overall reading achievement (Krashen, 1993). Some studies reviewed in the sections above have confirmed that EAL learners are interested in reading mainly to improve their English language proficiency and perform better academically. Providing such learners with easy access to reading materials that suit their preferences both inside and outside school may contribute to promoting overall reading achievement.

There is only a limited amount of research in reading habits of university students. Studies reviewed have shown a wide range of hours per week spent by students on average on academic reading and non-academic reading. Not many studies have considered both academic and non-academic reading habits of university students. Moreover, with more reading materials available in electronic form students may be spending more time reading on screen, but there appears to be only a few studies that have investigated these trends in young adults. The extant research reviewed also reveals that the reading preferences and habits of Japanese students at the university level seem to be even less researched.
2.5 Reading Fluency and Comprehension

Fluency was one of the nine “very hot” topics of 2008 in the field of reading as determined by the survey of 25 literacy leaders and had been such a topic for the previous four years (Cassidy & Cassidy, February 2008). Although reading fluency has been a topic of interest in reading research for over a century it had been relegated to a secondary status with the decline in oral reading practices in the first half of the 20th century (Rasinski, 2006; Samuels & Farstrup, 2006). The recent resurgence in attention to reading fluency can be attributed to the 2000 report of the National Reading Panel (NRP) which highlighted the importance of fluency (Samuels, 2006). The report identified fluency as one of the five critical components of reading and qualified it as “an essential aspect of reading” (NICHD, 2000b, p. 3.5). Another aspect that has helped fluency gain some prominence is that the past three decades has seen a growing body of research that has helped inform practice (Samuels & Farstrup, 2006). There also appears to be a growing understanding of how reading fluency is related to comprehension and overall reading proficiency (Rasinski, 2006).

2.5.1 Reading Fluency: A Definition

The concept of fluency evolved over the last two decades and as a result it has been defined and redefined (Samuels, 2002). The NRP defined reading fluency as “the ability to read a text quickly, accurately and with proper expression” (NICHD, 2000b, p. 3.5). In this view, fluency consists of three features; reading rate, accuracy and prosody. Reading rate is the “fluent identification of individual words and the
speed and fluidity with which a reader moves through connected text” (Torgesen & Hudson, 2006, p. 133). Accuracy deals with the ability to recognize and decode words correctly. Prosody describes the expression in the reading and reflects the rhythm and tonal aspects of speech. Prosody includes the elements of question, surprise, and exclamation conveyed from the text during oral reading (Torgesen & Hudson, 2006). Some believe the definition of fluency according to the NRP is incomplete and to some extent misleading because it excludes silent reading (Pikulski & Chard, 2005).

The definition according to the literacy dictionary appears to expand the concept of reading fluency to also include silent reading. It defines fluency as the “freedom from word identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading” (Harris & Hodges, 1995, p. 85). Although this definition associates comprehension with fluency, it still emphasizes oral expression over comprehension in oral reading. Pikulski & Chard (2005) suggest a comprehensive definition that includes the elements of both the NRP and the Literacy Dictionary:

Reading fluency refers to efficient, effective word recognition skills that permit a reader to construct the meaning of text. Fluency is manifested in accurate, rapid, expressive oral reading and is applied during, and makes possible, silent reading comprehension (p. 510).

Samuels & Farstrup (2006) believe that defining fluency is important because its definition influences how it is assessed. A comprehensive definition helps in understanding the different aspects of fluency. This understanding aids the
assessment as well as the instruction of fluency. Despite a comprehensive definition of reading fluency much of the research focuses on reading rate, accuracy and prosody because they are the most observable aspects of fluency.

2.5.2 Reading Comprehension

Reading comprehension, viewed by some as “the essence of reading” (Harris & Hodges, 1995, p. 38) is a widely used term in reading research. The process of reading comprehension involves cognitive components, reader goals and outcomes and the socio-cultural context that reading occurs in (Snow, Sweet, Alvermann, Kamil, & Strickland, 2001). There are many variations in the definition of reading comprehension. Some view the text and decoding of the text, or the ability to translate alphabet letters into recognizable sounds, to be the important aspects of the process of reading comprehension, while others place emphasis on the construction of meaning (Snow & Sweet, 2003). Snow (2002) defines reading comprehension as “the process of simultaneously extracting and constructing meaning from text through interaction and involvement with written language” (p.11). This definition captures a basic and general understanding of reading comprehension, which is making meaning from texts. It also will serve as a definition for this study.
2.5.3 Young Adults and Reading Fluency and Comprehension Skills

The traditional model of reading instruction focuses on developing reading fluency and comprehension skills in early grades, these skills are however vital and relevant to students at any age. Students learn to read in early grades in order that they can read to learn in higher grades. The common model of reading instruction, for instance, as proposed by the goals of the English Language Arts Integrated Resource Package (IRP) of the Ministry of Education of British Columbia, starts with learning to recognize print, familiarity with the English alphabet, alphabetic sounds and common words in Kindergarten to analyzing, comparing, and synthesizing ideas in texts by grade 7 (BCED, 2006b, pp. 6-7). In grades 8-12, students are examining and comparing ideas and elements among texts starting in grade 8 to identifying and challenging bias, distortion, and contradictions in texts by grade 12 (BCED, 2006a, pp. 8-9). While these are some of the concepts and goals of reading instruction as suggested by the IRP, it also appears to assume a trajectory of reading growth that is expected of students as they progress from learning to read efficiently to reading to learn proficiently.

Reading fluency and comprehension are skills explicitly listed under goals for grade 2 reading instruction in these IRPs (BCED, 2006b), however, lack of proficiency in these skills has been shown to hamper reading growth and overall achievement in higher grades (Kamil, 2003). Many adolescents appear to lack proficient reading skills (Alvermann, 2003). More than eight million students from grades 4-12 in the US read below grade level according to the Alliance for Excellent Education (2006). Moreover, non-EAL students appear to outperform EAL students.
in reading achievement tests (Edudata Canada, 2002). Reading fluency issues are a concern in secondary schools and among EAL learners in higher education as well (Fraser, 2007; Rasinski, et al., 2005). Proficient fluency and comprehension skills may be helpful in building proficient young adult readers. Reading tools that promote reading skills like fluency and comprehension may be useful in higher grades and even post-secondary programs, especially for EAL learners, who are expected to learn from reading complex texts but appear to be disadvantaged in proficient skills that help them in reading to learn (Gunderson, 2009).

2.5.4 The Theoretical Model: LaBerge- Samuels Automaticity Model

A theoretical model that explains the relationship between fluency and comprehension is the LaBerge- Samuels Automaticity Model (AM). This model is widely acknowledged and cited and appears to be influential in a number of studies. For instance, The AM has been consistently used as a theoretical basis in studies to support the need to promote fluency in order to promote comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001). A few studies involving EAL learners (Saiegh-Haddad, 2003) have also used this model as a theoretical framework. There does not appear to be a clear theoretical model that explains the relationship of fluency and comprehension in L2 reading. The AM was used as the theoretical model in the context of this study.

The AM posits that attention is an important aspect in reading (LaBerge & Samuels, 1974; Samuels, 1994). Samuels (2006) refers to attention as the “effort
used to process information” (p. 35), while automaticity is the ability to perform multiple tasks simultaneously:

When a task that formerly required attention for its performance can be performed without attention, the task is being done automatically. Automaticity in information processing, then, simply means that information is processed with little attention. One way to determine if a person is performing a process automatically is to give him or her two tasks to perform at the same time. If the tasks can be performed simultaneously, at least one of them is being done automatically. (Samuels, 1994, p. 1134)

During reading, attention and working memory are shared by the pre-lexical (decoding) and higher-order post-lexical (comprehension) cognitive processes. Non-fluent readers need to switch attention between decoding and comprehension as they read thus carrying out only one of these tasks at a time. When decoding becomes automatic or effortless it takes up less attention and working memory resources. These resources can be freed up for comprehension related processes. Fluent readers can therefore focus on comprehension given that decoding is automatically achieved. This way both tasks – decoding and comprehension – are simultaneously carried out. According to the theory, if fluent reading fails to develop comprehension will suffer as a result of more “attentional” resources being directed to the decoding of text.
2.5.5 The Relationship between Reading Fluency and Comprehension

The National Assessment of Educational Progress (NAEP) carried out studies in 1992 and 2002 on 4th grade students’ oral reading proficiency and how it related to overall reading abilities. One-thousand-one-hundred-and-thirty-six fourth-graders were part of the 1992 study and 1,779 participated in the 2002 study. Participating students read a grade-level passage silently and then were asked questions about it. After answering questions, they were asked to read the passage aloud. Oral reading was analyzed for accuracy, reading rate and prosody. Prosody in reading fluency here was based on phrasing and expressiveness and was measured on the NAEP Oral Reading Fluency Scale (ORFS). In both studies oral reading rate, accuracy and fluency were related to each other and all three were related to comprehension (Daane, Campbell, Grigg, Goodman, & Oranje, 2005; Pinell, et al., 1995). Prominent reviews cite these studies, especially the 1995 report, as being instrumental in establishing a positive relationship between reading fluency and comprehension (NICHD, 2000b; Pikulski, 2006; Pikulski & Chard, 2005; Strecker, Roser, & Martinez, 1998).

Other researchers have attempted to study how reading fluency rate relates to reading comprehension. For example, Jenkins et al (2003) studied 113 fourth-grade students in a school district in south-eastern US. Students read a grade-appropriate passage in two different ways; one as a regular passage, as in a story, and another as a list of words taken from the passage randomly ordered and presented in the form of a paragraph. The former was called “context” fluency while the latter was called “list” fluency. Fluency was measured as accuracy (number of
words read correctly divided by total words) and rate (words read correctly in one minute). Comprehension was measured separately using the Iowa Test of Basic Skills (ITBS). Results revealed that context fluency was a better predictor of reading comprehension than list fluency. This supports the AM in that reading fluency is a precursor to comprehension, but qualifies the kind of fluency by suggesting that reading fluency in context or in passages of regular text is associated with comprehension.

In a study by Levy, Abello, & Lysynchuk (1997), 28 fourth-grade poor readers read two stories. The 72 content words of one story were taught to the students on four training days prior to the testing date. The other story was read without prior practice. Following each story four comprehension questions were asked. Reading speed and accuracy were recorded with time and number of correct words read. Results revealed that word training led to gains in reading speed and accuracy, but there were no differences in comprehension. These results led the researchers to believe that “comprehension did not improve despite clear gains in reading speed and accuracy” (p. 186). The findings of this study do not seem to support the AM which purports that with increase in fluent reading comprehension may improve.

Most studies have focused on elementary school students in grades K-4 where the focus of reading instruction is development of basic reading skills. Yovanoff, Duesbery, Alonzo, & Tindal (2005) looked at whether the relationship would be the same across grades 4 to 8. These researchers were expecting to observe the trend where fluency would have less of an impact on reading comprehension in students in higher grades. They hypothesized this trend because
of the shift in instructional focus from *learning to read* to *reading to learn*. They believed fluency growth would plateau in high school where students are expected to be fluent readers but vocabulary development would show considerable growth as students encountered increasingly difficult texts. Students from grades 4 (N = 981), 5 (N=1,248), 6 (N=1,248), 7 (N= 1,248) and 8 (N=1,287) were part of the study. Vocabulary, oral reading fluency and comprehension measures that were developed for the school district were used in the study. Fluency was measured by one-minute read-alouds of grade-level passages consisting of 250 words. The number of correct words read in a minute was recorded as the reading fluency score. The vocabulary and comprehension measures used were those developed for the district. The vocabulary measure was a 25-item form eliciting written responses on three choices per item. The comprehension measure was based on the grade-level passages used in the fluency measure with 15 selected response questions. As hypothesized, results of the study revealed that fluency “though important for comprehension, appears to be less important in grades 5 through 8 than in grade 4” (p. 9).

Although the strength of the relationship between reading fluency and comprehension appears to decline as students progress from elementary to secondary school, some studies have found the relationship still exists and call for fluency instruction to continue into secondary grades. Rasinski et al (2005) conducted a study with ninth-grade students in an urban school district in the US mid-west. Oral reading fluency of 303 students was measured using a ninth-grade level passage. The number of words correctly read and the time period were recorded. The participating students' scores on state high school graduation tests,
usually given in the ninth-grade, were also obtained. The high school graduation
tests consisted of passages followed by comprehension questions. A "moderately
strong" relationship between the fluency and comprehension measures was found
suggesting that although causation is not a valid inference, reading fluency is a
factor that may play a role in the reading comprehension of high school students (p.
25).

Although there is substantial evidence that reading fluency and
comprehension have a positive relationship, not all “dysfluent “readers are bad
comprehenders. This may be true particularly in the case of young adults. A study
that looked at 194 sophomores and juniors at a university in Iowa classified some
“dysfluent” readers as being “resilient” because they had better comprehension
scores than their average peers (Jackson & Doellinger, 2002). Reading
comprehension and reading fluency tests from the WJIII (Woodcock-Johnson)
battery of tests were used to measure participants’ reading skills.

Walczyk & Griffith-Ross (2007) support the notion that “dysfluent” reading
skills do not always predict poor comprehension. They posit that “there are two
pathways to good comprehension: (a) fluent skills with infrequent compensation or
(b) non-fluent skills high motivation, frequent compensation” (p. 563).Compensation
here is the actions readers take to mitigate dysfluent reading. Examples of
compensatory actions are slowing down reading rate, pausing and rereading.
Walczyk & Griffith-Ross’s (2007) study was carried out with 71 third-graders, 68 fifth-
graders and 71 seventh-graders from two schools in Louisiana. The students were
measured on reading fluency tasks such as word reading, word meanings and also
measured on sentence and passage comprehension. In addition, they performed four specific reading tasks. First, *unrestricted reading* which was to record how students compensated when they read aloud. Second, *time pressure/no time pressure* where students were randomly assigned to read passages aloud under time pressure or no time pressure. Third, *constant/variable rate* which was a condition where some students were allowed to read aloud at a constant rate without compensation such as slowing down reading while the others could freely compensate. Fourth, *silently/loud* where half the students read silently at all times while the other half read aloud.

The authors concluded that teaching less fluent readers how to compensate during reading is an effective way of enhancing comprehension. Moreover, when less fluent readers are unrestricted and motivated they perform best in terms of comprehending. Adolescent fluent readers performed better under slight restriction as the restriction posed a challenge and kept them engaged with the text. Also, an interesting observation made by the researchers in the study was that some fluent readers who were bad comprehenders because they were “word calling” (accurately reading the words without comprehending) did so because “effortless word reading allowed their minds to wander” (Walczyk & Griffith-Ross, 2007, p. 566). The researchers believed it was important that readers be taught to monitor comprehension. In addition the researchers speculated that fluent reading may not be either necessary or sufficient for good comprehension to occur.

There is a paucity of research exploring the relationship between reading fluency and comprehension in EAL learners. In a recent Canadian study, Fraser
(2007) compared the L1 and L2 reading rates of young adult EAL university students on different reading tasks. The participants were in their first to fourth years of university study. The two groups, one in a Chinese university and the other in a Canadian university, were Mandarin (L1) speakers. The Canada group (N=45) and the China group (N=50) with male and female participants were matched on English Language Proficiency (ELP). The study involved students reading five passages, each in English and Mandarin, and carrying out five different tasks namely, *rauding*, a term used to describe “natural, normal, typical or ordinary reading of text” which is easy to understand (Carver, 1990, p. 16), scanning, skimming, reading to learn and memorizing. The *reading to learn* task entailed answering a set of five four-item multiple choice comprehension questions. The memorizing task entailed reading and subsequently writing down everything a student remembered about the passage. The task was scored on the percentage of informational units recalled. Results of the study showed that there was a decrease in reading rate from L1 to L2 across all the tasks. Moreover, ELP was not a predictor of L2 reading rate. An interesting finding was that slower reading rates did not predict lower comprehension levels. This finding does not support the AM notion that better reading rates reflect better comprehension. The researcher observed that a slower reading rate was a means of compensation to achieve desired success in performance on the task - better comprehension. The groups differed on L2 reading rates, with the China group recording faster rates on the skimming and scanning tasks. Results support the Walczyk & Griffith-Ross (2007) findings that students sometimes use compensation strategies to enhance comprehension. The uniqueness of this study is that it
reflected both an EFL (in China) and an EAL (in Canada) environment. These results also bring into question the positive relationship between fluency and comprehension established in reading in English (L1) research according to the AM.

Another study of university students, ages 19-25, learning intermediate-level courses in English in the Middle-East examined the relationship between oral language fluency and reading comprehension in English (L2) (Saiegh-Haddad, 2003). The participants (N= 50, 22 Arabic & 28 Hebrew) were Arabic (L2) and Hebrew (L2) speakers. Three texts (one each in Arabic, Hebrew and English) of equal length and readability levels were used in the study. The participants were asked to read the texts aloud and reading fluency was recorded in terms of number of decoding errors (accuracy). Reading speed was measured with number of pauses that lasted for more than two seconds. Comprehension was measured in two ways. First, the participants were asked to retell what they understood in the form of paraphrasing and they were scored on a ten-point criterion list. Second, they wrote a multiple choice reading comprehension test in both L1 and L2. A high correlation between the two comprehension scores was found. The other results revealed that “neither speed nor accuracy of reading connected text predicted reading comprehension in Arabic or Hebrew (L1) reading” (p. 728). However, in L2 there was a significant correlation between oral reading fluency and reading comprehension for both the Arabic and Hebrew groups. Both measures of fluency, accuracy and speed, were found to be related to reading comprehension in English (L2). It should be noted that reading rate was measured by pauses and not words per minute. Results support the NAEP results with fourth-graders but in L2 settings and with older
learners. In addition, these results support the relationship of fluency and comprehension as suggested by AM, albeit in an L2 setting.

2.5.5.1 Summary of the Relationship between Fluency and Comprehension

The relationship between fluency and comprehension is positive and fluency in reading of connected text is more positively related to comprehension than reading lists of words. Some studies have shown that growth in speed and accuracy does not always translate into better comprehension, however, some scholars believe that the relationship between reading fluency and comprehension has been generally well supported in extant reading research (Strecker, et al., 1998).

Some studies have shown that fluency and comprehension are more important in elementary grades as opposed to secondary grades. Other studies maintain that the relationship of fluency and comprehension is relevant in high school and advocate that fluency instruction is useful. Among adolescents, low reading rates do not always reflect low comprehension. Sometimes readers use compensation strategies that slow down fluency but do not hamper comprehension suggesting that fluency may not be necessary for comprehension to occur. However, The NRP describes fluency as “one of the several critical factors necessary for comprehension” (NICHD, 2000a). The notion that fluency is a critical and necessary factor for comprehension to occur suggests that it may need to precede comprehension. However some researchers believe that there is no clear evidence to support whether fluency contributes to or is a result of comprehension. In reviewing the relationship between fluency and comprehension Strecker, Roser, &
Martinez (1998) suggest that “the issue whether fluency is the outgrowth or a contributor to comprehension is unresolved. There is empirical evidence to support both positions. What is undisputed is the interrelatedness of fluency and comprehension” (p. 300).

Most of the research reviewed so far involves native English speakers and studies from elementary grades because this population is the most often researched. The rationale for instruction in fluency for older students and EAL learners extends from this body of research. There is a limited amount of research in the area of EAL-young adults. There is a need for more research that looks at the impact of fluency on comprehension in young adults and particularly EAL learners. Although some studies show conflicting results, likely due to the duration of intervention, age of participants and type of reading instruction and intervention, a majority of findings seems to support a positive relationship between fluency and comprehension.

2.5.6 Transfer Effects of Reading Fluency

The transfer effects of reading fluency have been researched mainly in the context of repeated reading studies. Repeated Reading (RR) as the name suggests, involves the repeated reading of a passage until a desired level of fluency is attained (Samuels, 2002). While the focus of the current study is not RR, the studies reviewed in sections below are included to identify the concept of “transfer” of fluency from extant research and to provide a background for the implementation of transfer as it applies to the current study.
Herman (1985), for instance, tested the transfer effects of repeated reading with eight students from fourth, fifth and six grades at a mid-western inner-city elementary school in the US and found that the fluency, as measured by correct reading rate of words read per minute, increased between readings of five stories. Stories were self-chosen by students from books assigned by the authors of the study and hence reflected students’ reading preferences. The fluency gains between the first-reading of story one and first-reading of story five indicated a transfer of fluency to unfamiliar texts.

Taguchi (1997) observed that repeated readings helped to improve silent reading rates in Japanese EFL students. Sixteen students learning English in their first year at a university in eastern Japan participated in the study. Over the ten-week study, for 40 minutes during each English class, participants read a passage seven times. Oral and silent reading rates were measured by recording the time taken to read each passage. After twenty-eight such sessions the silent reading rates of the participants increased significantly. However, generally, these improved reading rates were not transferred to oral or silent reading of new or unfamiliar passages.

In a follow-up study where duration and pattern of intervention were similar to the Taguchi (1997) study reviewed above, Taguchi and Gorusch (2002) studied the transfer effects with eighteen first-year Japanese students at a university near Tokyo. Results showed a partial transfer of silent reading rates to new passages but there was no significant transfer of comprehension. Similarly, Taguchi et al (2004) conducted a study with 20 Japanese university students (ages 18 and 19) to
compare the benefits of Extensive Reading (ER) and Repeated Reading (RR). The participants were divided into two groups (N=10 per group). The groups were matched by TOEFL scores and pre- and post-fluency scores were calculated using the Burns Informal Reading Inventory. Over a period of 17 weeks the RR group was involved in repeated readings from two grade-texts and the ER group read from a library of 83 grade books. While the results showed that “RR and ER are comparable in facilitating participants' reading fluency, with the RR group having slightly higher word per minute reading rates” (p. 83) the RR group also made reading fluency gains in terms of silent reading rates from practiced passages to unpracticed ones.

The transfer effects of reading fluency in studies reviewed above appear to be focused mainly in RR settings. In addition, the research related to the concept of transfer of fluency to new passages or new genres of texts in university setting studies is limited. This study aims to investigate the transfer of this fluency between independent reading or pleasure reading materials and academic reading materials from familiar or practiced texts to novel or unfamiliar texts.

