Accelerating English Language Learning: Classroom Tools and Techniques

By

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Abstract:

English language learning for foreign and international students is a facet of Canadian schools that has become the norm for all educators in the field. The task that faces English learners is an immense one: to learn a foreign language, in a foreign environment, with little understanding of the culture surrounding them, leads to many difficulties for these students both in the social and academic realm. This study aims to query the field of English language learning and uncover techniques and tools with which educators can accelerate the English language learning of their foreign and international students, thereby allowing these students to more quickly adapt to the new environments around them. A qualitative study, interviewing two teachers in the Greater Toronto Area (GTA), revealed some of the classroom techniques that educators use to promote the language learning of their students, and some of the issues English language learners (ELLs) continue to face. These observations were supported by the literature in this field, which pointed to a number of key factors that can be employed that are proven to improve the language learning of students. The discussion will explore how these many factors, including the influence of a student’s first language, cultural effects, vocabulary acquisition, computer technology, and repetition, interact with another within the average English language learning classroom, and will explore how they can be utilized to accelerate the learning of English language learners.
# Table of Contents

Acknowledgements: .................................................................................................................. 2

Abstract: ..................................................................................................................................... 3

Chapter 1: Introduction ................................................................................................................. 6
- Overview ..................................................................................................................................... 6
- Background of the Researcher ................................................................................................. 7
- Motivation for this Study ........................................................................................................... 10

Chapter 2: Literature Review .................................................................................................... 12
- The Importance of English Language Learning .................................................................... 12
- Accelerating Language Learning: Overview ........................................................................ 13
- Transfer of Knowledge: The Impact of the L1 on the L2 .................................................. 15
- Computer-Assisted Language Learning ............................................................................... 19
- Spaced Repetition Systems .................................................................................................. 25

Chapter 3: Methodology ............................................................................................................ 29
- Nature of this Research ........................................................................................................ 29
- Procedure .................................................................................................................................. 30
  - Instruments of Data Collection .......................................................................................... 30
  - Participants ........................................................................................................................ 30
  - Data Collection and Analysis ............................................................................................ 31
- Limitations ............................................................................................................................... 32

Chapter 4: Findings and Results ................................................................................................ 34
- How Does First Language Impact Second Language Learning? ........................................ 34
  - The Starting Point for the English Language Learner ...................................................... 34
  - The Importance of Translation ......................................................................................... 35
  - From First Language to First Culture .............................................................................. 37
- The Influence of Culture on Second Language Learners .................................................... 39
  - The Culture Gap ............................................................................................................... 39
  - The Impact of Technology on Cultural Education .......................................................... 40
- Technology as a language learning tool in the ELL classroom ............................................. 41
  - Uses and Applications of Technology ............................................................................. 41
  - Technology and Vocabulary Acquisition ....................................................................... 42
  - Issues and Limitations of Technology ............................................................................. 44
The Role of Vocabulary Acquisition in Improving English Language Proficiency........................................45

Vocabulary Acquisition and the Beginner ELL.........................................................................................45

The Plateau Effect .................................................................................................................................46

The Benefits of Repetition on English Language Learning.................................................................47

Obstacles for the English Language Learner .......................................................................................47

The Benefits of Repetition .....................................................................................................................48

Chapter 5: Discussion ............................................................................................................................51

Transfer of Knowledge: The implications of the L1-L2 interaction ..................................................51

The Situation for the Beginner ELL .......................................................................................................51

Transfer of Knowledge: Translation .....................................................................................................52

Transfer of Knowledge: Phonology .......................................................................................................53

The positive and negative effects of culture on the language learning classroom...............................56

The Impact of Cultural Differences ......................................................................................................56

Cultural Barriers and Second Language Learning .............................................................................57

Suggestions ...............................................................................................................................................59

The Cooperative Effects of Vocabulary Acquisition and Technology ..................................................60

A Curricular Focus on Vocabulary ........................................................................................................60

Technology for the Purpose of Vocabulary Acquisition .......................................................................61


The Effects of Spaced Repetition on Vocabulary Acquisition ............................................................62

Spaced Repetition Systems in the Language Learning Classroom .....................................................64

Limitations and Future Study ................................................................................................................65

References: ................................................................................................................................................66

Appendix A: Letter of Consent ...............................................................................................................69

Appendix B: Interview Questions ...........................................................................................................70
Chapter 1: Introduction

Overview

Student learning is the primary goal of all educators, and my research project mirrors this interest. The question of how best we can accelerate student learning, and effectively improve student achievement, lies at the heart of much of the recent educational reforms taking place all over the world. My specific interests, however, take a psychological angle, and land in the realm of neuroscience-based education: how best can we learn a piece of information, and make sure that we retain it in our memory? Cognitive models of learning make a distinction here that must be addressed at the outset, for it frames both my thinking and this paper: there are two distinct capacities of memory (Woolfolk, Winne, Perry & Shapka, 2010). First, we have working memory, which is where new information is temporarily held and combined with knowledge we already possess – the place where newly acquired information is actively processed. Second, we have long-term memory, which is essentially well-learned information which we retrieve on request. Ultimately, the goal of teaching and learning is to facilitate the movement of learned information into long-term memory, and allow for the learner to quickly and easily retrieve that information (Woolfolk et al., 2010). Once the information is stored in the mind of a student, further understanding and learning can be developed through instructional methods and practices.