2.5.7 Technology and Reading

Technologies such as digital audio, Internet technologies and software programs have become popular in the last decade as viable tools in reading instruction. Authors of a Statistics Canada report on ICT integration in Canadian elementary and secondary schools claim that governments have recognized the importance of integrating ICT in learning and teaching and have put efforts into
installing hardware and software in Canadian secondary schools (Plante & Beattie, 2004). Digital technologies also offer the potential of enhancing oral reading fluency (Oakley, 2003). The NRP report concluded that “computer technology can be used to deliver a variety of types of reading instruction successfully” (NICHD, 2000b, p. 6.9). A number of digital technology tools may be used to bolster classroom fluency and comprehension instruction in meaningful ways.

Audio recordings are useful in helping students hear their voices as they practice reading aloud. Such recordings help in improving prosody in oral reading (Hudson, Lane, & Pullen, 2005). Digital voice recorders are simple audio tools that students can use in recording and hearing their reading voices. The ability to record, listen and rerecord in order to practice and monitor their progress promotes independent judgment and gives students ownership in their learning (Hudson, et al., 2005). Young adults would likely favour this kind of technology as a means to practice reading in order to develop fluency.

Talking books, Carbo recorded books⁷, and computer-based versions of traditional print books, are useful ways of providing independent reading and repeated reading activities in classrooms. These are essentially print-based books that are augmented with audio, in the form of tapes in the case of talking and Carbo books, or CD-ROMs in the case of computer-based books. Students can have access to fluency practice “without inordinate demands on classroom teachers and without provoking self-consciousness and frustration on the part of students” (McKenna, Reinking, & Labbo, 1997, p. 185). Such tools may be particularly suitable for young adult EAL learners who prefer to work independently and might be more

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⁷ For details refer to http://www.nrsi.com/carbo_method.html
comfortable reading out loud to a computer. In addition, these talking books provide EAL learners with access to native English pronunciation and fluent reading models. A research project that involved creation of “electronic talking books” through a software program on CD-ROM by three grade 5 students in Perth, Australia was helpful in building the participants’ oral reading fluency and comprehension (Oakley, 2003).

Commercially-available interactive multimedia computer software programs are growing in popularity as reading fluency enhancing tools. For instance, “Academy of Reading”, a software tool that is used in secondary schools, is instructionally designed to promote overall reading proficiency through building foundation reading skills including fluency. The tool, also suitable for EAL learners, is proving to be successful in schools across the US (Loh, 2005). There are a host of such products currently on the market that are suitable for EAL learners. Moreover, reading program packages that consist of a set of graded-readings and activities for the classroom have augmented or replaced their print-based materials with CD-ROM, web-based or software versions. For instance “Read Naturally”, a program that was designed to improve fluency in beginning and older readers with print materials now has a software version (Hasbrouck, Ihnot, & Rogers, 1999; Hudson, et al., 2005). The program uses oral reading and repeated reading to promote reading fluency. Interactive singing software technologies like Carry-a-Tune\(^8\) (CAT) also appear to be useful in promoting reading skills. Biggs, Homan, Dedrick, Minick & Rasinski (2008) employed the CAT software program with 24 struggling readers from grades 7 and 8. The software program developed for improving singing by

\(^8\) Product details available at http://www.carryatune.com/index.php
reading along with song lyrics had a positive impact on students’ comprehension
and reading achievement.

Voice recognition software, offering an extended form of interaction between
the reader and the text, is also proving to be useful as a digital reading technology.
Reading Tutor (RT) a Voice-Recognition (VR) software program still in its research
prototype phase from Project Listen at Carnegie Mellon University has proved to be
beneficial in enhancing reading fluency in elementary school children. The
automated reading tutor displays stories on a computer screen, and listens to
children read aloud (Project Listen, 2007). A study with 178 students, grades 1-4
from schools in the Pittsburgh area found significant fluency and comprehension
gains in RT users when the Sustained Silent Reading (SSR) method of instruction
was compared to the use of the RT in classrooms (Mostow, et al., 2002). Studies
with EAL learners have also shown similar results. Thirty-four EAL learners grades
2-4 whose home language was Spanish in a Chicago suburban school were part of
a study that compared SSR in the classroom with RT and claimed significant gains
Reading Assistant (RA) a commercial VR software program offers high school
curriculum designed to improve reading fluency and comprehension in youth and
young adults. However, currently there are no independent studies supporting the
effectiveness of this software.

ICT technologies and reading software programs offer a great deal of
potential as reading instructional tools. They are becoming increasingly
sophisticated in their features and functions. They may serve as scaffolding tools in
a well designed reading instructional program. Also, the number of commercial products available has grown tremendously in the last decade and continues to grow. It is becoming increasingly difficult for educators to identify quality software materials and products (Coiro, et al., 2006). In addition, there is only a limited amount of research to back up the effectiveness of such programs especially in the area of fluency instruction in EAL-young adults.

2.6 Summary of Reviewed Research

The reading instruction of EAL learners of all ages appears to be an important issue for educators. With a growing number of EAL learners in secondary and post-secondary institutions, promoting their reading skills appears to be important in enhancing their educational experiences and academic achievement. ICTs are proving to be viable solutions to create and enhance unique educational experiences for young adult learners in areas of reading and writing (Warschauer, et al., 2004). One of these in particular, the Reading Tutor (RT), an automated speech recognition software, may be useful as a tool to promote reading skills in young adults.

Students’ reading interests and preferences appear to play an important role in reading instruction of youth and young adults. Some believe that “if reading is the basis of scholastic learning, then reading interest is also important in the process” (Quintana, 2001, p. 417). Newspapers, magazines and song lyrics appear to be among preferred reading materials while current events, contemporary issues, movie reviews, sports and fashion are topics that interest young adults. Manga comics in particular are popular reading materials with Japanese male and female
young adults. Types of materials students read online included magazines, movie reviews, horoscope, weather, health, comic strips, jokes, fashion, sports, food and jobs. The limited amount of research on reading habits of university level students reviewed had shown that there is a wide range in the number of hours in a week spent on reading academic and non-academic reading materials.

Reading fluency and comprehension are vital skills for students of all ages. This review on the relationship between fluency and comprehension has found that research has mainly focused on students in elementary grades and in L1 settings. A recurring theme found in all aspects of the relationship between fluency and comprehension covered in this review has been that there is only a modest amount of research in the area of young adult EAL learners. Researchers are calling for increased efforts in building the knowledge base in these areas.

Reading fluency is positively related to comprehension in the majority of the empirical studies reviewed here. Researchers have used the words “interrelatedness” (Strecker, et al., 1998) and “close relationship” (Pinell, et al., 1995) to describe the connection between these reading skills. Most research involves Native English Speakers. The relationship between fluency and comprehension has not been well documented with young adult EAL learners. Digital technologies appear to be viable fluency and comprehension enhancing tools for young adult EAL learners.

EAL young adults studying in English university environments may be facing challenges in reading academic and non-academic texts (Gunderson, 2009). Mokhtari & Sheorey (1994) “emphasize reading skill improvement as a major
component in the courses designed for ESL students as they begin their studies in an all-English environment” (p. 59). Although sometimes students may want an emphasis of reading skills in their courses (Mokhtari & Sheorey, 1994), it is not always feasible to provide explicit reading instruction at the college level. Computer-based reading tools may, however, be a viable means of scaffolding such EAL learners.

A review of relevant research has found that very few studies have examined the use of student-preferred reading materials and its influence on reading performance. One of the goals of this study is to understand the impact of student-preferred reading materials on reading performance in the context of a computer-based reading tool. In addition, from the review of extant research, assuming that there is a positive relationship between reading fluency and comprehension, another goal of this study is to investigate if the use of interactive voice-recognition software results in promoting reading fluency and in-turn improving comprehension in EAL young adults. This study involving a computer-based RT is, therefore, poised to make unique contributions to these under-researched areas of reading, particularly pertaining to EAL young adults.

2.7 Relevance of Research Reviewed to Current Study

The growing number of EAL learners and international students in universities and colleges portends the need for such institutions to understand how to promote their reading skills given that according to some sources, such as Gunderson (2009), students may be facing challenges in reading academic and non-academic
English texts. Computer-based reading tools appear to offer the possibility of promoting reading skills and studies with the RT with younger EAL learners have found some positive results. A number of studies reviewed have reported on the reading preferences of young adults, some in the context of university students, however there is a paucity of research on the reading preferences of EAL university students especially involving sojourning international students. Similarly reading habits of academic and non-academic texts of university students has not been widely researched.

The Automaticity Model (AM) used as a theoretical basis in this review of fluency and comprehension suggests that some cognitive pre-lexical tasks such as decoding use “attentional” resources that are at any instant available in limited supply. These resources are available for other higher-order post-lexical tasks such as comprehension when tasks such as decoding become automatic through practice. Therefore fluent reading makes decoding automatic so that comprehension can simultaneously occur. In other words, according to the theory if fluent reading fails to develop comprehension will suffer as a result of more “attentional” resources being directed to decoding of text.

Results of studies reviewed appear to suggest a relationship between reading fluency and comprehension. While some studies do not support a positive relationship between fluency and comprehension, others have found an increase in fluency resulted in an increase in comprehension. A research question in the current study investigated whether an increase in fluency would result in an increase in comprehension. A majority of extant research appears to focus on younger students
and mainly native English speakers. Studies examining the relationship between fluency and comprehension with EAL learners are limited in number and there are even fewer studies with university level international students. In addition, the transfer effects of reading fluency between independent reading or pleasure reading materials and academic reading materials has not been researched in the context of these learners. It is important in the university setting to understand if fluency gains made in non-academic texts may transfer to academic texts. This may help university educational programs in planning reading instruction, particularly for EAL learners.

This study aimed to contribute to the understanding of the reading habits and preferences of young adult EAL learners in a university setting. In addition, how including these reading materials in a computer-based environment would help promote reading skills was also studied. Mostow (2008) believed that educational software such as the RT “should be evaluated based on students and settings representative of its intended use” (p.145). This study using the RT was therefore carried out in the AEP setting and the research questions listed below were used to guide the study and provide a basis to report the findings that would enhance the knowledge in the field.

- What are the reading habits of young adult EAL learners studying in a university academic exchange program? What kinds of reading materials do they prefer reading?
• How does the inclusion of student-preferred reading materials in a computer-based reading tool influence reading development of young adult EAL learners as measured by standardized tests?

• In what ways will the systematic use of a computer-based reading tool with student-preferred reading materials increase reading fluency in young adult EAL learners? Will an increase in fluency be associated with an increase in reading comprehension scores as measured by standardized tests?

The chapters that follow will describe the methods used to investigate these questions and present the findings of the study.
Chapter 3: Research Methods

The two main methods and the measures used in the study are described in this chapter. The chapter begins with a section describing the background of the participants of the study, followed by a brief outline of the study’s design and main features, including data collection procedures, data sources, testing and measures. The chapter ends with a brief discussion of the analysis of the data in the study.

3.1 Participants and Setting

The participants were young adult EAL learners from 19-21 years of age in a large western Canadian university who were part of an international Academic Exchange Program (AEP) from a Japanese university for 8 months of the academic year September 2009 to April 2010. Further details on the participants are presented in chapter 4 of this document.

The AEP was geared towards offering the students an integrated academic and living environment that provided them access to unique international academic and inter-cultural experiences. In addition, students were enrolled in specially designed integrated language and content courses. Appendix G of this document contains an overview of the academic context of the students who were part of this AEP. Some details of the curriculum including brief synopses of the courses offered in the program are also listed in the same appendix.
3.2 Outline of the Study

This study aimed to contribute to the understanding of the reading habits and preferences of young adult EAL learners in a university setting and investigate how student-preferred reading materials would help promote reading skills in a computer-based environment. In order to address research questions 1, 2 and 3, the study was designed first to administer an online survey to determine reading preferences and reading habits and to include subsequently such reading materials in the Reading Tutor (RT) and allow students to use it over a period of 8 weeks.

The online survey described in the next section gathered information on the reading habits and reading material preferences of the participants and it provided data for the two parts of research question 1. Details of student reading preferences and the rationale behind the choice of the reading material - News articles on world current events – that was used as part of the RT intervention are presented in chapter 4.

3.2.1 Online Survey

The online survey (refer appendix D – Reading Materials Survey Questionnaire) comprised of a section for reading habits (six questions), followed by one question that probed students’ self-perceived level of difficulty in reading English and a third section for preferences of reading materials (18 questions).

The goal of the online survey was twofold. First, to provide the data for research question 1 on the reading habits and kinds of reading materials that students preferred reading. Second, it also helped in forming two experimental
groups of students (those who preferred and did not prefer the particular type of reading material). These two groups, who worked on the Reading Tutor (RT) software and are described in sections to follow, provided data to answer research questions 2 and 3. A third group -- the control group -- was also formed following the results of the survey.

The online survey was administered to all the students in the AEP program. The details of the responses from the survey are discussed under research question 1 in chapter 4 of this document. The respondents to a particular type of reading material – newspaper articles on world current events – were randomly selected to participate in the survey. Those who responded with either agree or strongly agree with the statement: “I like reading newspaper articles on world current events” were put into one group (Preferred Reading Material Group - will be referred to as PRM group) and those who responded with either disagree or strongly disagree into another group (Non-Preferred Reading Material Group - will be referred to as NON-PRM group).

Ninety-three students responded to the survey and 23 students were found from the respondents in the PRM group and 70 students were in NON-PRM group. Students from each group were randomly selected and invited to join the study. Participation in the study was voluntary. Students from groups PRM and NON-PRM were randomly selected and invited to participate in the study through email. Experimental groups PRM (n=16) and NON-PRM (n= 12) were formed from participants who volunteered from these groups. In a second round, randomly selected students from the remainder in both groups were invited to join the study as
Control group, through email. The Control group (n=14) was formed from the students who volunteered in response to the email.

The reading habits section of the survey and the question on self-perceived level of difficulty in reading in English, only seven questions, were administered again at the end of the study to observe the change in reading patterns. Research question 1 in chapter 4 contains a detailed discussion of the online survey.

3.2.2 Computer-Based Reading Tutor

The Reading Tutor (RT) is an automated speech recognition software program that displays text on the screen. The software also listens to the oral reading of these texts from students and offers help when they have difficulty with texts. Using Carnegie Mellon’s Sphinx-II speech recognizer to analyze students’ oral reading, “the RT intervenes when the reader makes mistakes, gets stuck, clicks for help, or is likely to encounter difficulty” (Project Listen, 2007) with reading the text presented on screen. The RT provides various levels of help. For instance, the student can click on the word and have it sounded out aloud. Sometimes, the RT also prompts the student to re-read the text. There is also help in the form of video clips that visually demonstrate to the student how to articulate parts of a word.

The version of RT that was used in the study was ver Apr11, 2007. The standard configuration of the RT consists of reading content designed for students from K-7. The features of the software including the user interface are intended to cater to elementary students. In its standard configuration the software promotes or demotes students through reading levels as they orally read the texts presented to
them on screen. A unit of reading material in the RT usually ranges from a poem to short units of prose. These units are referred to as “stories” despite the fact that many passages or units are non-fiction. The version of software used in this study did not require the feature of reading levels as the reading materials were all from a similar theme and students were free to choose “stories” as they interacted with the software. The details of how the author included the reading materials in the RT are covered in the next section.

### 3.2.3 Modifications to Include Student-Preferred Materials in the RT

The RT is still in its research prototype phase and as described above the standard version of the RT included reading materials for levels K-7. These reading materials available as “stories” were mainly added into the software by the team of developers of the software at Carnegie-Mellon University (CMU) in Pittsburgh, Pennsylvania. For purposes of this study reading materials -newspaper articles on world current events - were required to be added into the software program.

Free access to normal users to add stories to the software program is restricted. Stories for the current study had to be created and included by following a different path that required a greater degree of familiarity with the software program. An understanding of the directory structure (folder structure) where these stories resided in the software program was important to the implementation of the study. In addition, knowledge of the files that contained the text of the stories to be presented on the screen, and the timing when the wording in these texts would be presented was also essential. The RT used an “arg” file which contained information called
“switches” that decided the behavior of the software program, for instance, whether it could or could not allow access to add stories. The knowledge of switches provided the capability to manipulate some key changes in the RT behavior.

The experience gained by the author from working with the RT on previous projects and a visit to the software-team in CMU two years prior to the study provided the author some level of expertise to work with the software program and implement the inclusion of these customized reading materials. Using the “Activity Code”, a special set of instructions in the form of software code for the RT, provided by the developers, and by manipulating the “arg” file to allow access, the author created stories on a separate computer. These stories were later transferred into specific directories in the program on the stations or computers called RT “hosts” where students used the RT. All stories as listed in Appendix F were created by the author by using the aforementioned method. Specific details of how to create these stories are beyond the scope of this document.

### 3.2.4 Reading Tutor Treatment

Reading materials of the type -- newspaper articles on world current events-- that were used to form the experimental groups PRM and NON-PRM from the survey was added as “stories” or reading units into the RT software program as detailed in the previous section. A substantial number of units of this preferred reading material were added into the software (details in Appendix F). The advice of two experts in the field of ESL and those who are familiar with reading materials of the target group of students was sought for every story that was added. Details of the reading materials are discussed in chapter four of this document in greater
detail. The version of the RT with these reading materials incorporated was used by the two experimental groups (PRM & NON-PRM) over a period of approximately 8 weeks during the fall term of the academic year 2009-2010 of the AEP. The Control group did not receive any RT intervention. However, pre and post reading skills tests as described in the testing section of this chapter were administered to all three groups.

All students from experimental groups PRM and NON-PRM were scheduled to use the RT two days a week for about 30-45 minutes a day. Four PC machines (RT hosts) situated in the lab of the AEP program building with the RT software program installed were used by the groups. Students were assigned to a particular RT host and used the same host over the study period.

3.3 Measurement of Reading Outcomes

Tests were carried out to measure the two variables: reading fluency and comprehension. Reading comprehension was measured using the Nelson-Denny (ND) test battery (Brown, Fishco, & Hanna, 1993), a widely used test for young adults and adults. The ND tests have two parallel forms (G and H) that help in monitoring students’ progress over time. Pre- and post-tests were administered on all three groups – PRM, NON-PRM & Control- using the test forms available in the ND testing suite. The ND test is a group test that takes 55 minutes to administer. The instructions recommended by the test for ESL students were used while administering the test. The ND manual was used to obtain scaled scores from the raw scores. The ND total scaled test scores were used as measures for reading
development. The scaled scores are recommended by the test manual for use in measuring growth and performing statistical analyses (Brown, et al., 1993). The total scores are composed of two test components – reading comprehension and vocabulary. Similarly, the scaled comprehension scores were used to explore the association between reading fluency and comprehension.

Curriculum Based Measurement (CBM) was used to test the Oral Reading Fluency (ORF). CBM is easy to administer, and time efficient way of assessing ORF (Fuchs, et al., 2001). Developed over two decades ago this procedure has been widely used and well acknowledged in reading research (Deno & Marston, 2006). The basis of CBM is to determine the accuracy and speed of a student’s oral reading. Deno & Marston (2006) believe that “research on CBM has provided a basis for concluding that the number of words read aloud from text in one minute may be the best available measure of reading fluency” (p. 180). The CBM approach consists of using passages of texts from the student’s curriculum and measuring the number of words (rate) and accuracy of reading (for step by step details of conducting CBM refer to - McKenna & Stahl, 2003, p. 75). CBM helps track students’ progress over time by observing their oral-reading performance through sampled passages of equal difficulty levels. The CBM testing for ORF was done at both pre- and post-testing in this study. The passages and testing details are discussed in greater detail in the next section as well as in chapter 4 to provide a richer context for the discussion of the results of these tests.
3.3.1 CBT Testing for Reading Fluency

The reading passages for the CBT were chosen randomly from two sources, the first from the kinds of reading that would be part of the RT software - news articles on world current events or the student-preferred materials of the study. The second source for testing passages was course-related curriculum materials. Passages therefore covered two kinds of reading – non-school related or independent and school-related or academic materials.

All students in the AEP were enrolled in a course that focused on developing academic writing skills. The course description on the program website read as follows: This “course provides you with many opportunities to develop your writing abilities and simultaneously to increase awareness of the ways key language features vary across different academic and professional registers”. This course was one of the two mandatory courses in the fall term for all students in the program and, therefore, was a suitable choice for academic reading testing materials. The course pack of this academic writing course was used as a source for academic CBT passages.

Two passages were randomly selected from each of the two categories of reading materials described above and used for CBT. The passages for the academic reading materials came from the course pack of the course on academic writing described above. The passages for the independent reading materials came from stories that were on one of the online news websites used as a source for content that was incorporated in the RT software. These passages were not seen by
The passages were approved as appropriate for testing with EAL students by the resident ESL content reading specialist in the Language and Literacy Education department at the university where the study was conducted. The specialist also independently determined that the two passages were comparable in terms of readability scores and hence any one randomly chosen passage could be used for either pre- or post-testing. The Flesh Reading Ease and Flesch grade level scores for the passages are listed in table 3.1.