With the above framework in mind, my specific research interests lie in exploring technologies and techniques which facilitate the process of information recall, storage, and retrieval, particularly in the field of language acquisition. In a broader stroke, my research seeks to answer the following question: what are the ways educators can accelerate the English language learning of their students? In seeking this answer, my research will take three distinct approaches and query three fields of research related to language acquisition. First, I am interested in assessing the effect first
language (L1) has on second language (L2) learning, through a process termed transfer of knowledge. What are the ways in which a student’s L1 impacts L2 learning, and what can educators do to maximize their students’ learning? Second, I will inquire into the effect vocabulary acquisition has on the English language proficiency of students learning English. Does an instructional focus on improving vocabulary acquisition benefit students? What are the instructional implications of this type of learning? Third, I will be assessing the impact of technology in the language learning classroom. How does the incorporation of new and emerging technologies improve students’ performance in the English language learning classroom? How does technology learning align with the other elements of vocabulary acquisition and L1 influence? Finally, I will be evaluating the possible implications of a specific tool, a spaced repetition system, which merges these three fields of inquiry, and judge the issues implementing such a tool has on language learning both inside and outside the classroom.

**Background of the Researcher**

As a broad spectrum overview, my research interests have two large bends: accelerating language acquisition through vocabulary learning and the implementation of technology into curriculum content. My interest in the process of language acquisition has its roots in my own experiences with language learning. Growing up in a bilingual home environment, I have always had the capacity to code-switch between languages, and from a young age I would excel in my language courses. I had a thirst for reading, and as a result I became very adept in the speaking and writing of my two primary languages, English and Armenian. Subsequently, most courses I took involving the learning of language sparked my interest and motivation. This curiosity continues to this day, with an intense personal interest in Japanese language studies. Ultimately, this curiosity for language learning began to whisk its way into my graduate work and I became intrigued by the process of language acquisition – which naturally led to my current research topic.
It is my passion and zeal for learning languages which has fueled the passion I have for this research. Indeed, I discovered the tool I will be specifically exploring in this paper, spaced repetition systems, through my Japanese language studies before I even knew that there was century-long research behind the theory evaluating its effects and classroom implications. Alongside this specific learning technique, however, I began to delve into general theories of language learning for my research. I noticed a stark correlation with the recommendations cited in the research and both my current approach to Japanese language studies and my own past history with language learning: that a focus on vocabulary acquisition, on the reading and learning of words, is the best way to learn a new language. Something that seemed so natural to me – to learn language through reading – was an idea that was being discussed at great length in the research literature, and this knowledge was both inspiring and empowering. The motivation to do further research into this type of learning and uncover new ways in which we can accelerate and maximize language acquisition is thus a powerfully personal one.

My philosophy of teaching is built off of this motivation. The goal of all educators is to advance student learning and push students towards high achievement. Towards this goal, we have many tools at our disposal: different ways to reach students. Current assessment and evaluation reforms highlight self-assessment as one such method; group learning, inquiry or problem-based learning, and constructivism are also strategies that are being advanced that have a positive, lasting effect towards improving student learning (Growing Success, 2010). It is my belief that incorporating technology, which is so pervasive and ubiquitous in our current society, into classroom education is one of the most valuable means with which teachers can advance student learning. Informing this belief are the accumulated experiences I have had in my placement schools. I strove to incorporate technology into my lessons for all of my placements, making use of Prezi, SmartBoard, Gizmos, as well as clickers, with Prezi being of special note for the effect it had on my
classes. Prezi is an alternative to PowerPoint for making presentations, a zooming presentation editor. It presents information visually and spatially in a schematic way, resembling a mind map. I prepared Prezi presentations for both my grade 9 applied science and grade 12 university biology students in my second in-school placement, and for both classes I observed markedly increased focus and attention to the material. The students in both classes were more engaged, classroom management became much less of an issue, and they recalled the information with greater accuracy when questioned the next day compared to other lessons. In fact, both classes requested that I make more presentations in this style, a request which I was happy to comply with. After experimenting with these various technologies in numerous in-class contexts, I discovered that each and every one of them has their own place in a lesson plan. Some are more effective than others for certain learned content, and some may quickly become stale if repeated too often. What I discovered was that, when used effectively, these technologies almost always created similar effects in my classroom: there were less classroom management issues, increased student engagement, and seemingly increased retention of the material.

This discussion thus leads into the second bend of my research project: incorporating technology into language learning. My goal is to assess the impact of various tools on English language education, and assay the suitability and applicability of various technologies as well as instructional techniques in the common English language learning (ELL) classroom. In conjunction with this, I am interested in discovering the methods with which teachers support student vocabulary learning, and if there are tools which can be used to accelerate this learning within the context of a regular classroom. Towards this end, I have a particular interest in the technology which sparked my passion, the spaced repetition system. As will be discussed in the following sections of this paper, there is a significant amount of research backing this theory, and my ultimate long-term
research goal is to see whether or not there is a feasible, practical, way to incorporate this tool into the language classroom.

**Motivation for this Study**

Language learning is a complex process, but it is of fundamental importance here in Canada, where multiculturalism is a staple of our society, and where most schools contain a not insignificant percentage of English language learners (Ontario, 2007; Ontario, 2008). I am thus interested in uncovering ways to accelerate this learning process for my students – because students will be unable to learn to the best of their capabilities if language continues to a barrier for them. This fact was poignantly illustrated to me in my second in-school placement, when I was asked to help a student catch up with missed course work after class. There were a number of extenuating factors affecting this particular student: she was in grade 11 taking a University-level grade 12 Biology class, she was two weeks late entering the class due to an issue with the guidance department, and she was also an ELL student, all of which in combination created a challenging barrier towards her learning goals. I began to work with this student after school during the weeks I was there, catching her up with the lessons she had missed. I quickly realized that the biggest challenge for her was with the terminology: she knew the material, she had excellent study and organizational habits, and she could very easily excel in her work; but she had difficulty connecting the words on the page with the concepts she had studied. For example, I explained to her the concept of a ‘monomer’, the building blocks of biological macromolecules. She could not only understand the concept, but could recall the specific building blocks for each macromolecule being studied – carbohydrates, fats, proteins, and DNA. However, when I would later question her using the unfamiliar word ‘monomer’ – such as “What is the monomer of a protein?” – she would falter and be unsure of herself until I redefined the word ‘monomer’ in a way she could understand. This is just one isolated example, but it illustrates a common trend I discovered while helping her. It became rapidly clear to me that it
wasn’t the content that was the issue: it had to do with connecting the words on the page to her own learning. It was an issue of language. After identifying language as this student’s main problem, I switched the focus of my help to making sure she could understand and remember the many biology terms we were making use of. I repeated myself often, revisiting the same key terms over and over again until I was sure she could remember and define them correctly. My approach was effective: by the end of my four weeks there, I was able to help this student catch up with her peers in terms of course work, and she ended up receiving a high mark on her unit test.