<table>
<thead>
<tr>
<th>Passage</th>
<th>Flesch Reading Ease</th>
<th>Flesch Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>75</td>
<td>6.1</td>
</tr>
<tr>
<td>B</td>
<td>56</td>
<td>10.9</td>
</tr>
<tr>
<td>C</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>61</td>
<td>10.6</td>
</tr>
</tbody>
</table>

**Table 3.1** The Readability Scores for the Four Passages Used for CBT

Test passages A and B were used in CBT pre-testing for independent and academic readings respectively. In post testing the same two passages (A & B) were
again used in addition to two new passages C and D for independent and academic readings respectively. The words per minute read correctly or Words Correct per Minute (WCPM) recorded in passages A, B, C and D were used as reading fluency scores. The WCPM for pre-tests included the scores for independent (Passage A) and academic (Passage B) texts. The WCPM from post-tests included scores again from passages A & B as well as new passages C (independent) and D (academic). The pre-test fluency testing accounted for two scores while the post-test fluency testing accounted for four scores. These pre- and post-test scores allowed for comparison of gains in fluency in four different scenarios as listed in table 3.2.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Passage Text</th>
<th>Pre</th>
<th>Post</th>
<th>Fluency Skill Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Independent Reading</td>
<td>A</td>
<td>A</td>
<td>Non-Transfer</td>
</tr>
<tr>
<td>II</td>
<td>Independent Reading</td>
<td>A</td>
<td>C</td>
<td>Transfer</td>
</tr>
<tr>
<td>III</td>
<td>Academic Reading</td>
<td>B</td>
<td>B</td>
<td>Non-Transfer</td>
</tr>
<tr>
<td>IV</td>
<td>Academic Reading</td>
<td>B</td>
<td>D</td>
<td>Transfer</td>
</tr>
</tbody>
</table>

**Table 3.2** Fluency Comparisons for the CBT Scores

The use of the same passage for pre and post testing is not an unusual practice and has been used in a number of studies (Begeny & Martens, 2006; Martens, et al., 2007; Neville & Pugh, 1975). In addition, these studies have also used novel or new passages for post-testing. While the goals and interventions have been different in these studies a general notion in using the same and novel
passages in reading fluency studies between pre-testing and post-testing has been to observe the gain in reading fluency on the same text and the transfer of this reading skill to a new or unfamiliar text. In the current study, as listed in table 3.2 above, a similar approach has been adopted. The same passage used in pre- and post-testing represents a familiar passage in the post-test and non-transfer while a novel passage in post-test represents a transfer of reading fluency to unfamiliar texts for the participants. This applies to both the independent and academic reading materials. Coleman & Heller (2010), for instance, studied the non-transfer and transfer effects of reading fluency with a computer software program called Kurzweil 3000 albeit with disabled students. The four scenarios of fluency measured in the context of this study for the independent and academic passages are listed in Table 3.2.

3.4 Data Sources

In addition to data from the tests described above, observations and day-to-day notes were also part of the data. Participants from experimental groups PRM and NON-PRM were interviewed at the end of the study. These exit-interviews were primarily used to probe participants’ reading experiences through the study and to gather feedback on the RT software. Refer to Appendix E for details on the interview questions used to guide these semi-structured interviews. In order to maintain a conversational tone and facilitate easy exchange of information the interviews did not strictly follow a particular sequence of questions or did not word the questions as precisely as those listed in the appendix, but, an attempt was made to cover most if not all the questions. Sometimes additional clarifying questions were used
depending on the responses of the participants. As mentioned earlier, the author also kept notes on observations during the study phase in order to supplement the interview data. This corpus of qualitative data will be used to provide some context and to triangulate and support information and findings from the quantitative data analysis.

3.5 Study Design

The combination of the quantitative data from the survey and reading measures and qualitative data from interviews, field notes and observations made the design of the study a mixed methods research design (Maxwell & Loomis, 2003). Combining data from these two kinds of sources allowed the study to benefit from the strengths of these two different approaches of data collection and aided in providing a richer context for the discussion and understanding of the answers to the research questions.

3.6 Pilot

A short pilot was conducted in the month of March during the winter term of the same year (2009) prior to the fall term when the current study was carried out. The pilot helped in gaining an understanding of the day-to-day working of the study. Two computer stations were set up in a room at the entrance of the building where the AEP classes were held. Seven students used the software for a few sessions over a period of approximately four weeks.
The pilot mainly helped in gaining a better understanding of the logistics for the study. For instance, it became clear after the pilot that a more appropriate location for the RT hosts - computer-stations with RT software - would be the lab where students spent most of their time during their regular class hours through the school day. It was established from observations that this would help to enhance participant attendance over the period of the study due to ease of access. The decision to locate the study in the lab was also endorsed by the AEP’s academic director who believed the location would also highlight the role of research in the AEP and attract student participation.

The pilot also helped in deciding the optimum number of RT hosts that would be useful in accommodating more students in order to maximize use. The number of stations was increased from two to four. It was also clear that scheduling students during class hours would be useful in order for them to be able to use the software when they were in the building for classes. As some students lived in residences at far distances from the building they would not be motivated to attend sessions with the RT after class hours. Some technical issues related to the incorporation of reading materials into the software were also ironed out during this period. The pilot also helped in the decision of the reading material type discussed earlier and the reasons behind that decision are discussed in sections ahead.

3.7 Data Analysis

The survey data were analyzed using SPSS and Excel and descriptive statistics and graphs of the results are presented in the sections of chapter 4 under the relevant research questions. The reading fluency and comprehension scores
from groups (pre and post) were analyzed using the ANOVA algorithm (menu item) in SPSS\(^9\). The interview data was transcribed and the text-documents were loaded into Atlas-ti\(^{10}\). Atlas-ti has tools to aid in the content analysis of textual data. Using codes, memos and quotations, which are integral components of the Atlas environment, data was organized and clustered to look for themes to assist in answering the research questions. The results of the details from the content analyses are presented alongside the quantitative results in sections in chapter 4.

\(^9\) SPSS is a quantitative statistical tool available at http://www.spss.com/
\(^{10}\) Atlas ti is a qualitative text analysis tool available at http://www.atlasti.com/
Chapter 4: Results and Discussion

This chapter presents both the results and discussion of analyses carried out on the data gathered through the various sources described in chapter three during the study period. Data were collected through an online survey, standardized reading tests, short exit interviews with the participants, observations, field notes and information recorded within the RT software. The chapter begins with a background and description of the participants and their program of study. The rest of the chapter is structured in order of the research questions – 1, 2 and 3 and under each of these sections the findings and discussion pertaining to the research questions are presented. The chapter concludes with a summary of all the questions.

4.1 Participants and Program of Study

All participants were Japanese students who were part of an international Academic Exchange Program (AEP) at a large western Canadian university. The forty-two participants (N=42) consisted of thirty-two females and ten males ranging in age roughly between 19-21 years. Table 4.1 below shows the breakdown of the participants by gender and age for the three groups in the study: Two experimental (PRM and NON-PRM) and one Control group.
### Table 4.1 Participants’ Gender and Age

The AEP is associated with the Language and Literacy Education Department (LLED) at a large western Canadian university and the 100 students enrolled in this program arrived in September each year for the past 19 years and left in April the following year –spending two complete academic terms, fall and winter terms, at the university (referred to as “host university” in this document). The program is designed to provide these second and third year Japanese university students with a unique international and inter-cultural experience through an integrated academic and living environment. The curriculum provides students with content related to a number of areas such as academic writing, Canadian culture, sociolinguistics, Asia-Pacific studies and liberal arts. Some students also enroll in additional elective courses outside the AEP offered by the host university.

With a few exceptions, a majority of the students do not meet the host university’s minimum English Language Proficiency (ELP) requirements i.e. Test of
English as a Foreign Language (TOEFL) score of 550 and the Test of Written English (TWE) of 3.0. As a result, about half the courses in the AEP are designed to provide students with academic language support.

This study was guided by three research questions. The sections that follow will present the data, analysis and discussion related to these research questions in the order starting with research question 1 and ending with research question 3. A short summary will be presented at the end of each research question. A section summarizing all the research questions together will conclude this chapter.

In order to identify anecdotal comments by students from interview data an alphanumeric coding system will be used from this point on in the document. The code will identify the two experimental groups Preferred and Non-Preferred reading material groups as PRM and NONPRM respectively. As discussed earlier, the Control group was not interviewed and, therefore, the control group will not be identified for interview comments. The group code will be followed by the gender of the student namely M for male and F for female separated by a hyphen. The last two numeric digits will be unique numbers used to identify the student in the group. For instance, PRM-M06 will mean a “Male” student from group PRM with an individual code of 06.

4.2 Research Question 1

Research question 1 was designed to probe the reading habits and reading preferences of the students in the AEP program. The question as listed below will be discussed under two parts under this section:
What are the reading habits of young adult EAL learners studying in a university academic exchange program? What kinds of reading materials do they prefer reading?

4.2.1 Reading Habits

What are the reading habits of young adult EAL learners studying in a university academic exchange program?

An online survey called “Reading Materials Survey Questionnaire” was administered to all 100 students in the program. The survey included two main sections: first, on questions related to students’ reading habits, and; the second on their preferences and interests in reading materials (refer to appendix D for details on the survey). The survey was administered to all 100 students in the first week of the fall term. Responses provided data on reading habits and reading preferences. Responses were also used to form three groups --two experimental and one control group as described in the methods section of chapter 3. Details pertaining to these groups are explained in greater detail later under research question 2. In order to investigate the changes in students’ reading habits over the term (and study period) only the students who participated in the reading intervention phase of the study – discussed in research questions 2 and 3 - were surveyed again on “reading habits” at the end of the term. Essentially, the study participants were surveyed on the reading habits section at the beginning (pre) and the end (post) of the study. The discussion under this research question will first focus on the reading habits of the
AEP students and the next section under this research question will present and discuss their reading preferences.

The reading habits section of the survey contained six questions as shown in table 4.2. The Cronbach’s alpha for the six items in the survey was found to be 0.73 indicating that the items for this part of the survey had acceptable internal consistency reliability. The responses to the six questions that surveyed the students on the number of hours spent in reading school and non-school related materials at the beginning (pre) and end of the term (post) are presented in the graphs and tables in the sections that follow.
Reading Habits Survey Questions

1. How much time in a week (approximately) do you spend reading school-related materials on the computer?

2. How much time in a week (approximately) do you spend reading school-related materials in print (not online but in the form of books for example)?

3. How much time in a week (approximately) do you spend reading non-school related materials in ENGLISH on the computer?

4. How much time in a week (approximately) do you spend reading non-school related materials in JAPANESE on the computer?

5. How much time in a week (approximately) do you spend reading non-school related materials in print in ENGLISH?

6. How much time in a week (approximately) do you spend reading non-school related materials in print in JAPANESE?

Table 4.2  Questions Used to Survey Reading Habits in Pre- and Post-Testing

The survey probed students' reading habits on school-related and non-school-related materials as shown in table 4.2. School related materials or curricular materials are normally materials connected with course content. Non school-related materials included materials that were non-academic that students may read outside their classrooms or courses. While these two categories were identified in the survey as “school –related” and “non-school-related “ to make a clear distinction between what students read inside and outside their academic circles, in this document, for brevity and ease-of-reading, alternative terms will be used. The term “school-related”
reading materials will be referred to as “Academic” reading materials and “non school-related” will be referred to as “independent” reading materials denoting materials that are non-assigned that students would read independently in their own time. In addition, the materials read on the computer will be referred to as reading “on screen” to distinguish the reading done in “print” with materials such as books that are non-electronic.

4.2.2 Reading Habits of Academic Materials

The first survey question related to reading habits of academic materials of participants in the study on the computer (or on screen). The responses are presented in figure 4.1 and table 4.3 below in number of hours in a week. The choices offered for these items in the survey were: less than 2 hours, 2 to 5 hours, 5 to 8 hours and 8 to 10 hours. The figures show bar graphs on how participants responded at the beginning of the term (pre) and at the end of the term (post).
Figure 4.1  Time Spent in a Week on Academic Reading on Screen

<table>
<thead>
<tr>
<th>Time Spent Reading</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>percentage</td>
</tr>
<tr>
<td>Less than 2 hours</td>
<td>27</td>
<td>66%</td>
</tr>
<tr>
<td>Between 2 to 5 hours</td>
<td>13</td>
<td>32%</td>
</tr>
<tr>
<td>Between 5 to 8 hours</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Between 8 to 10 hours</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3  Time Spent in a Week on Academic Reading on Screen
There appears to be only a modest amount of increase from Pre to Post in the number of hours students spent reading academic materials on screen as indicated by the bar graphs and accompanying table – 8% increase in the 2-5 hour range and 7% increase in the 5-8 hour range offset by a decrease of 13% in the less than 2 hour range. All courses in the AEP had a strong web supported presence in terms of either Course Management Systems (CMS) such as WebCT or Wiki-based course websites. These online course websites contained course readings and other related academic materials. Most assigned readings and course-based information materials were available in the form of electronic documents. Academic materials sometimes were also given to students in the form of print. For example, the course pack of the academic writing course was print-based while there was also a significant amount of academic materials that were provided electronically in the same course. At the beginning of the term students were also sent a number of program and university related materials that could have been read on screen. Despite having access to a significant amount of computer-based academic reading materials students’ responses reflect only a modest increase in reading hours on screen.

The second survey question related to reading habits in academic materials in print are represented in figure 4.2 and table 4.4 below.
Figure 4.2  Time Spent in a Week Reading Academic Materials in Print

Table 4.4  Time spent in a Week Reading Academic Materials in Print
The figures reported on the reading of course related materials in print seem to show a dramatic increase over the period of the term - a jump from 37% -- (32 %+5 %) to 83% -- (55% + 26%+ 2%) in the range of 2 and 10 hours. Academic reading in print at the end of the term seemed to have more than doubled compared to figures reported initially in the 2 to 10 hour range. These figures suggest a substantial growth in the number of hours spent reading academic materials in print when compared to reading on screen over the term. From observations, students working in the lab seemed to be printing out copious amounts of pages of these online reading materials in order to read them in print. While reading on screen seemed an easy task when reading in Japanese, students paused frequently to refer to their electronic bilingual dictionaries when reading English materials on screen.

While it appears from these survey results that reading in print may have been somewhat more popular than reading on screen, reading academic materials both on screen and in print seemed to be a challenge for students who reported that the texts they were reading were of a high level of difficulty. For instance, student PRM-M04 during the interview stated:

... we are talking about the reading materials...all including me, all my friends think that it is so difficult ...in Japan with the university also there is reading English textbook but it's not so difficult for us to understand...but in here reading material is so difficult for us..so difficult...I ask what does it mean...what does it mean always...

This comment by student PRM-M04 suggests that he had difficulty comprehending the academic material and hence constantly questioned “what does it mean”.
Similarly, students PRM-F11 and NONPRM-F10 also remarked that they read a paragraph or article many times before they could understand parts of the text. These comments are supported by similar comments from international students in another study conducted at the same university where students “had difficulty with the nature and amount of reading assigned in courses”.

“How much reading for us to read,” explained one international student.

“Especially those textbooks are really huge, so I have to take a long time to read,” he concluded. Another international student commented that, “because of language I always have to spend a lot of time reading the textbook.” (Grayson & Stowe, 2005, p.11)

International students in this study were enrolled in mainstream courses in the university while students in the current study were enrolled for the most part in customized and sheltered courses as described in earlier sections.

When working with academic materials, students frequently used bilingual dictionaries to translate content from English to Japanese as they navigated the text. Participant PRM-M04 suggested that he would need to go back several times to look up a word. The reason, he explained, was because after he first looked up the meaning of an English word it helped him process the sentence that he was currently reading. When he progressed and moved to subsequent sentences he sometimes had to return to look up the same word in order to understand the meaning of the groups of sentences or the paragraph. This need for constant reference to the dictionary while moving forwards and backwards through the text
prompted him to devise strategies that would assist him in efficiently navigating the content at a relatively uninterrupted pace.

Figure 4.3 below is an example of how participant PRM-M04 used post-it notes with translations of key words in the paragraph as a ready-reference that would aid the reading process as he worked through the academic material. Other students used similar strategies to cope with reading academic texts.
These texts are examples of the kinds of academic reading materials in the courses in the AEP. The student PRM-M04 had marked-up and highlighted words on the page to assist him in reading the text. The Flesch-Kincaid Grade Level
(FKGL) (refer to ReadabilityFormulas.com, n.d. for details) and Flesch Reading Ease (FRE) for the text in the summary of the article in figure 4.3 measured at 14.3 and 36 respectively while another arbitrarily chosen paragraph in the same article (not shown in figure) measured at FKGL 21.1 and FRE 8. The FKGL and FRE for another excerpt from a randomly selected page of another article for the same course was 15.6 and 33 respectively suggesting more materials of similar difficulty were part of students’ reading materials.

A key to interpret the FRE is provided in figure 4.4 below. Details on the FKGL formula are available at the Readability Formulas website (readabilityformulas.com).

90-100 : Very Easy
80-89 : Easy
70-79 : Fairly Easy
60-69 : Standard
50-59 : Fairly Difficult
30-49 : Difficult
0-29 : Very Confusing

Figure 4.4  Scale to Interpret the Flesch Reading Ease (FRE) Rating
The texts presented in the examples above were in the difficult to very confusing range of the FRE rating (refer to figure 4.4). Academic texts such as those cited in the examples above clearly presented a reading challenge to students whether on screen or in print. However, students appeared to have devised some coping strategies to navigate such texts in print. The reasons discussed above may help explain why students reported an increase in reading academic materials in print over reading on screen. Print offered affordances for comprehension strategies that screen did not.

A majority of participants responded that they spent less than 5 hours on reading on screen (93% -- 53 % below 2 hours and 40 % between 2 and 5 hours) and in print (72% -- 17% below 2 hours and 55% between 2 and 5 hours) by the end of the term. While these figures do not seem to represent an enormous amount of time spent on academic materials given the reading challenges that students were faced with and a course load of 12 credits, it may be a reflection of the students’ reaction to the challenges they faced in reading such texts. A student PRM-F13 mentioned in an interview “sometimes I skipped my reading homework because it is... I think.... I have to improve” implying that she abandoned an academic reading assuming she needed to improve. She also explained that she thought she would not be able to read and understand the article unless she had better English reading skills and a better knowledge of the vocabulary in these texts. From the author’s observations and informal discussions with some instructors in the program there appeared to be a general impression that not all students routinely completed the assigned course readings before class. Students like PRM-F13 struggling with class
readings may have chosen to abandon the reading after spending some time. In addition, it appeared that writing term papers and assignments were considered more important by students as these were course deliverables that were directly related to grades. The reasons cited above probably accounted for an increase in writing and a decrease in reading of academic and non-academic or independent texts.

Students used other strategies while reading academic texts in English. The general strategy was to read the text multiple times each time looking up a word or making notes about sentence elements. Skimming and reading the text multiple times appeared to be the most popular way of navigating texts. Student PRM-M03 explained “first I skim the article and after I understand the full meaning..I read concentrateingly”. This implies that at first pass he skimmed the text and after understanding its meaning he read again concentrating on the details. In contrast, students explained that in Japanese the reading would not be by skimming but in detail from the start. Another student PRM-F02 explained “I use dictionary and I reread…again and again..and I write something which is subject and which is verb and....and then I reread…” suggesting that she looked for parts of speech of the words in the sentences as a guide as she negotiated the reading material. In addition, another student PRM-F01 described:

in the article written in Japanese..it is very easy to find what part is more important but in English it is difficult to find where is the most important part of article..so I have to read whole…to find important things so I have train to find the best part to read..
This student’s comment suggests that students may be aware of strategic ways to navigate texts in their home language but did not understand that some of those skills could be transferred to reading academic texts in English. This also suggests that students were aware of the notion of contrastive rhetoric (Connor, 1999) in written texts and that they may have been curious about the rhetorical conventions of English academic texts. It appeared that some had figured out some of the text organization strategies that existed in English texts probably from the writing course and tried to apply that knowledge in reading English texts. However, when asked if the strategy of reading the first sentence of a paragraph to understand the main idea of the paragraph would be helpful in reading, another student PRM-M06 felt that sometimes that did not work because even the first sentence was difficult.

I want to understand deeply it is my characteristic… but sometimes not good it is because I spend time to read course material because <host university name> is a lot of reading here the teacher give me and to use a lot of material for my essay and so I have no time to read… I focused on the first sentence … or the beginning sentence in paragraph and … I focus on the for example… some kind of easy sentence… I look for easy sentences... Ya..the problem is the first sentence is difficult..

Students also felt that they would not be able to read texts because they lacked the vocabulary. Student PRM-F02 explained: “I have poor vocabulary so… almost all material… is difficult for me”. Another student NONPRM-F05 when asked what would improve her reading skill in English explained “no...I am not good
at vocabulary...I have no vocabulary...so that is my big problem to improve my English skill”. Students also evaluated the difficulty of the texts by looking at vocabulary. Some mentioned that the key words would be nouns. Students decided whether they would read a given text or not from counting the number of familiar words as student NONPRM-F05 explains in the excerpt below:

When I read some article in English...you know... I'm not good at vocabulary...so I at first I check the word that I don't know...and you know...I read adjectives...if I don't understand the adjective...I can't know the detail of that article so I don't check it but I have to know that noun words.....it is important so I have to check it in the dictionary...then I search words... if I really don't know...the vocabulary. ...I can't understand.... So sometimes I try to just count...but if I look at the article the first time and then I have a lot of words that I don't know..I can't read it.

Student comments in the preceding paragraphs and survey results suggest that they were doubly disadvantaged given that they were expected to read difficult texts and were not equipped with the tools to navigate the texts effectively. It appears that students may have benefitted from some focused instruction on reading strategies in English.
4.2.3 Reading Habits of Independent Reading

The responses to the survey item regarding time spent in reading independent reading materials in English (survey question 3 of table 4.2) on screen showed only a modest increase over the term. Figure 4.5 and table 4.5 present these trends over the period of the term.

![Figure 4.5 Time Spent on Independent Reading in English on Screen](image-url)
<table>
<thead>
<tr>
<th>Time Spent Reading</th>
<th>Pre</th>
<th></th>
<th>Post</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>percentage</td>
<td>number</td>
<td>percentage</td>
</tr>
<tr>
<td>Less than 2 hours</td>
<td>36</td>
<td>90%</td>
<td>31</td>
<td>74%</td>
</tr>
<tr>
<td>Between 2 to 5 hours</td>
<td>2</td>
<td>5%</td>
<td>10</td>
<td>24%</td>
</tr>
<tr>
<td>Between 5 to 8 hours</td>
<td>2</td>
<td>5%</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td></td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.5**  Time Spent on Independent Reading in English on Screen

The responses to time spent in independent reading in English in print (survey question 5 of table 4.2) also showed only a modest increase over the term. Figure 4.6 and table 4.6 present these trends over the period of the term.
The student responses to independent reading in English on screen and in print suggest minor growth in the number of hours spent in a week over the period of an academic term. The time in hours spent in independent reading in English
screen grew from 10% (5% + 5%) to 26% (24% + 2%) while in print from 17% (15% + 2%) to 19% (12% + 7%) in the range of 2 to 8 hours.

The modest increase in independent reading in English both on screen and in print is an interesting finding because it suggests that most time spent reading in English may have been in academic reading. In addition, the responses also suggest that a majority of students (74% on screen and 81% in print) spent less than 2 hours a week in independent reading by the end of the term. This majority who spent less than two hours on independent reading in English may include those who did not spend any time in independent reading. The survey did not have a category to capture those students who spent zero hours in independent reading suggesting a weakness in the design that needs attention in future applications of this and similar surveys. As discussed earlier, these results suggest that students did not spend much time during the term reading in English other than for academic work. For instance, a student NONPRM-F12 reported during the interview: “now I read only homework” implying that she spent most of her time in academic reading and thus supporting this finding of the survey. It appears most reading in English whether on screen or print was focused on academic work. This finding also suggests that students spent a minimal amount of time reading in English for general information or for pleasure.

Hours spent in independent reading in Japanese on screen (survey question 4 of table 4.2) remained relatively constant over the term with a slight decrease of 10% in the 2-5 hours range and a slight increase of 12% in the 8-10 hours range. Figure 4.7 below presents these trends in bar graphs.
Table 4.7 below shows the trends in the students’ responses on independent reading in Japanese materials on screen in figures.

<table>
<thead>
<tr>
<th>Time Spent Reading</th>
<th>Pre</th>
<th>Post</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>percentage</td>
<td>number</td>
<td>percentage</td>
</tr>
<tr>
<td>Less than 2 hours</td>
<td>13</td>
<td>32%</td>
<td>13</td>
<td>31%</td>
</tr>
<tr>
<td>Between 2 to 5 hours</td>
<td>19</td>
<td>46%</td>
<td>15</td>
<td>36%</td>
</tr>
<tr>
<td>Between 5 to 8 hours</td>
<td>7</td>
<td>17%</td>
<td>7</td>
<td>17%</td>
</tr>
<tr>
<td>Between 8 to 10 hours</td>
<td>2</td>
<td>5%</td>
<td>7</td>
<td>17%</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td></td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7  Time Spent in Independent Reading in Japanese on Screen
The last survey question (survey question 6 of table 4.2) on reading habits elicited the number of hours students spent on independent reading in Japanese in print. The bar graphs in figure 4.8 present the trends from the students' responses.

![Bar Graph](image)

**Figure 4.8** Time Spent in Independent Reading in Print in Japanese

Table 4.8 below captures these trends in figures over the academic term.
<table>
<thead>
<tr>
<th>Time Spent Reading</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>Percentage</td>
</tr>
<tr>
<td>Less than 2 hours</td>
<td>19</td>
<td>46%</td>
</tr>
<tr>
<td>Between 2 to 5 hours</td>
<td>11</td>
<td>27%</td>
</tr>
<tr>
<td>Between 5 to 8 hours</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Between 8 to 10 hours</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>7%</td>
</tr>
</tbody>
</table>

Table 4.8 Time Spent in Independent Reading in Japanese in Print

While there was a modest change (10% decrease in 2-5 hour range and 12% increase in the 8-10 hour range) in the reading habits in independent reading in Japanese on screen, in contrast, hours spent in independent reading of Japanese in print declined significantly with 33% more students (79%–46%) responding that they spent a minimal amount of time. In addition, the time spent in all ranges of hours decreased as well contributing to an overall decreasing trend in the time spent in independent reading in print in Japanese.

The trends seen here in independent reading in Japanese both in print and on screen may resemble that expected of international sojourning students. International students in such programs predictably continue maintaining their reading habits from their home country. Students in this study reported that they carried print materials such as books, comics and magazines with them from Japan to Canada. For instance, participant PRM-M16 in his interview reported that he had
some print manga comics that were of the “action” genre that he carried with him to Canada from Japan. Students seemed to read more of these materials at the beginning than at the end of the term possibly because the access to fresh print materials in Japanese was limited in Canada. In contrast the time spent in reading Japanese on the computer had not changed as students stayed in touch with their family and friends through social networking websites, email and other forms of communication over the Internet. Students frequently reported in classrooms that they used Instant Messaging (IM) and Skype to stay in touch with their friends and relatives. In addition, MIXI\(^\text{11}\), Yahoo and MSN in Japanese were cited by students in the interviews as the most popular places where students went online in order to stay connected with Japan or what the students referred to as “Japanese information”.

Results revealed that students were mainly reading academic materials in English. A greater amount of this reading was in print than on screen. When they encountered challenging academic texts students may have chosen to abandon or skip reading such texts. Independent reading in English both in print and on screen appeared to be considerably less when compared to academic reading. Independent reading in Japanese both in print and on screen appeared to follow trends expected of sojourning international students with the amount of reading in print decreasing due to lack of access to new materials in their home-language and the amount of reading on screen showing a slight increase over the course of the academic term as they continued to stay connected with their home country.

\(^{11}\) Japanese social networking website  http://mixi.jp/
Wallace (2003) distinguishes between two kinds of reading. The first, which is done mainly for learning in academic contexts -- reading for learning and the second, which is done voluntarily “when we don’t have to do it” -- reading for pleasure (p.7). Free Voluntary Reading (Krashen, 1993) (FVR) or independent reading are variations of this notion of students reading texts of their choosing at their own free time. The results of the survey clearly indicate that a preponderance of the reading activity in English done by the students in the study was for school work – reading for learning. Reading for pleasure in English was only a small part of the students' reading repertoire. Given the trends of reading in English both in print and on screen, it is no surprise that students maintained reading for pleasure in Japanese. In addition, a study on reading in college classes in Japan revealed that “reading in Japanese is associated with a view of reading as self-improvement and pleasure while reading in English is associated with a view of reading as a school subject” (Takagaki, 2002 p. 4). Sojourning students in this AEP program appeared to read in English mainly for academic purposes.

Students held positive views of reading and aspired to improve their English reading skills. Some believed reading practice or extensive reading would improve their reading skills. These sentiments were best captured by the response from student PRM-F11 who when asked what kind of help is needed to become a better reader in English replied: “I have to read much more…So more reading and more reading”. Another comment from student NONPRM-F13 suggested that there may have been a desire to read for pleasure: “Now I read only for homework…but if I have time I want to read novel in English”. Despite having access to labs that were
equipped with up-to-date technologies and libraries with an abundance of print and media it appears that students did not use these facilities to read for pleasure in English. One reason may be the lack of free time as suggested by the comment from participant PRM-M06: “I spend time to read course material...because <host university>, there is a lot of reading here that the teachers give me and to use a lot of material for my essay and so I have no time to read.”

Students in the international AEP were interested in interacting with their local peers. The courses in the AEP during the fall term when the study was carried out were designed and customized for these sojourning students hence the classes had only students from the same language background. In addition, all students in the program were from the same university in Japan and could be assumed to share similar academic and social cultures. Outside their classroom, students made an effort to put their language skills to use. One participant, NONPRM-M01, expressed his need to speak: “I just tried to ask questions and try my English to real Canadian it is really important to speak loudly and clearly…” implying a recognition of the need to build English language skills and interact with people they meet in their everyday lives. In explaining the benefit of participating in this study another student NONPRM-F04 expressed the lack of opportunities to connect with Canadians because of her poor English language skills. In contrast, she found reading to a computer a good way to practice English: “…I want to talk with some people with foreigner people..but there is no chance to speak English to other countries people and I can speak English so it is good chance ..it was good chance for me”. The
reference to “it” in her quote is the opportunity or “chance” to be part of the study and use the RT software program.

Some students also attempted to gather cultural knowledge from watching TV but found their English listening skills limited their ability to engage with Canadian and North American programming. For instance, one student PRM-F11 suggested: “I don’t watch TV in my room because they speaks so fast so I can’t understand”. Such frustrations have also been reported by other studies in the same university where only 33% of international ESL students reported that “it is easy for them to speak English with other students” (Grayson & Stowe, 2005, p. 8). Japanese students in other programmes at the host university have also reported about “their relationships with Canadian students on their floors and expressed their frustration with their inability to have regular conversations with their Canadian peers” (Segawa, 1998, p. 171). Despite having access to native English speakers, students in the AEP were not able to take advantage of such opportunities because of their perceived lack of English speaking skills.

Reading for pleasure has a positive impact on language development. Studies have associated reading for pleasure in L2 with vocabulary and cultural knowledge gains (Mikulecky, 2008). Some believe that “an important by-product of reading for pleasure in any language is fluency” (Wallace, 2003, p. 7) – a skill in English the students reportedly desired. Students in the study spent only a minimal amount of time reading for pleasure. They spent a greater amount of time reading for school work. They aspired to use their language skills in everyday interactions
with native English speakers but found they were limited by the extent of their skills. The students were interested in a host of topics and genres which will be discussed later. Reading for pleasure may have provided them with information that would help them in their communications and conversations with the people around them.

Studies have highlighted similar difficulties with international students, including those from Japan, in Canadian universities. For instance, Grayson & Stowe (2005) found international students in Canadian universities had difficulties in interacting with other students in English as well as reading academic materials. International ESL students from the university where this study was conducted were also part of the Grayson & Stowe (2005) study. Results of the current study appear to support these findings. An interesting distinguishing factor with this study’s group of international students is the relatively large size of the group. This group, consisting of a 100 students, had easy access to familiar speech communities and, therefore, was not forced into communicating with the larger student body in English. As a result they were comfortable spending time in their “speech enclaves” – the group or speech community that spoke Japanese. From an instructional perspective the students had a reportedly significant workload of academic reading and writing. Given the limited access to authentic language interactions in English outside of classrooms and a significant academic workload these students may have been positioned to be in what reflected an “EFL” (English as a Foreign Language) context for most of their school day. Part of their day outside the classroom may have been spent in their living quarters where they had access to native English speakers, but reportedly struggled to interact effectively in English in these contexts. Students
used IM and other social networking to stay connected to their sojourning Japanese peers even after school hours in order to complete school work mostly communicating in Japanese. While a bulk of their time was spent in an EFL context, they appeared to have a transient ESL (English as a Second Language) experience for a small part of their school day.

As discussed in chapter two, ESL and EFL are terms used to describe learning contexts that are primarily reflective of whether the language of the larger community is English. Participants in this study were students who had learned English in Japan in what may be considered an English as a Foreign Language or EFL context. In Canada as sojourning students they were believed to be immersed in an English-rich environment where they would have access to speakers of English and hence in an English as a Second Language or ESL context. Gunderson et al (2008) suggests the possibility of there being situations where students find themselves in EFL contexts even in school districts in western Canada despite being in an English speaking community. The access to native English-speaking models in their classrooms and communities were limited. This notion may help in explaining the instructional contexts of the students in this study.

Students spent a small amount of time in independent reading in English while they maintained their contact with L1 (Japanese) reading at a steady rate. They held more positive views about reading in L1 compared to L2 (English). Reading in L1 was for pleasure while reading in L2 was for school work. While in the classroom all content was delivered in English and all teacher-student interactions
took place in English, outside the classroom students stayed close to their groups during school hours and interacted in L1 in the hallways. They used the opportunities to interact with English speakers in their residences but continued to remain in small groups or their L1 “enclaves” when possible. Most students expressed a strong desire to be able to have English communication skills that would enable them to connect with the larger English speaking student and non-student communities around them. The instructional contexts that these students spent their time in may be explained by a model that describes the two instructional domains of language use that these students shared. The model of *concentric domains of EFL and ESL* instructional environments as illustrated in figure 4.9 below contains the inner circle where students stay connected with their sojourning peers in what may resemble an EFL context and through their day make transient movements to the outer ESL circle where they connect with the wider English speaking community in what may resemble an ESL context.
The concentric domains of ESL and EFL as shown in figure 4.9 above are also schematically depicted to convey the relative proportions of these contexts. Given the instructional contact hours, the hours spent during school hours in their cohort and reported reading habits in L1 and L2 as discussed so far, the instructional contexts in figure 4.9 indicates that a majority of their context is taken up by the EFL environment. Presumably, there is always an inner circle representing an EFL context for sojourning students. It is desirable to limit the inner circle so as to provide
students with an effective sojourning experience. In the case of this study limiting and shrinking the inner circle would provide students with an enhanced English language experience as well as richer Canadian cultural experience – the primary goals of most academic exchange programs such as the one in the study.

From survey results, field notes and observations, it appears that most students spent a majority of their time during the week in their EFL domain. Their “reading for pleasure” habits in L2 appear to resemble their counterparts in EFL contexts in their homeland – mainly for academic work. Their access to native English models resembles that of minority language groups in Canada where students have a home language other than English – ESL context. However, the uptake of these opportunities to interact and apply their English language skills with their native English speaking counterparts in the student and academic community was mediated by their English language skills which appear to be restricted. As a result the students did not benefit from the access to the larger English speaking community because of their language skills.

The cultural experience of these sojourning students has not been taken into account in this discussion. Evaluating such a construct is complex and well beyond the scope of this study. An important objective of the AEP was to provide these students with a rewarding cultural experience. Undeniably the cultural experience of sojourning in a Canadian university contributes in a major way to their language learning experience. It is however important to consider the impact pleasure reading may have on enhancing this cultural experience through enhancing language skills.
Extracurricular or independent reading has been associated with a positive gain in L2 communication skills in Chinese students in EFL contexts (Huang & Naerssen, 1987). This excerpt is emblematic of the need for reading for pleasure given the argument that these students are in concentric EFL and ESL language domains:

In a second-language setting, speaking techniques generally promote input and, if the input is comprehensible, will probably promote language acquisition. However, in a foreign-language setting where there is a serious lack of native speakers with whom to interact, or listen to, or view in the mass media, reading does become an important source of input (Huang & Naerssen, p. 295).

Other studies in EFL contexts have also found that reading for pleasure is associated with an increase in language proficiency (Gradman & Hanania, 1991; Green & Oxford, 1995). From observations, survey responses and interview comments it appears that students in the program may have been denied access to native English speaking models by their limited English language skills. These language skills may have benefitted from independent reading in English.

Some students valued reading and had positive views of reading for pleasure. For instance, PRM-M04, commented that: "Reading many books and genres can make people (have) knowledge ... more knowledge ..so that’s very important". The survey questions also probed the students’ reading preferences through a second section of the survey. These responses are presented and discussed below under the next part of this research question.
4.2.4 Reading Preferences

What kinds of reading materials do the students prefer reading?

The second part of the research question 1 probed the reading preferences of the students in the AEP. The goal of this section of the survey was twofold. First, to provide the data for research question 1 on students' reading preferences. Second, it also helped in building two experimental groups of students (those who prefer (PRM) and those who do not prefer (NON-PRM) the particular type of reading material). While only one type of reading material was used in the computer-based reading tool, gaining a better understanding of the reading preferences of AEP students was seen as a useful contribution to an area of research that has a limited amount of studies. The reading materials surveyed and presented in the sections that follow reflect those commonly seen in surveys of reading materials of young adults and found in studies reviewed under chapter 2.

The responses to the survey on the kinds of reading materials that students in the AEP preferred reading are presented below in tabular form with a breakdown by gender. This section of the survey, as mentioned earlier, was only administered at the beginning of the term to the entire group of students in the AEP. The response rate of approximately 90% represents an overwhelming majority of the group that responded to the survey. Students were surveyed on 18 items that covered reading materials from a range of fiction and non-fiction topics and genres. Cronbach’s alpha for the survey items was computed and found to be 0.79 indicating that the questions had satisfactory internal consistency reliability.
The kinds of reading materials students preferred reading in English in newspapers and magazines are presented in table 4.9. The preference figures reported in the table below and other tables in sections to follow are the sums of the responses under the two choices of “agree” as a preference and the two choices under the “disagree” as a non-preference.
<table>
<thead>
<tr>
<th>Reading Preference</th>
<th>Gender</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>agree</th>
<th>strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>2</td>
<td>20</td>
<td>41</td>
<td>5</td>
<td>68</td>
</tr>
<tr>
<td>I like reading magazine articles about sports</td>
<td></td>
<td>3%</td>
<td>29%</td>
<td>60%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>2</td>
<td>13</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4%</td>
<td>8%</td>
<td>54%</td>
<td>33%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>22</td>
<td>54</td>
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<td></td>
<td>Female</td>
<td>1</td>
<td>4</td>
<td>47</td>
<td>17</td>
<td>69</td>
</tr>
<tr>
<td>I like reading magazine articles on world travel and culture</td>
<td></td>
<td>1%</td>
<td>6%</td>
<td>68%</td>
<td>25%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>0</td>
<td>1</td>
<td>19</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0%</td>
<td>4%</td>
<td>79%</td>
<td>17%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1</td>
<td>5</td>
<td>66</td>
<td>21</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0</td>
<td>4</td>
<td>47</td>
<td>18</td>
<td>69</td>
</tr>
<tr>
<td>I like reading magazine articles on popular culture (fashion and celebrities, etc)</td>
<td></td>
<td>0%</td>
<td>6%</td>
<td>68%</td>
<td>26%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>0</td>
<td>1</td>
<td>19</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0%</td>
<td>4%</td>
<td>79%</td>
<td>17%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0</td>
<td>5</td>
<td>66</td>
<td>22</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4</td>
<td>13</td>
<td>47</td>
<td>5</td>
<td>69</td>
</tr>
<tr>
<td>I like reading newspaper articles on world current events</td>
<td></td>
<td>6%</td>
<td>19%</td>
<td>68%</td>
<td>7%</td>
<td>100%</td>
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<td></td>
<td>Male</td>
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<td>5</td>
<td>12</td>
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<td></td>
<td></td>
<td>4%</td>
<td>21%</td>
<td>50%</td>
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<td>100%</td>
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<td></td>
<td>Total</td>
<td>5</td>
<td>18</td>
<td>59</td>
<td>11</td>
<td>93</td>
</tr>
</tbody>
</table>

**Table 4.9** Reading Preferences for Newspapers and Magazines

There does not seem to be a significant difference between genders in the preferences of newspapers and magazine reading materials. A majority of students appeared to prefer reading these materials as indicated by the agreement on the survey items in table 4.9 above. A majority of both males and females liked reading magazine articles on sports. As expected, an overwhelming majority of males (21 in 24 or 87%) preferred such materials when compared to females (46 in 68 or 67%). Both males and females overwhelmingly indicated that magazine articles on world travel and culture was a strong preference (64 in 69 or 93% females and 23 in 24 or
96% males). Similarly, magazine articles on popular culture appear to be a highly preferred reading material with both males and females (65 in 69 or 94% females and 23 in 24 or 96% males). Newspaper articles on world current events seemed to be a preference of equal intensity among the genders with both males and females indicating that they liked to read such texts (52 in 69 or 75% and 18 in 24 or 75% males).

The kinds of reading materials students preferred reading in non-fiction topics are listed below in table 4.10.
<table>
<thead>
<tr>
<th>Reading Preference</th>
<th>Gender</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>agree</th>
<th>strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like reading movie reviews</td>
<td>Female</td>
<td>0</td>
<td>6</td>
<td>45</td>
<td>17</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>5</td>
<td>12</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1</td>
<td>11</td>
<td>57</td>
<td>22</td>
<td>91</td>
</tr>
<tr>
<td>I like reading about nature and the environment</td>
<td>Female</td>
<td>1</td>
<td>25</td>
<td>39</td>
<td>3</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4</td>
<td>34</td>
<td>49</td>
<td>5</td>
<td>92</td>
</tr>
<tr>
<td>I like reading about animals</td>
<td>Female</td>
<td>0</td>
<td>17</td>
<td>43</td>
<td>6</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2</td>
<td>26</td>
<td>54</td>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>I like reading about history</td>
<td>Female</td>
<td>5</td>
<td>17</td>
<td>42</td>
<td>5</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>7</td>
<td>14</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6</td>
<td>24</td>
<td>56</td>
<td>7</td>
<td>93</td>
</tr>
</tbody>
</table>

**Table 4.10** Reading Preferences for Non-Fiction Materials

These topics in non-fiction were chosen as they were commonly probed topics in surveys for adolescents. In non-fiction reading materials, considerably more females in the study reportedly preferred reading movie reviews (62 in 68 or 91% over 17 in 23 or 74%), about the nature and environment (42 in 68 or 61% over 12 in 24 or 50%) and about animals (49 in 66 or 74% over 13 in 24 or 54%) when compared to their male counterparts. There was a smaller gender gap in the preference to read about history (47 in 69 or 68% females compared to 16 in 24 or 66% males).
The students’ reading preferences in fiction reading materials of various kinds are listed in Table 4.11 below.
<table>
<thead>
<tr>
<th>Reading Preference</th>
<th>Gender</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I like reading romantic fiction stories</td>
<td>Female</td>
<td>2</td>
<td>11</td>
<td>39</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2</td>
<td>5</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4</td>
<td>16</td>
<td>54</td>
<td>19</td>
</tr>
<tr>
<td>I like reading detective and mystery stories</td>
<td>Female</td>
<td>3</td>
<td>21</td>
<td>33</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5</td>
<td>26</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>I like reading stories from different cultures (cultural</td>
<td>Female</td>
<td>2</td>
<td>12</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>and folk tales, etc)</td>
<td>Male</td>
<td>1</td>
<td>5</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>17</td>
<td>61</td>
<td>10</td>
</tr>
<tr>
<td>I like reading science-fiction stories</td>
<td>Female</td>
<td>6</td>
<td>32</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9</td>
<td>39</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>I like reading horror stories</td>
<td>Female</td>
<td>17</td>
<td>30</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2</td>
<td>10</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>19</td>
<td>40</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>I like reading about myths and legends</td>
<td>Female</td>
<td>2</td>
<td>23</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4</td>
<td>28</td>
<td>56</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4.11  Reading Preferences for Fiction Reading Materials
The results for preferences for reading of genres in fiction showed that although a majority of males and females seemed to like a number of fiction genres, stories of romance were predictably more preferred by females than males (56 in 69 or 82% females over 17 in 24 or 71% males). Stories based on myths and legends were more popular among males (17 in 24 or 71% males over 44 in 69 or 64% females) signaling another predictable trend in young adults. Reading detective and mystery stories (43 in 67 or 64% for females and 15 in 22 or 68% for males) and those based on different cultures (53 in 67 or 79% for females and 18 in 24 or 75% for males) seem to be preferred by an almost equal proportion of both males and females.