Working with an ELL student in this way afforded me a remarkable new insight regarding the challenges they face. Although it first it seemed like she did not understand the content, this was only a superficial evaluation: in reality, her difficulties in answering the questions were deeply entrenched in the realm of vocabulary and translation – in recognizing the asked words for what they were, and connecting them with the information she possessed. This experience spurred my interest in English language education further: educators not only need to identify the correct obstacles ELL students are facing and in turn help the students surpass them directly, but educators also need the right tools to facilitate this process. It is my purpose with this research project to query this field, and try to uncover the tools with which the language learning process can potentially be accelerated for the benefit of English language learners.
Chapter 2: Literature Review

The Importance of English Language Learning

English language literacy is a large part of Canadian society. Statistics Canada census polls indicate that the use of non-official languages in Canadian workplaces increased 14% from 2001 to 2006, and it also reports that being able to speak an official language in Canada plays a large part in immigrants’ economic integration into the country (Statistics Canada, 2009). The need to quickly and efficiently teach non-official language speakers in Canada how to speak English is an urgent need for the Canadian government, and this necessity filters straight down into the school system. Ontario classrooms are extraordinarily diverse, and teachers here will undoubtedly run across ELL learners in their classrooms – in all of my own placements as a student teacher, for example, I had ELL learners in my classes. This is a facet of the Ontario classroom that is rapidly becoming the norm, and steps have been taken by the Canadian government, and continue to be taken, to address English language literacy (Ontario 2005; Ontario 2007; Ontario 2008). The Ontario Secondary School Literacy Test (OSSLT) is one such measure placed within schools whose purpose is to ensure the language literacy of our students, but there have also been many recent initiatives stressing the need to integrate ELLs into our classrooms, and provide them frameworks that support their learning (Citizenship and Immigration Canada, 2007).

English language learning is an issue which continues to play a big role in the daily activities and responsibilities of classroom teachers, both in the elementary classroom as well as in secondary schools (Ontario, 2005; Ontario, 2008). In my own placements, I have observed various degrees of support offered to ELLs. My second placement school, Westmount Collegiate, being an ESL hub school had a significant population of English language learners, and therefore had numerous supports in place to help provide them aid, such as dedicated ELL subject classrooms, like ESL
Science and ESL Math, ELL lunch-time and after-school help sessions, as well as an extensive support system in place for students both inside and outside of the school.

**Accelerating Language Learning: Overview**

The specific question I wish to address is how to accelerate English language learning in the ESL classroom. In general, accelerated language learning describes instruction which is “… fast paced, integrated, engaging and enriching, rather than remedial, linear, passive, or inordinately patient” (Mohr, 2004). It is also commonly found that many English language instructors often focus on making students feel good so their self-esteem won’t suffer, which often results in academically inferior instruction (Mohr, 2004). Effective ESL teachers focus on challenging students, engaging them and giving them an opportunity to participate. Speaking from the realm of content learning, the research is positively adamant that a focus on reading and writing is absolutely necessary for English proficiency; in other words, teachers should focus on the fundamentals of vocabulary, grammar, pronunciation, and reading comprehension in order to push students towards effective language use, and ultimately, fluency (Francis, 2010; Li, 2010; Mohr, 2004). Furthermore, there is research supporting the idea that introducing literacy content early in an ELL learner’s education is very effective (J. Chen, M. Chen & Sun, 2010). This addresses the idea that we need to teach to a child’s potential, and not to the perceived development level of a child.

Ultimately, what much of the research boils down to is that we must provide a better scaffold for learning, rather than lowering expectations (Mohr, 2004). English language learners can understand far more language than they can produce, which is one underlying reason why many researchers recommend focusing on increasing the amount of English language input students are exposed to by increasing the amount of reading they do (Mohr, 2004). This conclusion lies in the thinking that although English language learners may speak a different language, they can still learn
productive learning techniques and develop important English literacy skills (Francis, 2010). In fact, ELLs have already mastered a language, and are most likely literate in their first language. In this way, there is a whole slew of research focused on discovering a connection between a student’s primary (L1) language and target (L2) language, a phenomenon termed transfer of knowledge.

The sheer task that faces English language learners is massive in scope: in order to be proficient in written discourse, Schmitt (2008) estimates that one must recognize and understand around 98 to 99% of written words, which conservative estimates put at a total of 8000 to 9000 word families. For English language learners already lagging behind their native-born English speakers in regards to vocabulary acquisition (Ontario, 2005), this is quite a gap to fill. Teachers are at the front lines in helping students overcome this hurdle, but “…their experience may not be enough in itself to provide this guidance without help” (Schmitt, 2008, pg. 333). Schmitt (2008) suggests that a more principled, proactive approach is necessary to promote student vocabulary learning. Furthermore, students need to be willing to be active vocabulary learners over a long period of time, which remains the only way to reach the sheer vocabulary size necessary to understand English. However, the fact remains that “they [ELLs] will need guidance about which lexical items to learn, and perhaps help in developing effective learning techniques” (Schmitt, 2008, pg. 333). The suggestions relayed in the literature relating to vocabulary learning in the classroom are innumerable, but an emergent theme is that of repetition:

Words will have to be met in many different contexts in order to develop a mastery of the different word knowledge types, and this entails a long-term recursive approach to vocabulary learning. (Schmitt, 2008, pg. 335)

Repetition is identified as a key element in the vocabulary learning process, one that can significantly accelerate second language learning when employed correctly. My research thus aims to take these
many varied elements of second language instruction – vocabulary learning, repetition, and transfer of knowledge – and uncover a means with which to make efficient use of them in the classroom. As we shall see in the upcoming sections, modern language learning technologies as well as psycholinguistics-based instruction are some of the ways educators can potentially fill this gap.

**Transfer of Knowledge: The Impact of the L1 on the L2**

The importance of analyzing the impact of first language in the second language learning classroom lies in the realization that there exists a cognitive link between a language learner’s L1 and L2 (Francis, 2010). This link, once identified, can utilize the knowledge contained in a language learner’s L1 to try and accelerate L2 learning. This phenomenon is identified in the literature as *transfer of knowledge*, and at its core the purpose of this body of research is to identify the “means [by] which L2 learners activate their L1 knowledge in developing or using their inter-language [L2]” (Faerch, 1987, pg. 112). For bilingual students in the position of an English language learner, the fact is that they are learning how to read and speak in a new language a second time: meaning, there are opportunities to evaluate how L1 knowledge influences L2 learning, and in turn, potentially reveal tools teachers can utilize in the classroom to accelerate this learning for their multicultural students.

In the review by Francis (2010), he defines the componential or modular approach to language learning, which provides a convenient and useful framework with which to approach the concept of *transfer of knowledge*. One of the primary assumptions of this theory is that not all knowledge of language is of the same kind, and that there is a key dichotomy one must first distinguish: explicit knowledge of language, also referred to as metalinguistic or declarative knowledge, versus implicit knowledge of language, also referred to as conceptual or procedural knowledge (Faerch, 1987; Francis, 2010). Explicit knowledge is learned knowledge of language, and is comprised mostly of the user’s knowledge of linguistic rules and elements, such as those of
grammar, sentence structure, syntax, and vocabulary. This core set of knowledge is then drawn upon through procedures which employ these core elements, such as speech production, speech reception, and language learning (Faerch, 1987). This procedural or implicit content is not so much learned as it is an innate understanding of language, something made most clear by considering the competence young children show in the phonology, or sounding out, of their first language (Francis, 2010). There is no deliberate learning strategy young children undergo to learn the phonology of their first language, and it progresses as if it is a natural process. As young children, our minds are naturally hard-wired to innately absorb and learn the phonology of our first language – a form of implicit knowledge.

With this dichotomy between explicit and implicit knowledge established, we can turn to the current literature on the subject, where we can see that there is a wide body of evidence supporting the idea that early in the developmental growth of bilingual children, the mind encodes the declarative, explicit learned content of specific languages as separate linguistic systems (Kovelaar, Baker, & Petitto, 2008). In other words, the linguistic rules and elements for each learned language are stored separate from each other as core constructs that are drawn upon based on need. The conceptual or implicit knowledge of language, however, which draws from these core elements, does not divide in this way, and remains “shared in common” between languages (Francis, 2010). It is the existence of these shared elements that allow for transfer of knowledge to occur between a language learner’s L1 and L2, and it is the identification of these elements that are now the subject of intense research. The question of whether or not language transfer can occur is now no longer a concern – as Faerch and Kasper (1987) puts it, the answer to that is unequivocally yes. The question now is what the conditions of this transfer are: “We would like to know where learners transfer what, how much, why, and how” (Faerch, 1987, pg. 112).
In order to better explicate how this transfer of knowledge phenomenon relates to my current research, I turn to Faerch and Kasper (1987), who identify two separate types of transfer of knowledge: transfer for communicative purposes, and transfer for the purpose of learning. The former type of transfer of knowledge is observed when comparing two closely related languages, such as English and French, or Italian and Greek. In these languages, there is very high inter-textual comprehensibility, and so students possessing prior knowledge in one language receive a huge benefit in their attempts at learning an L2. Such students often look for similarities in the root words or cognates in the L2 language in comparison to their L1 – whether they are formal or accidental, or even if the resulting meaning is correct or not – and use this prior knowledge to inform their understanding of the L2 (Faerch, 1987; Nagy, 1992).

The latter type of transfer of knowledge, transfer for learning, makes use of the knowledge contained in the L1 to make the rules and items within the L2 more comprehensible: such as grammar rules, syntax, sentence structure, and conjugation. It is this latter type of transfer of knowledge that I am most concerned with. Framed in this way, transfer of knowledge for the purpose of learning is thus a component of procedural or implicit knowledge, whereby a language learner is drawing from a second set of core declarative, explicit knowledge. For example, when a language learner is trying to communicate in their L2 through a procedural task such as speech production, they are drawing not just from the declarative knowledge of their L2, but also on the declarative knowledge of their L1. What this therefore means, is that L2 learning for bilingual students proceeds through a fundamentally different process than L1 learning.

In the realm of transfer of knowledge, the literature is quite clear that phonological production, or the sounding out of words, is a significant area of transfer between L1 and L2, both positively and negatively (Ping, 2010). Current research in this field is so prominent that this idea is
referred to as the Universal Phonology Principle, which basically states that phonology comprises one of the most fundamental points of convergence in the learned content of two languages (Francis, 2010). The effect has been tested and confirmed in a variety of languages, both in languages that are similar to one another (English-French) and dissimilar (Mandarin-English), and for a wide age range of students from kindergarten to college level (Faerch, Proctor, 2006; Verhoeven, 2007; Ping, 2010). Research has also begun to explore other elements of language learning that are transferable, in areas such as morphology (the form or representation of words), morphophonemics (the conjunction of morphology and phonology), oral language skills, reading ability, and reading comprehension, however in many of these areas research is still relatively nascent (Cummins, 2010; Hall, 2002; Nagy, 1992; Proctor, 2007; Schmitt, 2008; Ping, 2010).