The genres of science fiction and horror stories were clearly not a preference for a majority of the females. Only about 30 in 68 or 44% females reported they would like to read science fiction materials while 21 in 68 or 31% of the females in the study reported they would like to read horror stories. Although a majority of males indicated these genres as their preference, these genres do not appear to be overwhelmingly popular among males as well. A majority of males indicated they liked reading science fiction stories (14 in 24 or 58%), while the results were split along the middle for horror stories (12 in 24 or 50%).
Table 4.12 below shows the reading preferences in reading materials that are in the form of graphic novels or manga comics.

<table>
<thead>
<tr>
<th>Reading Preference</th>
<th>Gender</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>agree</th>
<th>strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like reading graphic novels on adventure</td>
<td>Female</td>
<td>1</td>
<td>20</td>
<td>39</td>
<td>7</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>7</td>
<td>13</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2</td>
<td>27</td>
<td>52</td>
<td>10</td>
<td>91</td>
</tr>
<tr>
<td>I like reading comics like Manga on fantasy characters</td>
<td>Female</td>
<td>0</td>
<td>11</td>
<td>33</td>
<td>23</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>0</td>
<td>15</td>
<td>42</td>
<td>33</td>
<td>90</td>
</tr>
</tbody>
</table>

**Table 4.12  Reading Preferences for Graphic Novels**

Comics and graphic novels are popular reading materials among young adults. In this study an almost equal majority of both males and females indicated that they liked reading graphic novels on adventure (46 in 67 or 68% females and 16 in 24 or 67% males) and manga comics on fantasy characters (56 in 67 or 84 % males and 19 in 23 or 83% males). Manga comics on fantasy characters were clearly a reading material that was overwhelmingly popular in this group of students regardless of the gender. This finding supports what Allen & Ingulsrud (2003) found in their survey of Japanese college students which was that manga held a “dominant position in the reading practices of college-age people in Japan” (p. 681).
Students' reading preferences for poetry and song lyrics are shown in table 4.13 below.

<table>
<thead>
<tr>
<th>Reading Preference</th>
<th>Gender</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>agree</th>
<th>strongly agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like reading song lyrics of popular English songs</td>
<td>Female</td>
<td>4</td>
<td>5</td>
<td>39</td>
<td>21</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6%</td>
<td>7%</td>
<td>57%</td>
<td>30%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>3</td>
<td>3</td>
<td>13</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13%</td>
<td>13%</td>
<td>57%</td>
<td>17%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7</td>
<td>8</td>
<td>52</td>
<td>25</td>
<td>92</td>
</tr>
<tr>
<td>I like reading poetry</td>
<td>Female</td>
<td>3</td>
<td>28</td>
<td>37</td>
<td>1</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4%</td>
<td>41%</td>
<td>54%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>3</td>
<td>8</td>
<td>13</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13%</td>
<td>33%</td>
<td>54%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6</td>
<td>36</td>
<td>50</td>
<td>1</td>
<td>93</td>
</tr>
</tbody>
</table>

**Table 4.13  Reading Preferences for Poetry and Songs**

As extant research showed, song lyrics of popular music seem to be a preference for a majority of students. English songs seem to be a preference for a majority (60 in 69 or 87%) of the females in the study. Although a majority of males (17 in 23 or 74%) also seemed to like reading such materials, this appeared to be a reading preference that was more popular among females than males in the study. On the other hand, while just over half of both the males and females liked reading poetry, it was equally popular (38 in 69 or 55% females and 13 in 24 or 54 % males) among both genders.

When asked in the interviews about what they read, students again mentioned a number of the items discussed in the sections above. Mystery novels, romance books & manga comics were mentioned in discussions of what students
were reading rather than what they preferred to read. At least 5 students were enthusiastic about reading manga comics and one (PRM-M16) mentioned he had a huge collection of these comics in Japan and had brought a part of his collection for reading in Canada. Harry Potter was mentioned by three students who said they read books from the series in Japanese. While one student had also read at least one book from the series in English (NONPRM-F12), the second had plans to read one of the books (NONPRM-M06). The third attempted to but was not able to as she remarked: “I try to read Harry Potter in English but in the first chapter there are lots of words that I don’t know so it’s hard so I have to use dictionary” (PRM-F11).

However, with the English reading skills acquired from her educational sojourn in Canada she now hoped to resume reading the book with greater success. Another student (PRM-F01) specially picked up a book she was familiar with from some time she spent in the US from the library. She claimed it was a high school text book that made for interesting leisure reading. The book “Speak”\(^\text{12}\) she believed provided her with reading practice in English.

In terms of non-fiction, sports and fashion magazines were mentioned by students as reading materials they would likely read in their free time in Japan. However, a number of interesting items that were not part of the survey surfaced as preferred reading materials that were self-reported by students. These were materials that were not academic but somewhat related to their fields of study and future professions. One student (PRM-F09) preferred reading autobiographies. An example she offered was an autobiography of a Japanese woman who was a

\(^\text{12}\) “Speak is a 1999 novel by Laurie Halse Anderson about a teenager named Melinda Sordino who is an outcast as a high school” (Wikipedia, 2010)
corporate executive who included details of her corporate career as part of her book. Another student (PRM-M04) reported that he routinely read books related to psychology and economics and found that these two fields were related and as economics was his major focus in studies he found such books stimulating. Two students (NONPRM-F07 & PRM-M03) expressed their interest in reading books on world religions. They found religious texts and books about religions like Christianity interesting.

While the results of the survey revealed students’ preferences for reading materials, it should also be noted that the survey did not probe students’ interest in reading in general. However, the interview revealed that some students may choose other activities over reading during their leisure time. For instance, a student (PRM-F01) preferred watching TV over reading.

In summary, students had a range of topics and genres in their reading preferences. Students generally preferred reading newspaper and magazine reading materials. While considerably more females than males preferred reading movie reviews, reading about nature and environment and reading about animals in non-fiction materials, there was a smaller gender gap in reading non-fiction materials pertaining to history. Under fiction materials romance was preferred by females while topics like myths and legends, science fiction and horror stories were more preferred by males. Graphic novels and manga comics were preferred overwhelmingly by both males and females. English song lyrics were popular with females and poetry was a popular reading preference for both males and females. Students also showed interest in reading information books on topics connected to their areas of studies.
They appeared to be motivated to read in Japanese and generally held positive views and attitudes to reading.

### 4.2.5 Summary of Research Question 1

The results of the survey on reading habits indicated that students spent their time immersed in reading and writing in English for academic purposes. Reading for pleasure in English was only a small part of the students’ reading repertoire. They maintained their reading habits in L1 on screen but not in print.

The survey results also revealed that students had a wide range of reading preferences in fiction and non-fiction reading materials. Manga comics and graphic novels appeared to stand out as favourites among both males and females. Females reported a greater preference for movie reviews, nature and environment and animals in non-fiction materials. There was however a smaller gender gap in reading non-fiction materials related to history. Females also reported a stronger preference for romance while myths and legends, science fiction and horror stories were more preferred by males. Poetry was a popular reading material preference for both males and females. Some students reported a preference to also read information books on topics related to their areas of studies.

Students reported on the stresses they experienced during their educational sojourn that they attributed to their perceived level of English reading and speaking skills. Their feelings of inability to effectively interact with the larger English speaking community were a source of frustration. Academic load and differences in academic
cultures between the two education systems was also the source of stress for Japanese students in another study conducted at this university (Segawa, 1998). The concentric domains of EFL and ESL instructional environments as suggested by the model that stemmed from findings under this research question argues for a need to provide a supportive environment to bolster students’ language skills and provide more opportunities to use English with the larger English speaking community. Other studies conducted at the university also call for an increased focus on providing resources and support to raise the English language skills of international students (Grayson & Stowe, 2005). The implications of the concentric domains of ESL and EFL model to the AEP and recommendations for supporting students’ literacy skills will be discussed ahead under chapter 5.

The findings under this research question also provide an important rationale for research questions 2 and 3. The reading habits and the concentric domains of ESL and EFL model suggest the need to scaffold students’ reading skills in academic and independent reading. The reading preferences survey has provided a view of the various reading materials that students like reading in English. Reading software tools such as the RT offer the possibility of promoting reading skills in EAL students. The inclusion of a student-preferred reading material in the RT may be effective in promoting the reading fluency and in turn reading comprehension in students in the current study. The results of research question 1 suggest the need to investigate the effectiveness of the use of the RT with non-academic reading materials in promoting reading skills. The reading gains from using the software with independent reading materials may transfer to reading skills that aid students in
reading academic materials as well. These gains may also bolster students’ language skills and in turn enhance their sojourning educational and cultural experience. Research questions 2 and 3 were, therefore, designed to investigate the effectiveness of the RT in promoting reading skills and will be discussed in detail in the sections that follow.

4.3 Details of RT Treatment, Reading Materials and Measures

Research questions 2 and 3 investigate the effectiveness of the reading software program Reading Tutor (RT) which is the basic tool of the computer-based reading intervention in this study. The sections below describe the background of the reading and testing materials used in investigating the effectiveness of the RT software with students in the AEP.

The Reading Tutor (RT) software program was described in chapter three. The details of how the author included the reading materials –newspaper articles on world current events - in the RT were also covered under chapter 3. The rationale behind the choice of the reading material and the study groups are described below.

4.3.1 Reading Materials and Groups

As described in the chapter 3 and earlier sections of this chapter, results from the reading materials survey were used to construct the three student groups - two experimental groups and one control group - for the reading intervention under research questions 2 and 3. The type of reading materials that was selected were newspaper articles on world current events. This reading material type was an item in the survey under the reading preferences section.
Newspaper articles on current events were chosen as reading materials for this study for a few reasons. First, there appears to be an increasing trend of using newspaper articles as reading materials in college English reading courses in Japan (Takagaki, 2002). Second, some research, for instance, Pickard (1996), has reported on the positive influence of reading newspaper articles as an “out-of-class” language learning strategy for English language learners. Third, the ease of access to such reading materials on screen and in print in most ESL and EFL classroom and out-of-classroom environments helped to justify this choice.

Students were assigned to two experimental groups – the first with students who indicated in the survey they preferred reading these materials - the Preferred Reading Materials Group (PRM Group) and the second with those who indicated that it was not a preference – the Non-Preferred Reading Materials Group (NON-PRM Group). A third group was a Control group who may have been from either of the preference groups but were used as a comparison group and did not use the RT software. Details of how these groups were formed were presented in the methods section (chapter 3) of this document.

4.3.2 RT Treatment Procedure

The configuration of the RT software used in this study was customized to incorporate reading materials suitable for university students. The reading materials were added into the RT as stories (refer chapter 3 for details) and students used the software and read these stories over the course of the term between September 26th and December 1st 2009 – approximately 8 weeks. The reading materials consisted
of newspaper articles on world current event stories from online websites of several local, domestic and international newspapers. The stories that were chosen by the author of this document were those that appeared among the headlines on the main page or home page of such news agencies. The text of the story was then approved by one of two independent content reading specialists before they were added into the software program. Minor changes were made to these texts following advice from these specialists. Two specialists from the Language and Literacy Education department were consulted to approve stories added into the software. The list of the stories and their sources are attached in Appendix F.

The study was designed so that students would be required to use the software for two sessions each week, each session 30-45 minutes long. This was considered a reasonable expectation given that students had a full course schedule in the program with 12 course credits. The schedule of weekly usage was decided in consultation with the students. Students picked sessions that allowed them to visit and use the RT when they did not have scheduled classes. Attendance and punctuality varied considerably among students. Some students were more regular than others. Attendance was affected drastically when assignments and other course related deliverables were nearing the due date. In addition, tardiness also affected how much time students were able to spend on each session of the RT. For instance, students who came to sessions between classes or at the beginning of the day would arrive late and would need to leave on time as the RT terminal would have to be made available for the next student because students were assigned to specific terminals during the study. The usage of the two groups is shown in table
4.14. Although the range of usage varies from 1.5 to around 6.9 hours in the two groups, the usage profile of the two groups appears to be relatively similar with almost equal mean values. The amount of usage of the software for the groups is clearly modest but expected for the small-scale nature of the study. Findings should be tempered by the level and short-term (approx. 8 weeks) usage of the software in the study.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRM</td>
<td>16</td>
<td>1.5</td>
<td>6.1</td>
<td>3.5</td>
<td>1.1</td>
</tr>
<tr>
<td>NON-PRM</td>
<td>12</td>
<td>1.5</td>
<td>6.9</td>
<td>3.6</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Table 4.14  RT Usage of the Two Experimental Groups in Hours

4.3.3 Reading Measures

As described in chapter 3, students were tested with the Nelson Denny (ND) test “Form G” for the pre-test before they started using the software program. They were also given Curriculum-Based (CBT) Fluency reading tests on passages from academic and independent reading materials. Details of these passages were presented and discussed in chapter 3 but will be briefly reviewed for providing a context for the research questions. The ND test “Form H” and CBT fluency testing was also administered at the end of the study period. The ND test scores and the
WCPM for the CBT passages were recorded for all students in the three groups before (pre) and after (post) they used the RT.

The reading passages for the CBT were chosen randomly from two sources—non-school related or independent and school-related or academic materials. The passages for academic reading testing materials were taken from the course pack of the academic writing skills course, which was one of the two mandatory courses for all students in the program. The passages for the independent reading materials came from stories that were on one of the online news websites used as a source for content that was incorporated into the RT software. The two randomly selected passages from each of the categories of reading materials -- independent reading materials and academic materials -- were not seen by students before testing commenced. The Flesch Readability scores for these passages were presented in chapter 3.

Two of these four passages, one each from the two categories were chosen for pre-testing and the remaining two were chosen for post-testing. For the purpose of this document the passages will be named A & C for independent reading for pre- and post-testing respectively and B & D for academic reading for pre- and post-testing respectively. Test passages A and B were used in CBT pre-testing for independent and academic readings respectively. In post-testing the same two passages were again used in addition to two new passages C and D for independent and academic readings respectively. The rationale for using the same passages A & B was discussed in chapter 3 and will be revisited under research
question 3 to provide a detailed discussion for the reading fluency findings. The WCPM recorded in passages A, B, C and D were used as reading fluency scores. The ND total scaled test scores were used as measures for reading development. The scores are composed of two test components – reading comprehension and vocabulary. The scaled comprehension scores were used to explore the association between reading fluency and comprehension. These measures, one for reading development and four for reading fluency and another for comprehension, were the basis for the statistical analysis under research questions 2 and 3.

4.4 Research Question 2

*How does the inclusion of student-preferred reading materials in a computer-based reading tool influence reading development of young adult EAL learners as measured by standardized tests?*

This research question investigated the reading development of the participants and hence the measure used for reading development under this question is the ND total reading standardized score that takes into account both the sub-scores namely comprehension and vocabulary scores of the ND tests. The mean and Standard Deviation (SD) (Standard Deviation values within parentheses) of these scores for the three groups in the study are shown in table 4.15
<table>
<thead>
<tr>
<th>Reading Measure</th>
<th>Group</th>
<th>Mean (Std Dev)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ND Total Scaled</td>
<td>Preferred (PRM) (n=16)</td>
<td>158.2 (11.6)</td>
<td>163.7 (12.3)</td>
<td></td>
</tr>
<tr>
<td>Score</td>
<td>Non-Preferred (NON-PRM) (n=12)</td>
<td>156.1 (13.1)</td>
<td>165.7 (13.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>160.9 (12.27)</td>
<td>166.4 (10.4)</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.15** Nelson Denny Total Reading Scores for Groups

An ANOVA was conducted to assess if there was a difference between the two experimental and one control group over time on the outcome measure of the Nelson Denny (ND) total reading score. The results showed that there was a statistically significant main effect of time $F (1, 39) = 19.5$, $p<0.001$, partial $\eta^2 = 0.334$ but there was no significant effect for the interaction of group and time $F (2, 39) = 0.7$, $p=0.503$, partial $\eta^2 = 0.035$. The finding of no significance on the interaction effect indicates that the differences among the three groups on the linear combination of the ND total score are not different over time – between the pre-test and the post-test.
**Figure 4.10** Nelson Denny Total Reading Scores for Groups

- **PRM** = RT Preferred Group
- **NON-PRM** = RT Non-Preferred Group
- **CONTROL** = Control Group
The statistical results indicate that the three groups did not significantly differ between each other over time on the total reading scores. From considering the graphs for the two experimental groups in figure 4.10 there appears to be an interaction likely accentuated visually due to the Y scaling (the means of the pre-scores for the experimental groups separated only by 2.1 points). In addition a low observed power (0.16) also may be a reason behind the slight mismatch of the graphs and numbers. However, the graph in figure 4.10 does reveal some interesting trends in the reading development of the groups over the study period. First, the PRM group and the control group seem to exhibit similar development in their reading scores over time. This indicates that the intervention had no significant impact on the reading comprehension and vocabulary of the PRM group when compared to the control group. Second, the NON-PRM group seems to have made the largest gain among groups over the study period, although the growth was not statistically significant when compared to the control group. The overall results seem to indicate that the use of the software did not result in a statistically significant increase in reading scores in the experimental groups.

The lack of significant improvement in reading scores in the experimental groups may be explained by the theoretical model that explains the development of reading fluency. The Automaticity Theory (AT) posits that attention is an important aspect in reading (LaBerge & Samuels, 1974; Samuels, 1994). During reading, attention and working memory are shared by the pre-lexical (decoding) and higher-order post-lexical (comprehension) cognitive processes. When decoding becomes automatic or effortless it takes up less attention and working memory resources.
These resources can be freed up for comprehension related processes. According to the theory if fluent reading fails to develop comprehension will suffer as a result of more “attentional” resources being directed to decoding of text. This view implies that a focus on fluency may delay progress in comprehension and offers a viable explanation for the lack of progress in reading comprehension as seen in these groups. In addition, there was no vocabulary support in the software and as a result the total reading scores may have suffered. The discussion of vocabulary support is dealt with in detail in upcoming sections.

The second trend with the NON-PRM group presents an interesting quandary because it is contrary to expectations. The NON-PRM group, which did not have a preference for the reading materials seem to have performed somewhat better on the overall reading scores when compared to the PRM group which had a preference for the reading materials. One explanation for this possible trend may be the focus of students in each of these groups. Students in the NON-PRM group were probably not focusing on the content and hence were able to pay more attention to the prosodic features of the interactive reading materials. While the link between prosody and comprehension seems to be unresolved, some studies have found there may be a connection and others have failed to establish a link (Kuhn & Stahl, 2003). However, the notion that prosodic reading may have a positive influence on comprehension has been theorized:

The reading prosody as partial mediator model is that prosody may actually assist reading comprehension. In this model, children who show rapid, accurate decoding skills should have resources available to enable prosodic reading.
Thus, prosody may serve to mediate between decoding skills and comprehension to enhance comprehension (Schwanenflugel, Hamilton, Wisenbaker, Kuhn, & Stahl, 2004, p.121).

One established method to improve prosodic reading is called the Neurological Impress Method (NIM) (Heckelman, 1969) and has been in existence for over three decades. Despite its complex sounding title, this assisted reading method is a relatively easy means of developing prosodic and fluent reading. It entails the learner and instructor reading a text together in unison while the instructor leads the reading by moving his or her finger under the words being read and pausing appropriately for punctuation. While this may not seem a suitable explanation in the case of the RT, students routinely listened to strings of text being read by the RT and followed with oral reading of the text themselves. One student, as he explained in the excerpt below started reading just following the computer thus mimicking the NIM described above. In describing how he read with the computer he explained: "I don't know how other student use your tool..I always try to follow the reader .....so if the reader starts reading I always...I just always start reading". Observations confirm that this student did most of his oral reading practice on the computer in the manner he described and may have made gains in prosodic readings. As a result, the prosodic gains may have translated to a slight better gain in comprehension. This may explain some of gains the NON-PRM group made when compared to the PRM group.
While the results in this analysis do not reveal any significant results, it should be noted that these trends may be suggestive of some tentative conclusions that may prove to be significant when more usage and larger number of participants per group are involved. Therefore it appears that although the PRM group was working with preferred reading materials their reading gains were not greater, since they were probably attending more closely to the content and the need for comprehension of the content and did not pay attention to the prosodic features that may have aided in some comprehension as seen in the case of NON-PRM group. More research is suggested to further confirm these findings. The next research question that examines reading fluency may offer more insights.

4.5 Research Question 3

*In what ways will the systematic use of a computer-based reading tool with student-preferred reading materials increase reading fluency in young adult EAL learners?*

*Will an increase in fluency be associated with an increase in reading comprehension scores as measured by standardized tests?*

This two-part research question investigates the impact of the reading intervention on the participants’ reading fluency with a focus on student-preferred reading materials and also if an increase in fluency would be associated with an increase in comprehension.

The analyses under the two parts of this research question involved five measures – four fluency based measures discussed later and one comprehension measure. The analyses involved multiple ANOVAs and therefore, in order to
maintain statistical integrity, a Bonferroni correction was used to adjust statistically
the p value for the five measures under this research question. The Bonferroni
correction is used in multiple statistical testing to reduce the possibility of a Type I
error or false positives. For instance, “If k significance tests, each with error rate α,
are conducted on the same set of data answering aspects of the same data
question, the overall error rate will increase to \(1 - (1-\alpha)^k\). The critical value for
concluding significance is adjusted \(\alpha/k\)” (Riffenburgh, 2006, p. 527). The fluency
measures under this research question are a set of data answering aspects of the
same question and the Bonferroni adjustment will serve as a robust means of
statistical testing. Each of these five main ANOVA analyses that follow is therefore
tested at a significance level of \(p = 0.05/5 = 0.01\). The adjustment applies to only this
question as it involves measures that will be used to answer different aspects of the
same research question. The alpha or p value for other research questions will
remain \(p = 0.05\).

The first part of the research question discusses reading fluency in the
context of the RT. The second part of the research question discusses whether the
increase in fluency resulted in an increase in comprehension.

4.5.1 Research Question 3a: Reading Fluency

In what ways will the systematic use of a computer-based reading tool with student-
preferred reading materials increase reading fluency in young adult EAL learners?