What this all means to educators is that English language learning in the classroom is not divorced from a student’s first language, but rather, there is a significant amount of interplay between a student’s first and second language. By identifying and making use of these shared elements of language learning that promote transfer of knowledge, such as phonology, educators can be provided with a means with which to use primary language literacy to accelerate second language literacy. These cognitive elements that are shared in common can thus form a sort of foundation for future language learning that can potentially help students use what they know of their first language to accelerate English language learning.

The question remains, though: what are some of the classroom tools that teachers can use to help facilitate this process of language learning? Making use of first languages provides the beginning of an answer, but the task remains to identify additional tools educators can employ in the classroom to mobilize a student’s first language in this way. Furthermore, utilizing first languages is in itself just one potential answer to the question, “how do we accelerate student language learning?” A different
answer was provided in the previous section, and will be discussed at great length in subsequent sections: an instructional focus on reading, writing, and vocabulary. Finally, computer assisted language learning devices, and specifically those making use of spaced repetition as the core functionality of their learning systems, are a growing trend in the language learning classroom. As technology begins to pervade our education system and the lives of our students, language learning tools utilizing modern technologies can provide yet another, related, answer to that overarching question guiding this inquiry.

**Computer-Assisted Language Learning**

The use of technology in language learning is, unfortunately, an under-represented field for empirical research (Zhao, 2005). The research that has been carried out, however, indicates that technology can be used to support language learning very effectively, and that there is most certainly a place for technology in the language learning classroom. My focus here will be to review two studies which effectively use technology to accelerate language learning through a focus on improving the reading ability and vocabulary comprehension of students.

These studies focus their research on improving vocabulary and reading ability due to the special nature with which technology is able to address these needs for ELL students. Research has shown that extensive reading promotes vocabulary learning for students at different English proficiency levels, but the process of learning vocabulary through reading is known to occur slowly (Li, 2010). Moreover, for the L2 learner, multiple exposures to new words is necessary for the words to remain in memory, and various factors affect the learning of the new words, such as reading ability, grade level, maturity, and length of exposure to target language (Swanborn & Glopper, 1999). All of these issues result in a “beginner’s paradox” (Li, 2010): how can students learn enough words to make the process of learning vocabulary through extensive reading easier, when they do not know
enough words to read efficiently in the first place? This conclusion points to the fact there is a large gap between vocabulary knowledge and reading ability in English language learners, primarily due to a lack of exposure to the English language (Li, 2010). It is here where technology innovations make their mark: they can provide the right scaffolds to help L2 learners optimize their word recognition capability, improve their reading ability, enhance their reading comprehension, and support their learning autonomy. Computer and multimedia applications are particularly best suited for this task due to the potential they have in constructing a vocabulary learning environment that is both adaptive and responsive to the needs of individual students (Li, 2010).

The first study, carried out by J. Li (2010), set out to investigate the level of improvement ESL students showed in their vocabulary learning through the use of a computer-assisted language learning (CALL) program which supports student vocabulary recognition ability. The research is founded on previous studies which indicated that reading comprehension levels increase when students have bilingual, electronic dictionaries as they read (Li, 2010). The study focuses on 20 Chinese ESL students from a Canadian public high school and uses a program called e-Lective, developed by Jim Cummins of the Ontario Institute for Studies in Education (OISE), to test the students. The program’s essential feature is that it uses the text of the L2 language as the learning input: when students come across an unknown word while reading a selected English text, they can click on the word to access its definition, taken from an electronic monolingual (English only) and bilingual (English and Chinese) dictionary. The methodology of the study is as follows: students were asked to read passages alternately using the e-Lective program or print dictionaries in a traditional classroom setting, and students were given pre-tests, post-tests, and delayed post-tests to assess their learning.
The study concluded that the most significant increase in student scores was for intermediate-level English proficiency students using e-Lective. These students had significantly improved vocabulary retention in their delayed post-test, and it is thought that the reason for this is that they are drawing on their Chinese (L1) literacy skills as an initial level of scaffolding to support word recognition and comprehension in English (L2), exhibiting the transfer of knowledge phenomenon discussed in the previous section and that will be expanded upon in future discussion: L1 knowledge being used to accelerate L2 learning. The study also identified that e-Lective was ineffective for beginner level students. This was due to a variety of listed reasons: students had more difficulty choosing the right word meaning from the multiple given to them by the computer, they lacked a linguistic grammatical framework to process the new words, and the computer setting was missing the collaborative work that was occurring between students in the traditional classroom condition. Nevertheless, in all cases and at all levels, it was observed that the students were more enthusiastic and motivated to read the material and engage with the learning process when given access to the computer program.

The importance of this study comes in the conclusions we can draw from the observed results. Although the study recommends a larger sample size and additional testing, it seems that the computer-mediated reading program will help improve the retention of new vocabulary words for intermediate-level English language learners in the long-term, which is the key to improving English literacy (Francis, 2010; Li, 2010; Mohr, 2004). Such a discovery should most definitely inform ELL instructional practice, and measures should be taken to explore potential classroom application of this technology. Furthermore, the positive effect it had on student motivation and engagement should not be brushed aside: getting students intrinsically motivated to learn is one of the best ways to accelerate student learning (Woolfolk et al., 2010), and since this program seems to elicit that response, it should be seriously considered as a component of classroom learning. Caution is
required, however, since the study makes it clear that beginner learners cannot make efficient use of the program, although they are enthusiastic to use it (Li, 2010). As a teacher, we must ensure that we give enough instructional support to our students, and focus on strengthening their basic linguistic skills first before incorporating such a program.

Technology has its uses in the classroom, and should be considered in the proper light: as a tool to supplement the lesson. A lesson should never be made to focus around technology, but rather, the technology should be used to fulfill a certain goal and meet a specific expectation. In the above case, the e-Lective program should be used in a classroom to improve student vocabulary retention due to the significant effect it has been shown to have (Li, 2010). The second research study I will now discuss has a different purpose, and so the technology utilized will have a different place in instructional practice. The following work by Chen et al. (2010) is focused on, first, improving student reading comprehension through a collaborative computer-based learning system, and second, to provide a means with which teachers can accurately assess student literacy.