This part of the research question investigated the impact of using the RT on
the reading fluency skills of the participants. As mentioned earlier, test passages A
and B were used in CBT pre-testing for independent and academic readings respectively. In post-testing the same two passages were again used in addition to two new passages, C and D, for independent and academic readings respectively. Therefore, the Words Correct per Minute (WCPM) for pre-tests included the scores for independent (Passage A) and academic (Passage B) texts. The WCPM from post-tests included scores again from passages A & B as well as new passages C (independent) and D (academic). The pre-test fluency testing accounted for two scores while the post-test fluency testing accounted for four scores. These pre- and post-test CBM scores allowed for comparison of gains in fluency in four different combinations that represented four scenarios. The four scenarios of reading fluency namely, non-transfer and transfer of independent reading and academic reading are listed and discussed in detail in chapter 3 and reiterated in table 4.16 below.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Passage Text</th>
<th>Pre</th>
<th>Post</th>
<th>Fluency Skill Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Independent Reading</td>
<td>A</td>
<td>A</td>
<td>Non-Transfer</td>
</tr>
<tr>
<td>II</td>
<td>Independent Reading</td>
<td>A</td>
<td>C</td>
<td>Transfer</td>
</tr>
<tr>
<td>III</td>
<td>Academic Reading</td>
<td>B</td>
<td>B</td>
<td>Non-Transfer</td>
</tr>
<tr>
<td>IV</td>
<td>Academic Reading</td>
<td>B</td>
<td>D</td>
<td>Transfer</td>
</tr>
</tbody>
</table>

**Table 4.16**  Fluency Comparisons for the CBT Scores

A general notion in using the same and novel passages in reading fluency studies between pre-testing and post-testing has been to observe the gain in
reading fluency on the same text and the transfer of this reading skill to a novel text.

In this study, as listed in table 4.16 above, a similar approach has been adopted. The same passage represents a non-transfer and a novel passage represents a transfer of reading fluency skills in the participants.
The four scenarios of fluency skills for the current study, listed in table 4.16, and schematically represented in figure 4.11 have been based on the general notion described above, but have specially been designed to investigate reading fluency gains related to the two predominant kinds of reading materials relevant to the
sojourning students in this study and those discussed under research question 1 – independent and academic reading. These six measures, two pre- and four post-, were the basis for the statistical analysis under this part of the research question.

4.5.1.1 Results of Analysis

To analyze the gains in fluency as measured by the same passage in pre- and post-testing – non-transfer in independent reading or comparison I as listed in table 4.16 - an ANOVA was conducted to assess if there were differences among the two experimental and one control groups over time on the CBT fluency measures. The results showed that there was a significant main effect of time $F(1, 39) = 72.9, p<0.001$, partial $\eta^2 = 0.651$ and a significant effect for the interaction of group and time $F(2, 39) = 6.2, p=0.004$, partial $\eta^2 = 0.243$. A significant interaction effect indicates that the differences among the three groups on the linear combination of the dependent variable were different over time – between the pre-test and the post-test. After controlling for the pre-test scores when the analysis was run the means of post-test scores showed significant differences between PRM and Control ($p=0.001$) and NON-PRM and Control ($p=0.04$). There was no significant difference between PRM and NON-PRM ($p=0.239$).
<table>
<thead>
<tr>
<th>CBM Reading Measure</th>
<th>Group</th>
<th>Mean (Std Dev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCPM Passage A - Pre Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>103.6 (19.5)</td>
</tr>
<tr>
<td></td>
<td>Non-Preferred (NON-PRM) (n=12)</td>
<td>101.8 (13.3)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>104.4 (15.9)</td>
</tr>
<tr>
<td>WCPM Passage A - Post Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>124.1 (25.3)</td>
</tr>
<tr>
<td></td>
<td>Non-Preferred (NON-PRM) (n=12)</td>
<td>117.2 (15.5)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>111.1 (20.3)</td>
</tr>
</tbody>
</table>

**Table 4.17** Fluency Gains in Non-Transfer in Independent Reading

The mean and SD (values within parentheses) of these scores for the three groups in the study are shown in table 4.17. In addition, figure 4.12 shows the fluency gains over time for the three groups in the study when the same passage A was used in both pre- and post- testing.
Figure 4.12  Fluency Gains in Non-Transfer in Independent Reading
The results indicate that although all groups made gains in fluency over time, the two experimental groups (PRM & NON-PRM) significantly outperformed the control group on the reading fluency measure. The experimental groups showed significant gains in fluency on the same passage when compared to the control group. The graphs indicate that the PRM group made the most gains suggesting that the preference for the reading materials may have contributed to a substantial gain in fluency over the other two groups. Another interesting trend from the graph in figure 4.12 is that the control group started with higher initial fluency scores but ended the lowest of the three groups at the end of the study period suggesting that the reading intervention may have positively influenced the reading fluency gains for the two experimental groups.

The finding from this part of the analysis indicates that there was a positive and statistically significant non-transfer effect in reading fluency in the two experimental groups in independent reading texts. The preference of reading materials does not appear to significantly affect the reading fluency in this scenario, although there does seem to be a modest gain in the preferred group (PRM) with a preference for the reading materials when compared to the non-preferred (NON-PRM) group.
<table>
<thead>
<tr>
<th>CBM Reading Measure</th>
<th>Group</th>
<th>Mean ( Std Dev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCPM Passage A - Pre Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>103.6 (19.5)</td>
</tr>
<tr>
<td></td>
<td>Non- Preferred (NON-PRM) (n=12)</td>
<td>101.8 (13.3)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>104.4 (15.9)</td>
</tr>
<tr>
<td>WCPM Passage C - Post Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>107.1 (19.3)</td>
</tr>
<tr>
<td></td>
<td>Non- Preferred (NON-PRM) (n=12)</td>
<td>100.6 (9.80)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>96.4 (17.1)</td>
</tr>
</tbody>
</table>

**Table 4.18**  Fluency Gains in Transfer to a New Text in Independent Reading

To measure the transfer effect of fluency to a novel text or new text in independent reading where there were different test passages in pre- and post-testing (comparison II as listed in table 4.16) an ANOVA was conducted to assess if there was a difference among the two experimental and one control group over time on the CBT fluency measure. The results showed that there was no significant main effect of time $F (1, 39) = 1.1, p=0.297$, partial $\eta^2 = 0.028$ and also no significant effect for the interaction of group and time $F (2, 39) = 3.74, p=0.033$, partial $\eta^2 = 0.161$ (this interaction effect is statistically significant at the $p \leq 0.05$ level but the Bonferroni correction has impacted the interpretation of the statistical significance). After controlling for the pre-test scores when the analysis was run the means of post-test scores showed a significant difference between groups PRM and Control ($p=0.007$), but not between NON-PRM and control ($p=0.157$). There was no significant difference between PRM and NON-PRM ($p=0.222$).
Figure 4.13 below shows the change in scores for the fluency measure over time. The mean and SD (values within parentheses) of these fluency scores for the three groups are shown in table 4.18 above.
PRM = RT Preferred Group       NON-PRM = RT Non-Preferred Group
CONTROL = Control Group

**Figure 4.13**  Fluency Gains in Transfer to a New Text in Independent Reading
The results in figure 4.13 indicate that the only group with a positive gain was the PRM group. This group clearly made a modest but positive gain in their reading fluency. The Non-PRM group failed to make a positive gain in fluency. The control group however appears to have a considerable loss of fluency when a new passage was introduced. The two fluency measures discussed so far under this research question indicate that reading fluency with the PRM group is significant over the same passage and the transfer of reading fluency to a new passage, although not significant, is positive. For the NON-PRM group the gains in reading fluency are significant for the same passage but the transfer of reading fluency to a new passage is not positive. The control group shows the least gains in reading fluency when compared to the two experimental groups in the non-transfer and transfer of reading fluency skills. The findings in the above two scenarios under this research question indicate that preference for reading materials may positively influence the non-transfer and transfer fluency skills for independent reading materials in a computer-based environment.
### Table 4.19: Fluency Gains in Non–Transfer in Academic Reading Materials

As research question 3 was designed to investigate in what ways the reading tool influences the reading fluency of the students, it was of interest in the current study to see if the reading intervention would influence students' reading fluency in other areas of reading such as in academic texts. In order to measure the effect of the intervention on the reading fluency in academic materials with the same passage in pre- and post–testing - non transfer in academic reading or comparison III as in table 4.16 - an ANOVA was conducted to assess if there was a difference among the two experimental and one control group over time on the outcome measure of the CBT fluency scores. The results showed that there was a significant main effect of time $F(1, 39) = 71.2$, $p<0.001$, partial $\eta^2 = 0.646$ and a significant interaction effect of group and time $F(2, 39) = 6.2$, $p=0.005$, partial $\eta^2 = 0.241$. A significant interaction effect indicates that the differences among the three groups on the linear combination of the dependent variable were different over time – between the pre-
test and the post-test. After controlling for the pre-test scores when the analysis was run the means of post-test scores showed significant differences between groups PRM and Control (p=0.002) and NON-PRM and Control (p=0.01). There was no significant difference between PRM and NON-PRM (p=0.689). Figure 4.14 below graphically charts the change in scores for the fluency measure over time. Table 4.19 above shows the mean and SD (values within parentheses) of these fluency scores for the three groups.
PRM = RT Preferred Group       NON-PRM = RT Non-Preferred Group

CONTROL = Control Group

Figure 4.14  Fluency Gains in Non–Transfer of Academic Reading Materials
The results of the statistical analysis and figure 4.14 suggest that the Preferred group (PRM) has significant growth in reading fluency over time and the growth is significantly higher than the control group but not the non-preferred (NON-PRM) group. The NON-PRM group has also shown positive growth in non-transfer reading fluency skills but the growth trend as indicated by the graph appears to be similar to the PRM group with both groups showing almost parallel lines. An important observation from the graph in figure 4.14 is that the control group begins with the highest scores of the three groups but ends with the lowest scores suggesting that the reading intervention may have positively influenced reading fluency as evidenced by the gains by the two experimental groups.

All three groups appear to have made positive gains in their non-transfer reading fluency skills in academic texts. Part of the gains for all three groups may be attributed to students’ increase in familiarity with academic texts over the course of the academic term. Recall that students spent a majority of their time in a week reading academic materials. However, the experimental groups have significantly higher gains when compared to the control group. The lack of significant differences between the two experimental groups may be attributed to the academic reading under consideration. Both groups may have had an equal preference and motivation to engage with such texts. As a result, the factor of preference between the PRM and NON-PRM groups may not be relevant in this scenario. These results suggest that practice with independent texts in RT in this study may have a positive influence on the reading fluency in academic texts given the significant reading fluency gains
of the experimental groups. The preference for the reading materials does not appear to have any significant effect.

<table>
<thead>
<tr>
<th>CBM Reading Measure</th>
<th>Group</th>
<th>Mean (Std Dev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCPM Passage B - Pre Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>104.9 (21.8)</td>
</tr>
<tr>
<td></td>
<td>Non-Preferred (NON-PRM) (n=12)</td>
<td>101.1 (12.9)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>106.4 (16.0)</td>
</tr>
<tr>
<td>WCPM Passage D - Post Test</td>
<td>Preferred (PRM) (n=16)</td>
<td>142.1 (25.6)</td>
</tr>
<tr>
<td></td>
<td>Non-Preferred (NON-PRM) (n=12)</td>
<td>132.5 (17.8)</td>
</tr>
<tr>
<td></td>
<td>Control (n=14)</td>
<td>128.5 (21.8)</td>
</tr>
</tbody>
</table>

Table 4.20 Fluency Gains in Groups in Transfer in Academic Materials

In order to check the reading fluency transfer skills on academic materials – different passages in pre- and post-testing – transfer in academic reading or comparison IV as listed in table 4.16 - an ANOVA was conducted to assess if there was a difference between the two experimental and one control group over time on the outcome measure of the CBT fluency measures. The results showed that there was a significant main effect of time $F(1, 39) = 244.7, p<0.001$, partial $\eta^2 = 0.863$ and a significant interaction effect of group and time $F(2, 39) = 5.6, p=0.008$, partial $\eta^2 = 0.222$. A significant interaction effect indicates that the differences among the three groups on the linear combination of the dependent variable are different over time – between the pre-test and the post-test. After controlling for pre-test scores when the analysis was run the means of post-test scores showed significant group differences between groups PRM and Control ($p=0.002$) and not between groups
NON-PRM and Control (p=0.061). There was no significant difference between PRM and NON-PRM (p=0.254). Figure 4.15 below shows the change in scores for the fluency measure over time. The mean and SD (values within parentheses) of these fluency scores for the three groups are shown in table 4.20 above.
PRM = RT Preferred Group      NON-PRM = RT Non-Preferred Group

CONTROL = Control Group

Figure 4.15   Fluency Gains in Groups in Transfer in Academic Materials
The trends in the results of the transfer of reading fluency skills seem to be similar to that seen in the earlier scenario in figure 4.14. The results suggest that PRM group had a significant growth in reading fluency over time and the growth is significantly more than the control group but not the non-PRM group. The non-PRM group has shown a positive growth in transfer reading fluency skills but the gains are not significantly greater than those of the control group. As in the previous figure, an important observation from the graph is that the control group starts with the highest scores of the three groups but ends with the lowest scores suggesting that the intervention may have positively influenced reading fluency of both the experimental groups when compared to the control group.

Another observation is that the differences between the groups by visual inspection appear to be more dramatic in the non-transfer condition when compared to the transfer of reading fluency skills with the academic materials. In addition, the trends in the transfer skills in independent reading materials are considerably different from the non-transfer of reading fluency skills for the groups in the study while these skills are quite similar in academic materials. These general trends may provide some information on how the reading practice is influencing students’ reading skills. For instance, the students are exposed to more academic reading than independent reading through the term and hence all groups have performed better overall on the transfer and non-transfer fluency skills in academic reading while they seem to have less exposure to independent reading and hence the weak performance of the control group particularly in the transfer skills in independent reading.
Recall that the NON-PRM group performed better on the comprehension scores than the PRM group. They were however, as just discussed, not as fluent as the PRM group readers in all reading fluency measures. This raises a question of how they did better than their peers in overall reading development as discussed under research question 2. In addition to the argument made earlier about the NON-PRM group, there is some supporting evidence in extant research around this finding of fluency and comprehension, as in the case of a study involving 194 sophomores and juniors at a university in Iowa. The study reported some "dysfluent" readers to have better comprehension scores than their fluent peers (Jackson & Doellinger, 2002).

The findings in these two scenarios with academic materials under this research question indicate an expected trend that preference for independent reading materials may not be an important factor that has a significant effect in academic reading owing to the mandatory need to read such materials for academic success. The interesting findings are that the use of RT had a positive influence on reading fluency that may transfer across genres - from independent to academic texts. The PRM group reading preferred texts may have been able to make gains in reading fluency that may have also significantly benefited their fluency in academic texts.

Overall these findings appear to suggest that the practice with preferred independent reading materials in a computer-based environment such as the RT may help to a greater degree in both independent reading and academic reading for
students in this AEP when compared to reading non-preferred independent reading materials although the difference may not have been significant.

4.5.1.2 Discussion

The findings in reading fluency discussed here were supported by student comments. Students from both experimental groups felt they were becoming fluent readers through the RT practice. During interviews students reported that they felt their reading fluency had improved after using the software. For instance, student PRM-F09 commented: “I think it is useful for me, at the first I cannot read fluently but recently I can read fluently…I think so” implying that the RT was useful in helping her read more fluently and she had noticed a change in how she read English texts. Another student, NONPRM-F10, was also able to ascertain that her fluency had improved because the nature of her interaction with the software also had changed, she explained:

… I think it was helpful for me to improve reading, English reading… because (...) I can find out the reading is become better because if I made a lot of mistake they tells us...the computer software…I have to read many times to correct my mistake but now today I could read more fluently with less mistakes.

The RT usually does not allow a student to leave a screen until an optimum amount of words have been read correctly. It also offers help as the student navigates the text on screen and it appears, from her comments that NONPRM-F10 was able to determine her progress in reading fluency in terms of how the software responded to her reading over time. She also believed that the RT practice was helping in reading
fluency: “... I think the RT is for practice not just for reading.. it is a practice for fluency “.

Similarly, another student PRM-M06 found that his reading was improving because the interaction with the software had changed. He explained:

“Because in the beginning of the start ...beginning of this project...I tried saying the reading but all word not change to green ..I’m not happy...I was not happy..but now the amount of the...most of the words are change to green ...its not good for me..but it was happy..happier than before.”

The software has a feature where the text presented on the screen changes to a green color from black when the program has heard students' reading and it appears that PRM-M06 was able to monitor his reading progress over the study period from the number of words that turned green on the screen.

Reading fluency seemed to be the reading skill that was significantly impacted by the use of the RT. Although the effect size of the gains is low to moderate these findings offer the possibility of a software tool like the RT for assisted reading for the young EAL adults. While the statistical analyses indicate that students developed considerable fluency from the use of the RT software, they also felt the software helped in other ways.

Students also reported that the reading practice helped them build confidence and improve their speaking skills. The details of student comments are discussed in sections ahead in this document as they pertain to additional benefits from using the
reading software and were better suited in a section that summarized such benefits. Students in the experimental groups generally felt they benefited from the use of the RT. As a result they had a better view of how they felt about reading in English. Responding to a survey item that asked them how they found reading in English before and after the study, the two experimental groups seemed to show a positive trend in how they viewed their level of difficulty in reading in English. The results are presented in a section ahead in this document.

The results of the analyses on CBT measures of reading fluency discussed under research question 3a have indicated a trend of a positive increase in reading fluency in both independent and academic reading, particularly when student-preferred reading materials were used. However, the second part of this research question examines the association between fluency and comprehension to study whether the increase in fluency also results in an increase in comprehension.

4.5.2 Research Question 3b: Reading Fluency and Comprehension

*Will an increase in fluency be associated with an increase in reading comprehension scores as measured by standardized tests?*

The ND scaled comprehension scores were used as the basis for investigating the association between fluency and comprehension.
Table 4.21 Gains in ND Comprehension Scores for the Groups

An ANOVA was conducted to assess differences among the two experimental groups and one control group over time on the outcome measure of the Nelson Denny (ND) comprehension score. The results showed that there was a statistically significant main effect of time $F (1, 39) = 7.8$, $p<0.01$, partial $\eta^2 = 0.167$, but there was no significant effect for the interaction of group and time $F (2, 39) = 0.4$, $p=0.648$, partial $\eta^2 = 0.022$. Figure 4.16 below shows the change in scores for the ND comprehension score over the period of the study. The mean and SD (values within parentheses) of the ND comprehension scores for the three groups are shown in table 4.21 above.
PRM = RT Preferred Group  NON-PRM = RT Non-Preferred Group

CONTROL = Control Group

Figure 4.16  Gains in ND Comprehension Scores for the Groups
The statistical results indicate that the three groups did not significantly differ between each other over time on the total reading scores. However, as seen in research question 2, from considering the graphs for the two experimental groups in figure 4.16 there appears to be an interaction likely accentuated visually due to the Y scaling (the means of the pre scores for the experimental groups separated only by 0.8 points). In addition a low observed power (0.12) also may be a reason behind the slight mismatch of the graphs and numbers.

The graph in figure 4.16 shows that all three groups seemed to have made a modest but positive gain in comprehension over time. The NON-PRM group seems to have performed better than the PRM group. A possible reason behind this trend has been discussed under research question 2. However, the gains in comprehension are not statistically significant for any of the groups suggesting that there seems to be no statistical evidence to support a positive association between reading fluency gains and a consequent gain in comprehension as a result of the use of the software in the context of this study. It may be concluded from the data available in this study that an increase in fluency is associated with a small improvement in comprehension, however, the reading fluency resulting from the reading intervention in this study does not contribute to a statistically significant increase in comprehension for the experimental groups when compared to the control group.

The reading fluency results appear to indicate that there may be benefits in using a computer-based tool such as the RT to promote fluency in independent and
academic materials. However, students reported that the benefits had far-reaching effects in other areas of student life as will be discussed in the next section.

4.5.3 Additional Benefits of Using the Reading Tutor

This section presents the additional benefits of using the RT as reported by students from the two experimental groups (preferred or PRM and non-preferred or NON-PRM groups) during interviews. Students reported that the RT practice helped them in building their reading fluency. In addition, during interviews students also reported that the RT helped them in other tangible and intangible ways. For instance, students found the practice helped them with their English pronunciation skills. Five students (PRM-F09, PRM-F14, NONPRM-F03, NONPRM-F06, and NONPRM-F10) mentioned that through the practice of listening and reading aloud in the RT they felt that their pronunciation had improved. For instance, student NONPRM-F02 concurred by stating: “I think I could improve my pronunciation of English”. Implying she was able to (“could” used to mean “to be able to”) improve her pronunciation through her use of the RT. Talking about her experience with the RT, another student PRM-F10 commented: “I think it's useful for me because the pronunciation ...it's very clear and repeating the sentence for me … its practice”. Student NONPRM-F05 also confirmed that the practice of oral reading and listening to the text on the RT was useful: “to listen the good pronunciation and to repeat it...that is you know...good practice”.

As discussed earlier, students sought to improve their English speaking skills and aspired to be able to converse with the wider community of English speakers.
Student PRM-F12 believed the RT practice helped her pronunciation: “Because we came to Canada …to improve our pronunciation it is so difficult for us…so it’s good for us…” implying that the improvement in pronunciation would in turn positively support her speaking skills. Like PRM-F12, student PRM-M06 reported: “I think that it is good…because…firstly I can hear the correct pronunciation and after that I can repeat… it is very good practice I think for my second language learning”. Student NONPRM-M01 was also very confident that the practice was helpful in his pronunciation, he explained:

“…actually we don’t have much chance to read loudly… ...I know it’s really useful and helpful for us to read loudly and so it’s really helpful for us to include our pronunciation and I am sure my pronunciation will be better than before”.

Another student PRM-F11 was even aware of the improvement in her pronunciation over time: “it’s helped me to fix my pronunciation …. my pronunciation I think little bit developed compared to September”. While student PRM-F11 was aware of the progress she made in her pronunciation, student NONPRM-F012 was able to even identify her phonological challenge in pronouncing the North American English phoneme /r/ and clearly articulated the support she received by using the RT: “I was bad at “/r/” … “/r/” pronunciation but I tried to emphasize “/r/” so maybe I could get better ..I get better I think”.

Phonological features of the English language were not a variable of focus in the study and hence pronunciation was not an artifact of interest. However, observations suggest that these students felt better about the way they were able to
articulate commonly used words and phrases in their everyday use of English. This appeared to give them some confidence in speaking. While they felt that they benefited from the use of the RT in intangible ways such as pronunciation there were more tangible ways in which students felt that the RT practice helped them.

Some students believed that the practice in RT also translated to better TOEFL scores. Students in the program took two TOEFL exams through the Fall term and students PRM-F13 and NONPRM-F06 attributed their improvement in TOEFL scores to their practice with the RT. PRM-F13 explained: “my TOEFL score is higher ...(slightly) ...the reading score is higher…the reading section”.

Some students found that the RT was able to help them improve their speaking skills. For instance, student NONPRM-F08 believed that the use of the software helped in improving speaking skills”… because I did this RT, I think…. I could speak English more fluently”. The oral reading practice in the RT also appeared to be instrumental in building confidence in students and in turn supporting their speaking skills. Another student NONPRM-F04, noted:”I want to talk with some people with foreigner people...but there is no chance to speak English to other countries people and I can speak English so it is good chance …The thing is important to speak louder more frequently” implying that the RT in addition to being a tool for reading practice also served as a conversational partner.

Similarly, another student NONPRM-M01 commented: “actually we don’t have much chance to read loudly…I know it’s really useful and helpful for us to read
loudly” suggesting that oral reading is a useful practice. The student continued to also clarify why this was helpful in building confidence:

I became more confident...yeah...so I got to speak more loudly in public. ahh...we are taking XXX course...and we take a class in the large class so I try...I Always try to ask questions in public... so...I know it’s easy to ask questions in small class ...so but yeah....I just tried to ask questions and try my English to real Canadian it is really important to speak loudly and clearly.

All students in the AEP were enrolled in a course on Canadian studies. This class met once a week in a large theatre style classroom setting equipped to accommodate all the 100 students in the program. The size of all the other classes ranged from 10-20 students. Student NONPRM-M01 was alluding to the confidence needed in articulating a question loudly and clearly in a larger class. The student’s comments imply that the practice of working with the RT had a positive influence on his speaking skills and his confidence to interact with native English speakers.

The comments made by NONPRM-M01 about building confidence are salient in this discussion of the benefits of using the RT. He was one of the most regular students over the period of the study. This comment and observation suggests that there may be value in providing students opportunities to engage in private practice with a computer-based reading tool such as the RT. Oral reading practice that software programs such as the RT provide may offer students opportunities to enunciate English words that they may use in their everyday conversations.
Students’ use of such software may promote their confidence in speaking and interacting with their English speaking peers.

While students had access to native English speakers and opportunities to engage in conversations with their English speaking peers were plenty, confidence played an important role in interactions with such speakers outside their familiar language domains. The following quote from a student is emblematic of how the reading practice offered students a sense of confidence in applying their English language speaking skills: “good point is that I can practice reading…and then…when I speak to somebody I feel better….like…first time when I speak English I feel kind of ashamed” (NONPRM-F11). The practice of oral reading may also take the place of speaking English like student PRM-F012 explained: “I'm not good at speaking so..I didn’t talk so much while in class or our residence…here so…it is good time to talk”. The student also added that the practice of reading aloud has helped her become “less shy”.

Students reported a number of benefits of using the software and held positive views of the software. They also reported that they would recommend the software to their peers – other sojourning Japanese students. However to learn if the use of the software helped students feel better about their ability to read in English their self-assessment of level of difficulty in reading in English was surveyed. The responses to this survey item that was part of the larger survey discussed under research questions 1 are discussed in the next section. This item is presented below after research questions 2 and 3 because it discusses the self-reported reading
ability of students before and after the RT intervention. From students comments discussed above it appears the RT intervention may have played a part in how they perceived their reading skills in English.

4.5.4 Students’ Self-Assessment of Reading Ability in English

This survey item designed to reveal how students felt about their ability to read in English, used a four point (forced choice) Likert scale. The question - “I find reading in English ______” - was followed by four choices (Refer to Appendix D for details). The four choices – very difficult, somewhat difficult, somewhat easy and very easy – were ranked, for the analysis, from 1 to 4 correspondingly to compare the change in self-reported scores of the students over the period of the study. The survey item was administered to all groups along with survey items of reading habits discussed under research question 1 at the beginning and the end of the study. The change scores – the difference in the Likert scale choice between post- and pre-test points -- were also recorded and they are presented for the three groups in figure 4.18 below.

An ANOVA was conducted to assess if there were differences among the two experimental groups and one control group over time on the outcome measure of the self-reported reading score. The results showed that there was no significant main effect of time $F(1, 39) = 0.016, p= 0.900$, partial $\eta^2 = 0.0$ but there was a significant interaction effect of group and time $F(2, 39) = 3.689, p=0.034$, partial $\eta^2 = 0.16$. A significant interaction effect indicates that the differences among the three groups on the linear combination of the dependent variable are different over time –
between the pre-test and the post-test. After controlling for pre-test scores when the analysis was run the means of post-test scores showed no significant differences between groups PRM and NON-PRM or PRM and Control. There was also no significant difference between groups NON-PRM and Control, however a $p=0.058$ with partial $\eta^2 = 0.14$ was found between these groups. The low observed power (0.12) and small sample size may explain this non-significant difference between NON-PRM and control. The graph in figure 4.17 shows how the scores for the self-reported reading ability measure changed over time.
Group
PRM = RT Preferred Group
NON-PRM = RT Non-Preferred Group
CONTROL = Control Group

**Figure 4.17**  Self-Reported Reading Likert Scale Ratings for the Three Groups
The changes in ratings on the four Likert scale choices over the period of the study however reveal interesting trends on how students in the three groups reported on their ability to read in English. These differences in ratings are presented below. The differences in self-rated choices, from pre- to post-testing in the study, will be referred to as change scores indicating how the self-rated choices changed over time. Change scores thus reflect how students’ self-perceptions changed over the study period. Given that the four choices were ranked 1 to 4 with 1 being very difficult and 4 being very easy, a change from pre- to post-test of very difficult to somewhat difficult would result in a change score of “+1” (Pre “1” and Post “2” = 2-1 = “+1”). In contrast, a change from pre- to post-test of somewhat easy to very difficult would be “-2” (Pre “3” and Post “1” = 1-3 = “-2”). If the choice from pre- to post-test did not change (as represented by a pre-test choice of somewhat difficult to a post-test choice of somewhat difficult) then the change score would be “0”. The four change scores among all participants in groups were “-1”, “0”, “+1” and “+2”. These change scores are presented in figure 4.18 below.

Although the trends represent only small changes over the study period these figures may be representative of how students felt about reading in general over the period of the study. It may also provide some insight into whether the RT helped students feel better about reading in English.
Figure 4.18  Change Scores for the Groups on the Four Likert Scale Choices
The graph in figure 4.17 suggests that the two experimental groups generally showed a positive trend in how they reported their level of difficulty in reading in English over the study period, while in contrast the control group clearly regressed in the same self-reported score. Among the two experimental groups the NON-PRM group appears to have made greater gains in their self-reported ratings when compared to the control group but not significantly more than the PRM group. The NON-PRM group appears to have the highest change in the self-reported rating of their ability in reading in English.

These trends are also reflected in the change scores in figure 4.18. For instance, the control group has the highest number in negative change of the Likert Scale rating of “-1” suggesting that about 6 of the 14 (or 43%) students reported that they found that reading in English was more difficult at the end of the term than at the beginning. This number represents a fairly large proportion of the control group. In contrast only one (7%) reported a positive change of “+1”. From earlier discussions under research question 1, this finding should not be a surprise. Recall that students reported difficulties in reading academic texts and this may have impacted their self-assessment of their ability to read in English. It appears that students may have regressed in how they felt about their ability to read in English and the negative reading experiences as described by students earlier may have played a role in how they perceived their ability to read in English. The non-preferred group (NON-PRM) possessed the most students (33%) who had a positive change in ratings (3 in 12 or 25% with “+1” and 1 or 8% with “+2”) and only one student with a negative change of “-1”. The preferred group (PRM) had 3 in 16 (18%) with “+1”
change and 2 in 16 (12%) with “-1”. These figures indicate that the NON-PRM group rated their level of difficulty in reading in English more positively at the end of the study than the PRM and control groups. Another interesting trend is that the PRM group had the largest number of students (11 in 16 or 69%) who did not change how they self-assessed their level of difficulty in reading in English when compared to the other two groups.

The changes in how students self-reported their ability to read in English discussed so far indicate that the experimental groups felt that they progressed moderately better than the control group. However, between the two experimental groups, the NON-PRM group appears to have fared considerably better in this area when compared to the PRM group. This trend appears to be counter-intuitive given that the PRM group was positioned to perform well overall in all areas of reading skills and in turn feel positively about their reading ability given that they were reading preferred materials. One explanation for this contrary outcome may lie in how these groups interacted with these reading materials. For instance, the PRM group had a higher level of interest in the reading materials and were probably distracted by their need to comprehend the text which would by and large be the goal of any reader interacting with texts they preferred reading. The NON-PRM group on the other hand may have concentrated on completing the task of reading the text. It may be speculated that the focus of the PRM group was comprehension while that of the NON-PRM group was completion. There is some anecdotal data that support this explanation.
The reading materials in the RT were not provided with vocabulary support where students could click on any word and be presented with its meaning. The software in the version for the current study was not designed to provide such support. It was observed that some students used their bilingual Japanese –English dictionaries often while reading. For instance, student PRM-M06, on several occasions commented on the lack of vocabulary support and offered vocabulary enhancement as a major suggestion for improvement in future versions of the software. He also used his bilingual dictionary quite frequently. This student was from the preferred group (PRM) and from observations and informal assessments seemed to be making considerable progress in reading. Despite performing better in reading scores over the study he self-reported that he found reading in English “very difficult” at the end of the study period just like at the beginning. The need to comprehend and the lack of vocabulary support that the students felt was a very important part of reading in English and probably contributed to a feeling of the lack of improvement in their reading ability in English. From observations, another student PRM-M15 from the same group as PRM-M06 had a similar experience.

The use of the software seems to have positively influenced how some students felt about their level of difficulty in reading in English. A majority of the students in all three groups did not change how they viewed their level of difficulty in reading in English. However, a considerable proportion of the students in the control group (6 in 14 or 43%) regressed in their self-reported ratings in the difficulty level of reading in English. From earlier discussions it was clear that students found reading school materials was considerably difficult and this may have influenced the control
group’s ratings. The experimental groups had considerably fewer students with negative ratings (negative change scores) suggesting that the reading intervention may have mitigated some of the negative perceptions they may have acquired from their reading experience in other areas.

4.5.5 Summary of Research Questions 2 and 3

The results of the analyses under these research questions indicate that a preference for reading materials may positively influence the non-transfer and transfer fluency skills for independent reading materials in a computer-based environment. In the case of academic materials it appears that the use of the RT has a positive influence on reading fluency that may transfer across genres - from independent to academic texts. The PRM group was able to make gains in reading fluency that also appears to have significantly benefitted their fluency in academic texts. Overall these findings appear to suggest that the practice with preferred independent reading materials in a computer-based environment such as the RT may help to a greater degree in academic reading for students in this AEP when compared to reading non-preferred independent reading materials although the difference may not be significant.

While reading fluency seemed to be the reading skill that was significantly impacted by the use of the RT, there appears to be no gains in comprehension as a result of an increase in fluency in the context of this study. However, more research will be required to determine if a longer period of usage and a greater number of
participants may impact the association of fluency and comprehension in EAL young adults, bearing in mind that the present study’s period of treatment was planned for 1.5 hours a week per student for approximately eight weeks and the usage profile shown in table 4.14 is not representative of high usage.

Some students also reported that they felt their pronunciation and speaking skills improved after using the software. In addition, the practice with the RT provided them with a level of confidence when interacting with their English-speaking peers. In addition to a statistically significant gain in reading fluency in the experimental groups there was also a positive gain in how students self-assessed their ability to read in English in both the experimental groups. Although the effect sizes of the gains are low to moderate in all these findings they offer the possibility of the use of a software tool like the RT for assisted reading for young EAL adults. Implications and recommendations of these findings will be discussed in chapter 5.

4.6 Overall Summary of Research Questions

The survey results, the interview data and the statistical analyses of pre- and post-reading intervention data have yielded a number of important findings linked to a few themes. These findings may aid in building a better understanding of the instructional needs of these sojourning students in the AEP, and perhaps others like them.

The first theme relates to the reading habits of the students. Students spent a major part of their week immersed in reading and writing in English for academic purposes. While this is a desirable activity given their academic sojourn, they
reported having significant challenges in reading and understanding academic materials. Reading for pleasure in English was only a trivial part of the students’ reading repertoire. While in contrast they maintained their reading habits in Japanese on screen but not in print. Students were interested in reading non-academic materials in English and the survey uncovered a number of different topics of reading preferences in both fiction and non-fiction texts.

The second theme that emerged underscores student reports that academic texts they were reading were difficult for them and navigating such texts to make meaning of the content was particularly difficult.

The third theme highlights the language instructional contexts or domains that these students appear to create in intersection with their reading habits and the curriculum of the AEP. The concentric domains of EFL and ESL instructional environments as suggested by the model argues for a need to provide a supportive environment to bolster students language skills and provide more opportunities to use English with the larger English speaking community. The proportionally large inner circle or domain being EFL, the model argues for a reduced proportion of the EFL domain in order to maximize the sojourning experience.

The fourth theme deals with the effectiveness of a computer-based reading tool in promoting reading skills in young adult EAL learners. The RT software appears to offer private practice that may be useful in the development of reading skills in EAL young adults. Results of the statistical analyses revealed that a preference for reading materials may positively influence the non-transfer and
transfer fluency skills for independent reading materials in a computer-based environment. In the case of academic materials it appears that the use of preferred reading materials in RT has a positive influence on reading fluency that may transfer across genres - from independent to academic texts. Findings therefore suggest that the reading software with preferred independent reading materials may help in academic and non-academic reading for students in this AEP.

From analyses of the reading measures a fifth theme that emerged was that the reading fluency skills that were gained as a result of the use of the reading tool did not translate into gains in comprehension in the context of this study.

A sixth theme that emerged from the data relates to students’ perceived benefits of using the RT. Students reported on improvements in their pronunciation and speaking skills from using the software. The practice with the RT appeared to have provided them with a level of confidence when interacting with their English-speaking peers. In addition, students also self-assessed their ability to read in English and the experimental groups appeared to have an overall positive impression of their reading ability when compared to the control group.

Although the effect size of the gains is low to moderate in all the statistical results in the study, the findings offer the possibility of using a software tool like the RT for assisted reading for young EAL adults in an AEP. The reading software tool may help in overall improvements in students’ reading skills that may transfer to other areas of their academic work. Reading tools such as the RT are easy to implement and require light supervision from teachers while providing, as evidenced
by the findings of the current study, an effective means of scaffolding students’ English reading skills.

The findings of the study are discussed in light of their implications to theory and practice in the next chapter – Chapter 5. In addition, some recommendations for the AEP program that the study findings support are also presented.
Chapter 5: Conclusion and Implications

This chapter first presents a discussion of the limitations of the study, followed by an overview of the main findings and their implications for practice. The chapter concludes with a brief discussion of the contributions of the study to extant research.

The current study was designed to investigate the effectiveness of a voice recognition reading software program in the promotion of literacy skills in young adult EAL learners. The study was guided by research questions that were intended to gather information on the reading habits and the reading preferences of international university students in an AEP. In addition, the study was also designed to examine the impact of the use of a computer-based reading tool in promoting reading skills in young EAL adults.

In all, 42 students from an AEP at a major western Canadian university participated in this study and were assigned to three groups – two experimental and one control group – where the two experimental groups were formed on the basis of their preference for reading materials. Data from surveys, observations, and reading tests were used to arrive at results that answered the three research questions.

5.1 Limitations of the Study

The number of students in each group in the study may be seen as a limitation. A larger “n” or number of students in each group may have contributed to more generalizable statistical results and may have afforded a higher level of confidence when interpreting the results of the study. Participation in the study was
voluntary and may have been influenced by students’ course load and other academic commitments. Despite these limiting factors, forty-two (N=42) participants represents a reasonable number for a small-scale study that had the advantage of being carried out in a realistic academic setting.

The length of the reading intervention and the extent of usage or time spent on the software by participants may also be considered as limitations. A suggestion for any future iteration of the study would be to consider the use of the software over two terms. If the study is carried out over two terms, carrying out testing on the reading skills at the end of the first term may serve as a useful mid-point of reference in studying the association of reading fluency and comprehension as in research question 3 of this study.

The amount of time spent by students on the software was modest. Future replications of this study need to consider ways to increase the number of sessions and time a student spends on the software during each session. A suggestion would be to make the tool available to students as part of a course activity or assignment. Even a modest academic credit attached to the use of the reading tool may boost student participation and commitment. These recommendations and suggestions however apply to a study that may have considerable human and other resources at its disposal.

The participants in this study were international students from Japan sojourning at a Canadian university. This should be taken into account while making generalizations, as the survey and interview responses might have common themes
with other international students in North American universities, but are primarily a reflection of the views of a specific group of students.

Given the limitations of the study discussed above, the findings inform some important questions that may benefit the AEP. The main findings and their implications are discussed in the next section with recommendations for enhancing the educational experience of the students of the AEP.

5.2 Main Findings, Implications and Recommendations

The main findings of the study highlighted at the end of chapter four are presented below with brief discussions of implications to practice and recommendations for the AEP program.

The reading habits of students in the AEP suggest that they were mainly immersed in reading and writing in English for academic purposes. They spent a small amount of time in reading for pleasure in English, while maintaining their reading habits in L1. There appears to be a need to promote reading for pleasure among students. “Extensive reading is reading a lot. It is also reading for pleasure. Extensive reading should be at a comfortable ‘easy’ level for the student and the main goal is to read. They should not be reaching for a dictionary every sentence or even every paragraph. The goal is to create fluency and enjoyment in the reading process” (Clarity, 2007, para 2). Extensive reading or reading for pleasure may have helped students develop skills that helped them connect with their English-speaking peers.
The survey results have revealed the reading preferences of these students and a reading program incorporating these preferences may be a viable and effective strategy to provide students with an opportunity to build their reading skills and interest in reading in English. Providing ESL students with fictional and non-fictional reading materials suitable to their reading levels gives them “a sense of achievement and motivation to continue reading” (Burns, 2003, p.22). Moreover, a study with high school students in Japan revealed that they benefitted from extensive reading in English. Students reportedly discovered “the joys and benefits, linguistic, intellectual and emotional, that reading can bring” (Powell, 2005).

Students reported on difficulties they encountered in reading English academic texts they were assigned and they did not seem to have the tools to cope with such reading. A reading course dedicated to providing students with the necessary tools and strategies in reading English academic texts may prove beneficial to the AEP. The AEP program offered a special course dedicated to build academic writing skills. It appears the students would benefit from a similar course that provides them with strategies to read more effectively in English. The widely recognized concept of “Reading like a Writer” may be a suitable theme for the course that works in union with the academic writing course. The reading-writing connection has been broadly acknowledged and recognized (Belanger, 1987; Pearson, 2002; Tierney & Shanahan, 1991). There is also a notion that when students write stories, for instance, they are likely to be engaged readers of story-texts (Pearson, 2002). Tierney & Shanahan (1991) suggest that writing used in combination with reading in classrooms prompts readers to use a greater variety of
reasoning strategies such as questioning and makes engaged readers and writers. Writing in concert with reading stimulates a greater level of reader engagement than when writing and reading are separated. A dedicated course that incorporates reading instruction may be beneficial to all students and may promote academic success in all courses. In addition, the extensive reading program suggested above may also be a suitable addition to the program or an integral part of the reading course.

Students reported on the stresses they experienced due to their perceived level of English reading and speaking skills. Their inability to effectively interact with the larger English speaking community was clearly a source of frustration. The model of concentric domains of EFL and ESL instructional environments where their EFL environment was more dominant argues for a need to support students’ reading skills which in turn may promote their language skills. It appears to be counterproductive for an AEP program whose goal is to provide students with a rich cultural and language experience to allow students to spend a major part of their sojourning period in an environment that emulates an EFL instructional environment. This study makes a unique connection between the leisure reading habits of such students and the potential of “reading” in bolstering the language skills and in turn enhancing their academic and cultural experiences. This model of concentric domains of EFL and ESL further supports the rationale for a reading program and course suggested above. An academic reading course augmented by an extensive reading or “Reading for Pleasure” program may have far-reaching effects on students’ English literacy skills and literary practices. “The only way to improve
reading skills is to read” (Collins, 1996) and a course may provide students with opportunities to engage in reading for pleasure.

In investigating the effectiveness of a computer-based reading tool in promoting reading skills in young adult EAL learners the results of the statistical analyses revealed that a preference for reading materials may positively influence the non-transfer and transfer fluency skills for independent reading materials in a computer-based environment. In the case of academic materials it appears that the use of preferred reading materials in RT has a positive influence on reading fluency that may transfer across genres - from independent to academic texts. However, it may be concluded from the data available in this study that an increase in fluency did not contribute to a statistically significant increase in comprehension. Nonetheless, findings support the use of reading software programs to promote reading skills in young adult EAL learners. In particular, reading software such as the RT with preferred independent reading materials may help in academic and non-academic reading for students in this AEP. A computer-based reading tool such as the RT may be used in place of the extensive reading program suggested earlier or may be incorporated as a major part of such a program.

Students also reported that the practice of using the software helped in their speaking and pronunciation skills. They reported that working with the software program helped in boosting their confidence in speaking and interacting in classroom and social environments. The experimental groups had considerably smaller numbers of students with negative self-ratings suggesting that the reading intervention may have mitigated some of the negative perceptions they may have
acquired from their reading experience in other areas particularly academic reading. This finding further reinforces the support for the use of a computer-based reading tool in enhancing students’ self-perceived abilities in reading in English in addition to helping to a positive gain in reading skills.