The two goals for the study by Chen et al. (2010) are, as stated, to improve teacher assessment of literacy and to develop an alternative approach to reading which will improve student reading comprehension. The researchers developed a novel computer program which addresses these needs: a tag-based collaborative reading learning system. Computer technology was chosen as the vehicle for this approach since studies suggest computer-assisted language learning environments have a significant positive impact on student reading comprehension (Huang, Chern & Lin, 2009). The setting for this research was senior high school English as a Foreign Language (EFL) students in Taiwan, where a selection of students were randomly assigned to two groups, and each was given an identical pre-test to ensure equivalent literacy levels. One group was asked to use the regular reading process through an online discussion component, while the other was instructed to use the tag-
based collaborative learning system designed by the researchers. At the end of the study, each group was given post-tests to assess learned content.

The designed program has a number of key features, and students go through a series of stages as they interact with it. After reading the assigned text, Wuthering Heights, the first stage is called ‘tag extraction’, where students will be asked to think of words or phrases which best capture the important concepts of the text, and input them as tags into the system. Students are given questions as prompts, with the objective being to make students aware of the text’s structure and to familiarize them with textual cues (Chen et al., 2010). The second stage is called ‘rereading before rethinking’. Here, a scrolling list of tags is shown to the student, taken from a pool of tags supplied by experts on the subject and past students. Students are encouraged to reread the text and subsequently rethink their chosen tags. The supplied tags function as hints, to get students thinking about whether or not their choices match with the key themes of the text. In addition, the students will have the option to choose from these new tags and update their own selection. In the third stage of the program, ‘discovering and discussing’, students are directed to a discussion forum online where they are prompted to exchange their ideas on the chosen tags, and then are asked to vote on and challenge the tag choices of others; this is the heart of the collaborative learning environment promoted by this study. The final step is a tag-based reading comprehension assessment developed by the researchers. This assessment takes the students’ tags and compares them to the text for similarities; complications such as verb tense and synonyms are accounted for using a complex algorithm. A final score is then generated reflecting the student’s comprehension level of the text. Throughout all the stages of this process, teachers can track student progress and observe student tagging behavior.
The results of the study concluded that the tag-based students showed significant improvement on their post-tests over the control condition. Furthermore, student satisfaction with the system was very high: students commented that the tag-based system helped them translate the text’s content into their own words. The system helped students grasp the structure and concept of the text, with tag accuracy improving with practice, and it helped increase student reading efficiency and reading comprehension. At the end of the study, the system was shown to be not only more effective, but it was well-accepted by both teacher and student since it provided a fair assessment of student ability. The specific details discussing the assessment of student work, and testing it for fairness, is discussed in the study in a level of detail which far surpasses the scope of this paper. Of primary concern is the fact that as discussion between students continued, tag choices converged and stabilized down to a select few, narrowing down to a pool of “shared knowledge” students developed with one another, indicating the effectiveness of this type of collaborative learning (Chen et al., 2010).

One of the key points to this system of learning is that it pushes students to focus on individual words and phrases that reflect a deeper understanding of textual material. For English language learners, this is a complex task which combines important English language skills such as summarizing, choosing an appropriate word, synthesizing key ideas, and identifying central themes all together, and gives students the opportunity to refine their abilities through practice, peer discussion, and collaborative work. The fact that this system highlights individual word choice connects to the ideas mentioned previously in this paper: that vocabulary knowledge and reading comprehension is the key to English language learning (Francis, 2010; Li, 2010; Mohr, 2004). Using this program, students learn to think in the English language, and in doing so are simultaneously developing both their reading comprehension skills and vocabulary knowledge. I believe that such a program has an incredible capacity to accelerate English language learning in the classroom, and I
would be keen to try and incorporate such a system into my own classroom. As mentioned before, this technology should be used with a purpose: in this case, it would be to help intermediate or advanced-level English language learners develop core reading comprehension and vocabulary skills.

These two studies illustrate the idea that computer-assisted language learning technologies can have a place in the English language learning classroom. When used effectively, technology can be used to advance student learning through novel means that heighten student retention, engagement, and motivation. These studies were chosen because they model the way in which I believe these technologies should be implemented in the classroom: as a compliment to student learning, with a particular focus placed on vocabulary learning and reading comprehension. It is my imperative to seek out technologies which improve long-term vocabulary learning and retention, for I believe it to be one of the best routes to effectively accelerate English language learning. The final section of this paper now discusses a unique system of learning that can be used for this purpose for all ELL students: spaced repetition systems.

**Spaced Repetition Systems**

Spaced repetition is a learning tool that can potentially make the consolidation of information into long-term memory simpler and more efficient. At its core, it is based on the principle of repetition: that repeated exposure to a piece of information increases retention of that information, and that subsequently, performance on a task designed to make use of that information, such as a test, increases (Greene, 2008). Spaced repetition goes a step further than this, however. For decades, it has been well documented that all repetition is not equal, and that massing repetition, commonly observed as cramming, is an inefficient means of studying (Dempster, 1988; Greene, 2008; Reynolds & Glacer, 1964; Toppino, Casserman & Mracek, 1991). Spaced repetition is an alternative method of study, where the time interval between repeated viewings of a piece of
information is increased (Greene, 2008). This spacing out, in turn, has the effect of enhancing our ability to recall, recognize and retain the studied piece of information (Dempster, 1988). The underlying physiological phenomenon causing this effect has been in debate for decades, but the described positive effect has been observed and well-documented for just as long: spacing repetition of learned material helps accelerate the learning of that material (Dempster, 1988).