5.3 Contributions of the Study

The study uncovered some interesting findings that will make an important contribution to the extant research available in reading habits as well as the use of a computer-based tool in promoting reading skills in young adult EAL students, especially international sojourning students. In addition, the study and the findings also extend the research carried out with the reading software tool with younger EAL learners. This study demonstrates the scalability of this tool to learners of other ages. There are however some limitations such as those discussed above that need to be taken into account while interpreting the results.

The findings suggest that the use of a computer-based reading tool may help students develop reading skills to help them in their academic and independent reading. The private and independent practice of working with the voice recognition software program is an easy way of bolstering students’ reading skills. The earlier recommendations of a reading for pleasure program may be implemented in a computer environment by providing students with high-interest reading materials in digital environments with voice and vocabulary support.

Students also reported on the stresses they experienced that they attributed to their perceived level of English reading and speaking skills. Their feelings of
inability to effectively interact with the larger English speaking community were a source of frustration. Academic load and differences in academic cultures between the two education systems was also the source of stress for Japanese students in another study conducted at this university (Segawa, 1998). The concentric domains of EFL and ESL instructional environments as suggested by the model that stemmed from findings in this study argues for a need to provide a supportive environment to bolster students’ language skills and provide more opportunities to use English with the larger English speaking community. Other studies conducted at the university also call for an increased focus on providing resources and support to raise the English language skills of international students (Grayson & Stowe, 2005).

The suggestions in preceding paragraphs may provide some direction in considerations of building such resources and support. Although other studies have found compelling reasons for the need to bolster language skills of sojourning students, this study makes a unique connection between the leisure reading habits of such students and the potential of “reading” in bolstering the language skills and in turn enhancing their academic and cultural experiences.

The concentric domains of ESL and EFL that these students appear to create in intersection with their reading habits and the curriculum of the AEP argues for a need for academic programs such as the one that was the focus of this study to understand the instructional environments of sojourning students and provide a supportive environment to bolster their language skills in order for them to interact more effectively with the larger English speaking community. As discussed above, this study makes a unique connection between students’ leisure reading habits and
the potential of “reading” in bolstering the language skills and in turn enhancing the academic and cultural experiences of the AEP students. It also supports the need for the reading program and reading instruction course discussed earlier.

While the details of the discussion of the socio-cultural implications of the nature of students’ day-to-day linguistic interactions with the community may be beyond the scope of this study given the foci and research questions, the reading habits and reading practices of these students outside the classroom suggest the need for further research to confirm the role of reading for pleasure in improving the language skills of Japanese sojourning students in AEP programs such as the one where this study was carried out.

The study investigated the effectiveness of a computer-based reading tool in promoting reading skills in young adult EAL learners. The RT software appears to offer private practice that may be useful in the development of reading skills in EAL young adults. The results of the statistical analyses revealed that a preference for reading materials may positively influence the non-transfer and transfer fluency skills for independent reading materials in a computer-based environment. In the case of academic materials it appears that the use of preferred reading materials in RT has a positive influence on reading fluency that may transfer across genres - from independent to academic texts. Findings suggest that the reading software with preferred independent reading materials may help in academic and non-academic reading for students in this AEP. This finding reinforces other studies that found that the use of a reading software program positively influences the growth of reading fluency. In addition, the current study looked at the use of preferences in influencing
reading fluency and the possibility of a transfer of this fluency over genres. These features make the findings of this study distinctive in terms of its contribution to extant research.

The finding that reading fluency gains made in the study did not translate into gains in comprehension further reinforces questions around the association between reading fluency and comprehension, particularly in the context of a computer-based reading tool. However, more research will be required to determine if a longer period of usage with more participants may change the association of fluency and comprehension skills in these EAL young adults.

Although the findings of this study have resulted in effect sizes and gains in the low to moderate range, the findings offer the possibility of using a software tool like the RT for assisted reading for young EAL adults in an AEP. The reading software tool may help in overall improvements in students’ reading skills that may transfer to other areas of their academic work. In addition, a software tool like the RT is an easy, lightly supervised and evidently effective means of scaffolding students’ English reading skills.
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Appendices

Appendix A    Consent Letter for Survey Participants

THE UNIVERSITY OF BRITISH COLUMBIA

Research Study: Promoting Reading Skills of Young Adult English as an Additional Language (EAL) Learners through Voice Recognition Software

Dear,

My name is Reginald D'Silva and I am a student in the Language and Literacy Education Department (LLED) in the Faculty of Education at UBC. I am currently doing my Ph.D and as part of my thesis dissertation I am conducting a study to investigate the use of a voice recognition software program called the Reading Tutor (RT) in promoting reading skills in EAL learners. The principal investigator of this study is my advisor Dr. Kenneth Reeder.

Computer-based reading tools are proving to be useful in improving reading skills in students of all ages and we have found in previous studies that the RT has helped in enhancing reading skills in school-aged EAL learners in Vancouver elementary schools. The goal of this study is to investigate the effectiveness of the RT with young adult learners. We are pleased we can work with the students of the Ritsumeikan program on this study.

As part of this study we are conducting a survey to determine the reading preferences of students in the program. This is the first of two phases of this study. At this point you are only requested to commit to completing this survey. The survey will take around 15 minutes to complete. The link to the survey is provided at the end of this letter. Your participation is entirely voluntary. The responses and data from the survey will be password protected and will remain confidential. Only my advisor and I will have access to this information. Although the survey will ask you to identify yourself by gender and name this information will remain strictly confidential and will only be used for the purposes of this study. You will not be identified in any document that will be published as a result of this study. The survey data will be kept in a secure location in the Department of Language and Literacy Education at UBC. Only Dr. Ken Reeder and I will have access to the raw data.

This online survey is hosted by a web survey company located in the USA and as such is subject to U.S. laws, in particular, the US Patriot Act which allows authorities access to the records of internet service providers. This survey or questionnaire does not ask for personal identifiers or any information that may be used to identify you. The web survey company servers record incoming IP addresses of the computer that you use to access the survey but no connection is made between your data and your computer’s IP address. If you choose to participate in the survey, you understand that your responses to the survey questions will be stored and accessed in the USA. The security and privacy policy for the web survey company can be found at the following link: www.surveymonkey.com
If you have any questions or concerns or you would like further information on this study, please contact Dr. Ken Reeder (email: ____________) at ____________ or Reginald D’Silva (email: ____________) at ________.

If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at ________.

I appreciate your support and thank you for taking the time to participate in this study.

Yours sincerely,

Reginald D’Silva

Principal Investigator: Dr. Kenneth Reeder

Co-Investigator: Reginald D’Silva

Consent Form

Your signature below indicates that you have received a copy of this consent form for your own records and that you consent to participate in this study.

____________________________________________________
Participant Signature     Date

____________________________________________________
Printed Name of the Participant
Appendix B  Consent Letter for Study Participants (Experimental)

THE UNIVERSITY OF BRITISH COLUMBIA

Research Study: Promoting Reading Skills of Young Adult English as an Additional Language (EAL) Learners through Voice Recognition Software

Dear,

My name is Reginald D’Silva and I am a student in the Language and Literacy Education Department (LLED) in the Faculty of Education at UBC. I am currently doing my Ph.D and as part of my thesis dissertation I am conducting a study to investigate the use of a voice recognition software program called the Reading Tutor (RT) in promoting reading skills in EAL learners. The principal investigator of this study is my advisor Dr. Kenneth Reeder.

Computer-based reading tools are proving to be useful in improving reading skills in students of all ages and we have found in previous studies that the RT has helped in enhancing reading skills in school-aged EAL learners in Vancouver elementary schools. The goal of this study is to investigate the effectiveness of the RT with young adult learners. We are pleased we can work with the students of the Ritsumeikan program on this study.

You have been randomly selected from a list of names of Ritsumeikan students to be part of this study. The study involves the use of the Reading Tutor software for around 8 weeks during the fall term for around 30 - 45 minutes each day for four days in the school week. The schedule of use will be determined with you according to your convenience. In order to measure progress, we will be conducting some basic tests at the beginning of the study and the same testing will be done at the end of the study as well. These tests are not linked to any academic grades of your program and will not affect your academic standing in the program whatsoever. Only Dr. Ken Reeder and I will have access to the results of these tests. They are meant to measure the effectiveness of the Reading Tutor software program. Short interviews will be conducted during the duration of the study to gather input on your experience with the RT. Your participation is entirely voluntary. Please note that you may refuse or withdraw from the study at any time without any jeopardy to your service or employment. Your participation will help the study immensely. The data gathered from this study will remain confidential. The data will be kept in a secure location in the Department of Language and Literacy Education at UBC. Only Dr. Ken Reeder and I will have access to the raw data.

If you have any questions or concerns or you would like further information on this study, please contact Dr. Ken Reeder (email: ________) at ______ or Reginald D’Silva (email: _________) at ________.

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If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at ____________.

I appreciate your support and thank you for taking the time to participate in this study.

Yours sincerely,

Reginald D’Silva

Principal Investigator: Dr. Kenneth Reeder

Co-Investigator: Reginald D’Silva

Consent Form

Your signature below indicates that you have received a copy of this consent form for your own records and that you consent to participate in this study.

____________________________________________________
Participant Signature Date

____________________________________________________
Printed Name of the Participant
Appendix C  Consent Letter for Study Participants (Control)

THE UNIVERSITY OF BRITISH COLUMBIA

Research Study: Promoting Reading Skills of Young Adult English as an Additional Language (EAL) Learners through Voice Recognition Software

Dear,

My name is Reginald D'Silva and I am a student in the Language and Literacy Education Department (LLED) in the Faculty of Education at UBC. I am currently doing my Ph.D and as part of my thesis I am conducting a study to investigate the use of a voice recognition software program called the Reading Tutor (RT) in promoting reading skills in EAL learners. The principal investigator of this study is my advisor Dr. Kenneth Reeder.

Thank you for participation in a survey earlier this term that has greatly helped this study. As a result of your participation, we are now able to continue with the next phase of this study. You have been randomly selected from a list of names of Ritsumeikan students to be part of this study. We will be conducting some basic tests in September and December of this term. These tests are not linked to any academic grades of your program and will not affect your academic standing in the program whatsoever. Only Dr. Ken Reeder and I will have access to the results of these tests. Your participation is entirely voluntary. Please note that you may refuse to participate or withdraw from the study at any time, with no consequences for your academic standing in the Academic Exchange Program (AEP). The data gathered from this study will remain confidential. The data will be kept in a secure location in the Department of Language and Literacy Education at UBC. Only Dr. Ken Reeder and I will have access to the raw data.

If you have any questions or concerns or you would like further information on this study, please contact Dr. Ken Reeder (email: ___________) at ____________ or Reginald D'Silva (email: ____________) at ____________. Please sign on the attached consent form and keep a copy of this letter and the form for your records. I will collect the form with your signature, on the day of the test.
If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at __________.

I appreciate your support and thank you for taking the time to participate in this study.

Yours sincerely,

Reginald D’Silva

Principal Investigator: Dr. Kenneth Reeder
Co-Investigator: Reginald D’Silva

Consent Form

Your signature below indicates that you have received a copy of this consent form for your own records and that you consent to participate in this study.

Participant Signature ___________________________ Date ____________

Printed Name of the Participant ________________________________
Appendix D Reading Materials Survey Questionnaire

Name: ______________________________ Date: __________________________

I am a _____________.
❑ Female
❑ Male

1. How much time in a week (approximately) do you spend reading school related materials on the computer?

❑ Less than 2 hours
❑ Between 2 to 5 hours
❑ Between 5 to 8 hours
❑ Between 8 to 10 hours
❑ Other (add a number here)

2. How much time in a week (approximately) do you spend reading school-related materials in print (not online but in the form of books for example)?

❑ Less than 2 hours
❑ Between 2 to 5 hours
❑ Between 5 to 8 hours
❑ Between 8 to 10 hours
❑ Other (add a number here)

3. How much time in a week (approximately) do you spend reading non-school related materials in ENGLISH on the computer?

❑ Less than 2 hours
❑ Between 2 to 5 hours
❑ Between 5 to 8 hours
❑ Between 8 to 10 hours
❑ Other (add a number here)

4. How much time in a week (approximately) do you spend reading non-school related materials in JAPANESE on the computer?

❑ Less than 2 hours
❑ Between 2 to 5 hours
❑ Between 5 to 8 hours
Between 8 to 10 hours
Other (add a number here)

5. How much time in a week (approximately) do you spend reading non-school related materials in print in ENGLISH (not online but in the form of books for example)?

Less than 2 hours
Between 2 to 5 hours
Between 5 to 8 hours
Between 8 to 10 hours
Other (add a number here)

6. How much time in a week (approximately) do you spend reading non-school related materials in print in JAPANESE (not online but in the form of books for example)?

Less than 2 hours
Between 2 to 5 hours
Between 5 to 8 hours
Between 8 to 10 hours
Other (add a number here)

7. I find reading in English_____

Very difficult
Somewhat difficult
Somewhat easy
Very easy

The following Items are about the kinds of materials you may like reading in English

1. I like reading poetry

strongly disagree
disagree
agree
strongly agree

2. I like reading song lyrics of popular English songs

strongly disagree
disagree
agree
3. I like reading news articles on world current events
   - strongly disagree
   - disagree
   - agree
   - strongly agree

4. I like reading magazine articles about sports
   - strongly disagree
   - disagree
   - agree
   - strongly agree

5. I like reading magazine articles on popular culture (fashion and celebrities, etc)
   - strongly disagree
   - disagree
   - agree
   - strongly agree

6. I like reading magazine articles on world travel and culture
   - strongly disagree
   - disagree
   - agree
   - strongly agree

7. I like reading romantic fiction stories
   - strongly disagree
   - disagree
   - agree
   - strongly agree

8. I like reading detective and mystery stories
   - strongly disagree
   - disagree
   - agree
   - strongly agree

9. I like reading stories from different cultures (cultural and folk tales, etc)
   - strongly disagree
   - disagree
   - agree


10. I like reading science-fiction stories
   - strongly disagree
   - disagree
   - agree
   - strongly agree

11. I like reading horror stories
    - strongly disagree
    - disagree
    - agree
    - strongly agree

12. I like reading about myths and legends
    - strongly disagree
    - disagree
    - agree
    - strongly agree

13. I like reading graphic novels on adventure
    - strongly disagree
    - disagree
    - agree
    - strongly agree

14. I like reading comics like Manga on fantasy characters
    - strongly disagree
    - disagree
    - agree
    - strongly agree

15. I like reading movie reviews
    - strongly disagree
    - disagree
    - agree
    - strongly agree

16. I like reading about nature and the environment
    - strongly disagree
    - disagree
    - agree
    - strongly agree
17. I like reading about animals
- strongly disagree
- disagree
- agree
- strongly agree

18. I like reading about history
- strongly disagree
- disagree
- agree
- strongly agree

19. Some topics I like to read about were not listed in the questions above. They are:

- List ALL the reading materials that YOU like reading in ENGLISH but were NOT listed in questions above. Please enter your response in the text box below:

20. Which of the types of materials you listed in the previous question do you like to read ONLINE or on the computer?

Please enter your response in the text box below:

21. Where do you get recommendations or suggestions on the kinds of materials you read in ENGLISH? Please indicate ALL that apply to you.
- Instructors
- Book lists
- Websites
- Friends
- Library
- Other: Enter your response here
Appendix E  Participant Interview Questionnaire

Name ____________________________________________

- What was the most interesting thing you read this week? Why did you find it interesting?

- Where did you read it?

- Tell me about the most interesting story you read in the RT recently? Why was this story/unit interesting to you?

- Describe in a few sentences your experience with the RT?

- What do you feel about reading, in general? In English? In Japanese?

- What do you most enjoy reading?

- What do your peers most enjoy reading? Can you name some favourite types of reading (books, magazines etc) that your peers like to read?

- What do you think you have to learn to be a better reader in English?

- What are some of the difficulties you encounter when reading your school-related English readings? General reading such as newspapers or magazines?

- What kinds of materials do you read on the computer/Internet?

- What kinds of materials do you read that are print-based?

- How has this experience influenced your views on reading? In English? In Japanese?

- How has using the RT influenced your reading skills?

- Anything you would suggest we need to do to improve the RT?

- What are some of the things you like about the program?

- What are some of the things you think could be better?
• Any other comments you would like to add?

Note: The list above represents the kinds of questions that will be used to guide the semi-structured interviews. Only a subset of these questions will however be part of any interview.
Appendix F  List of Reading Materials

1. *Atlantis carries Canadian trees into space* - November 2009 - CBC website
2. *Apple removes Digital Rights Management on iTunes* - January 2009 - Apple dot com website
4. *Barack Obama’s supercar shown to the world* - January 2009 - www.breakingnewsenglish.com
5. *Brazil looks for answers after huge blackout* - November 2009 - New York Times
6. *China bans physical punishment for Internet addicts* - November 2009 - The Globe and Mail
7. *China shuts down over 1000 websites* - January 2009 - The Voice of America
8. *Former cold war leaders mark fall of Berlin wall* - November 2009 - the Vancouver Sun
9. *Global-Warming protests around the world* - October 2009 - The Toronto Sun
10. *Google allows users to view personal information* - November 2009 - The Vancouver Sun
13. *iPod Nano now has video* - September 2009 - UB dot com
15. *Japan plans aid for Afghanistan* - November 2009 - Reuters
17. *Japan's list of Centenarians grows* - September 2009 - the Associated press
18. *Learning English with Obama* - February 2009 - BBC website
21. *NASA crashes rocket into moon* - October 2009 - The CNN website
22. *Netbooks* - January 2009 - The Robert Accentura dot com website
23. *North Korea threatens naval clash* - October 2009 - CBC news
24. *Obama urges China to loosen Internet control* - November 2009 - CBC website
26. *Olympic medals acknowledge aboriginal history* - October 2009 - the Vancouver Sun
27. *Pakistan opens offensive against militants* - October 2009 - The New York times
28. Police to charge balloon boy father - October 2009 - www.breakingnewsenglish.com
30. Reports hint US economy healing - October 2009 - Reuters
31. Scientists discover clue to why Chimps don’t talk - November 2009 - The Vancouver Sun
32. Slumdog Millionaire sweeps Oscars - February 2009 - Yahoo News
33. Sony's first loss in 14 years - January 2009 - BBC News
34. Stanley Park seawall reopens again - January 2009 - CBC news
35. Milky Way is a lot bigger than scientists thought - January 2009 - The Voice of America
36. Swine Flu deaths rise to 5,000 - October 2009 - The Associated Press
38. The computer mouse turns 40 - January 2009 - www.breakingnewsenglish.com
39. The year of the Ox - January 2009 - Infoplease
40. Woman gives birth to eight babies - January 2009 - www.breakingnewsenglish.com
41. We were just doing our jobs, Hudson river pilot says - January 2009 - The Star
42. Winnie the Pooh to make a comeback - January 2009 - www.breakingnewsenglish.com
Appendix G  Details of Academic Context of Participants in the Study

Note: these details are taken from the program website at the university where this study is being conducted and only details identifying the universities and course numbers have been altered to maintain anonymity. The term host university (hu) has been used for the university where the study is conducted and the term visiting university (vu) for the university from where the students are visiting to participate in the Academic Exchange Program (AEP)

About The Program

The academic year runs September to April, to coincide with the host university’s (hu) winter session. Participants from the visiting university (vu) are second / third year students who receive transfer credit for academic work completed at the hu. All vu students will complete three courses in the first term and four courses in the second term. The following courses will be included:

Arts Studies (AS)

Course XA (3 Credits) - An interdisciplinary introduction to the cultures of Canada and Japan, and the interrelations between them. Specific topics vary from year to year but will include themes such as constructing the past; nationalism; self-perceptions; cross-cultural perceptions; multiculturalism in Canada and Japan; images in architecture, film and literature; mythologies. Open to students outside the exchange program
Course XB (3 Credits) - This course is an introduction to the core geographical, historical, cultural and economic forces that shape the Pacific Rim, together with an exploration of the role of Japan and Canada in this region. The Pacific region today is the world's most dynamic region in terms of economic growth, and is increasingly important in terms of technological development. Overall, the course seeks to interpret the Pacific region by offering an introductory explanation of its history and current economic and political situation. Open to students outside the exchange program and cross-listed with a senior elective in Geography.

Language & Literacy Education (LLED) Courses

The department of Language and Literacy Education curriculum consists of nine courses which include the following:

- Introduction to Writing in Academic and Professional Registers;
- Introduction to analyzing Meanings of Images in Texts;
- Field Research in Social Processes of Inclusion and Exclusion: Discourse Perspectives;
- Introduction to Language communities and Variation in Language Practices;
- Translating in a globalized society.
- Introduction to Intercultural Communication and Socialization in Multicultural Contexts;
- Language Maintenance and the Integration of Immigrants in Canada - An Introduction;
- Introduction to the Nature of World Englishes.

Canadian Studies (CS): 3 Credits

This course provides a broad introductory overview of many of the central issues and contemporary debates that are at the heart of Canadian society. You will
become familiar with some of the key cultural, social, and political issues that are unique to this country. The aim of the course is to question the ways in which Canadian culture and identity have been both constructed and perceived.

**Electives / TOEFL**

In first term students who meet hu’s TOEFL (Test of English as a Foreign Language) criterion for admission are eligible to take 1 to 2 electives (3 - 6 credits) from the hu’s calendar. In the second term, we will calculate which students will be given permission take 1 or 2 electives (3 - 6 credits) of their choice based on a calculation of their progress in term one.

A summary of the courses available to students in Term 1 and Term 2 of the program is presented below in tabular form.
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<th>Term 2</th>
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<td>Canadian Studies (Mandatory 3 Credits)</td>
<td>AS Course XA</td>
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<tr>
<td>Mandatory 3 Credits</td>
<td>LLED course on Intro to writing in academic and professional registers</td>
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<td>LLED Course: Public and Private Language Practices in a Globalized</td>
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