This technique has a number of truly remarkable features, and the first of which is no less than its generality. Spaced repetition has been found to be truly wide and ubiquitous in scope: the effect has been shown to be present at all ages of life, from preschool infants to children, young adults, as well as the elderly (Dempster, 1988; Greene, 2008; Kornell, Castel, Eich, & Bjork, 2010; Toppino et al., 1991). This interesting phenomenon has led some theorists to posit that the biological principle by which spacing effects work on the brain operates at a primitive level: that this system of spacing taps into some ancient, fundamental process by which our brains are hard-wired (Toppino et al., 1991).

Spaced repetition is set even further apart by the fact that it is one of the most dependable, replicable, and effective phenomenon in experimental psychology (Dempster, 1988). The literature confirming its effect goes back a century to the late 1800s, with a researcher by the name of Ebbinghaus who wrote: “with any considerable number of repetitions, a suitable distribution of them over a space of time is decidedly more advantageous than the massing of them at a single time” (Greene, 2008, page 71). In recent years, researchers such as Janiszewski (2003) and Cepeda (2006) have concretely demonstrated the benefits of spaced repetition beyond any serious question of validity, proving beyond a shadow of a doubt that this principle is a sound foundation off of which to build a scaffold for learning (Greene, 2008). Its effect is so pronounced that presenting a piece of information twice, spaced out, is about twice as effective as presenting the same
information twice, but massed (Dempster, 1988). Such a discovery should most definitely inform educational practice, and my own experience with this type of learning lends significant credence to the idea that learning through spaced repetition is a remarkably efficient way to learn and remember a piece of information.

This functionality and wide relevance of spaced repetition makes way for the third uniquely important feature of spaced repetition: its applicability; specifically, that its effect seems to cross curriculum and subject boundaries. Improved learning via spaced repetition has been explicitly documented in mathematics, programmed instruction in science, general knowledge recollection of simple facts, and most important to this paper, text processing, reading comprehension, and vocabulary learning (Dempster, 1988). Moreover, spaced repetition lends itself very well to technological applications, and programs called spaced repetition systems (SRS) have been constructed based on the theory. These programs function as electronic flash-card systems, where facts are presented to the learner in increasing intervals of time based on the learner’s success in recollecting the fact. In a recent laboratory study done by Chen & Chung (2008), a spaced repetition system was adapted as a personalized mobile English vocabulary learning system for EFL learners in China; a study which models how spaced repetition can be used to accelerate student vocabulary learning. In this study, students were given access to an SRS on their mobile phone, and they would use it throughout their day to review select English words from a pool of words chosen and organized according to difficulty level by the researchers. Depending on how successful they were in their recollection, the SRS would bring up the word again for review at increasing intervals of time. Over the length of the study, participants cycled through a large number of words, spaced out automatically according to the progress of their own learning and the frequency of their access to the program. By the end of the study, researchers concluded that students who made use of the SRS had significantly improved word retention and performed significantly better on English language
literacy tests. In addition, it was reported that students using the program were more motivated and interested to study English – an effect which seems to be a common result when implementing all kinds of technology in the classroom. Such a successful system of advancing vocabulary retention deserves very special attention, and I am curious to see if there is a way such a system can be tested in Canadian high schools.

Ultimately, the numerous benefits of spaced repetition make it a specialized tool that can be adapted for classroom use. The fact that its effect has been proven to cross subject boundaries makes it useful for accelerating all types of student learning, not just vocabulary learning. Its wide applicability across age groups and its core function – giving students a means with which to memorize effectively – makes it effective for all levels of English language learning, from beginner to advanced. Finally, the research confirming its positive effects go back a century, and are scrutinized and confirmed even to this day, making it a remarkably rigorous and reliable means with which to accomplish these goals. For all of these reasons, spaced repetition is a technique which holds particular interest to me as both an educator and a researcher: as an educator, I wish to uncover ways in which this technique can be incorporated into day-to-day lesson planning to enhance student learning; as a researcher, I am interested in devising a means with which this system can be practically implemented in the ELL classroom. By the end of this inquiry, it is my hope that the reader will be convinced of the possible role(s) spaced repetition systems might play, not just the English language learning classroom, but to any classroom.
Chapter 3: Methodology

Nature of this Research

The nature of this research is qualitative in nature: it comprises, first, of a literature review exploring the pertinent topics of language learning and technology that are to be discussed in this inquiry. Field work consisted of face-to-face interviews with two practicing teachers in the field of English as a Second Language (ESL) education. The aspects of this topic that are to be investigated are three-fold. First, this research will explore how an English language learner’s (ELL) first language impacts their second language learning. Second, this research will query how an instructional focus on vocabulary acquisition affects English language learning. The final goal of this research is to explore whether or not the incorporation of language learning technology into the classroom could impact the learning proficiency of students in the classroom.

This research began with my initial compilation of a literature review focussing on the three major elements I set out to explore: first language, vocabulary learning, and technology. I followed this up by interviewing two practicing ESL teachers face-to-face, subsequently proceeding with an in-depth data analysis of their interview transcripts. During this data analysis, I made note of an important discovery: that a fourth element not initially being targeted in this research was a focal point of discussion for both interview participants. As such, in the culminating Discussion section of this inquiry, I included this fourth element – the effect of culture on language learning – into the analysis, bringing in relevant and pertinent literature not mentioned in the previous literature review, as appropriate.
Procedure

*Instruments of Data Collection*

The main instrument of data collection was a semi-structured interview protocol that was provided to the participants ahead of time. The decision to supply my participants with the interview questions ahead of time was borne out of some careful personal reflection regarding the nature of my research. The goal of my research was not to query an emotional or philosophical stance of my participants regarding an abstract concept or pedagogy, but rather, to explore examples of classroom instruction, and to query some of the strategies my participants use in the classroom. I felt it was important to give my participants time to think about these questions, and search their past histories with students for examples to provide before the interview. I felt that this would allow my participants time within the interview itself to relate to me the full breadth of their experience. Furthermore, providing the list of questions ahead of time gave my participants a script of sorts to follow in the interview, and the knowledge of knowing what general trajectory the interview was to go, and what kinds of questions would be asked. Please refer to Appendix B to view the list of interview questions.

*Participants*

There were two participants in this study, discussed in this paper under assigned pseudonyms. My first participant, Rachel, was a practicing ESL teacher with eight years of classroom experience. She had been working out of her current school, in the Toronto District School Board, for the past eight years, where she was hired as an ESL teacher despite only being qualified with ESL Part 1, with English as her main teachable. I selected this participant through a recommendation from a colleague, who knew the candidate personally and commented on her excellent teaching experiences regarding ESL education. My second participant, Robert, is a current teacher in the York Region District School Board. A teacher for nine years, Robert had taught in this school for
four years, and had been teaching abroad for five years prior, accumulating many years of English as a Foreign Language experience through teaching English to students in non-English speaking countries, particularly China. He is qualified to teach both English and Drama, and comes from a heavy Dramatic Arts background, working in plays and films throughout Toronto with his Fine Arts Degree before beginning work as an ESL teacher abroad. I selected this participant through my time spent at the school in question as a teacher candidate, where I became acquainted with Robert and his classroom practice. On hearing of my research, he agreed to participate due to his close affinity with the main issues being discussed: namely, English language education, vocabulary, and technology.

Data Collection and Analysis

In order to analyze my data, I first transcribed each of the interviews myself, without the aid of transcription software. After having transcribed and reread both interviews, I listed the issues that I was specifically looking out for, based on the topics explored in my literature review: first language impacting second language learning, vocabulary acquisition, technology, and repetition. I then began highlighting the transcript, colour-coding and aligning each of these general issues with the specific statements and examples provided by my interview participants. Through a carefully structured organizational system, however, I also identified any additional themes that emerged through the interview and marked them as separate concepts to consider. The single most prominent and significant of these additional themes was, as mentioned, culture and the effects of cultural differences on language learning. On identifying this is a key theme, I moved to assign it a separate colour and made a note to update my research with this new addition. Furthermore, one of the major points that had emerged in my literature review was the Universal Phonology Principle, the theory that the phonology, or sounding out, of words is a fundamental prerequisite in learning a new language efficiently (Francis, 2010; Ping, 2010). I therefore made specific note of selecting and
separating any mention of phonology in my participants’ transcripts in order to comment on this topic later in my discussion.

As I marked relevant comments on the transcript, on a separate sheet I paraphrased and took notes on the statements made by interview participants, in order to highlight their importance for my subsequent analysis. Once complete, I categorized each of the interview statements, first by participant, and second by theme, onto two separate documents, copy-pasting each of the colour-coded comments into a table divided into my five theme categories: transfer of knowledge, culture, vocabulary, technology, and repetition. Once all of my participants’ comments were categorized, I took the quoted statements made by each participant, for each category, side by side, and along with my paraphrased notes I began to analyze each of the themes separately. I ultimately consolidated my five themes into five major sub-sections based on those same themes:

1) How does first language impact second language learning?
2) The influence of culture on second language learners
3) Technology as a language learning tool in the ELL classroom.
4) The role of vocabulary acquisition in improving English language proficiency.
5) The benefits of repetition on English language learning.

Limitations

The limitations of my research stem, ultimately, from two major sources. First, the scope of my literature review was not initially wide enough, having not queried the literature for culture prior to the interviews. The topic was discussed in the interviews themselves, that in itself a boon, but I am left wondering that had this topic been explored before the interviews themselves, a more structured and in-depth analysis of the subject could have been breached with my participants, rather than have it emerge as a by-product of my chosen issues. Second, my sampling size comprises
of two, experienced teachers from different boards. Although they have a wide variety of experiences between them, having had the time to interview more participants would only have benefited this research.
Chapter 4: Findings and Results

In this section, I will be analyzing the statements made by my participants, Rachel and Robert, and analyzing how they relate to the major themes of my study by discussing them within the confines of a specific sub-heading related to that theme. Each theme will be analyzed as a separate entity, and the participants’ comments will be quoted and referenced throughout the analysis as I delve into each of the themes. Due to the broad nature of the topics, there is a lot of overlap between the sections, and a number of the subsequent or preceding sections may be referenced within each individual section. Discussions of the themes themselves, and how they relate to my overall research question and my literature review, are left for the Discussion section of this paper, the fifth chapter. Within this chapter, the statements of my participants are collated and compared to each other in reference to the relevant themes guiding this research: transfer of knowledge, culture, vocabulary, technology, and repetition.

How Does First Language Impact Second Language Learning?

The Starting Point for the English Language Learner

The overarching theme that has been guiding this inquiry has been, “how best can educators accelerate student English language learning?”, and the literature was quite explicit at pointing to students’ first languages as a potential catalyst for this acceleration. Subsequently, the interviews with research participants confirmed that first language comprised a prominent part of their students’ classroom learning, discovering that first language did indeed have a significant impact on the proficiency of student English language learning.

Rachel identified that one of the biggest problems students have is that they know what they want to say in their first language, but they simply do not have the words to express it in English.
This concern crosses over into the realm of vocabulary learning, which will be discussed explicitly in a following section, but it also has a direct connection to the literature already mentioned: that there exists first-language constructs which impact second language learning. Students experiencing this frustration are able to construct meaning within their first language, but simply lack the tools with which to express it in a new language, in this case English. This observation keenly demonstrates that for English language learners, their starting point is not that of a child new to language, working from the bottom-up, building first a vocabulary, grammar and sentence conventions, and then constructing higher-order thought processes. For these students, they are approaching language learning from the top-down: they already possess the higher-order thought processes needed to formulate their thoughts into language; they just need to re-learn the tools to express these thoughts in a new language. This kind of observation is mirrored in Robert’s classroom, where he describes the usefulness of using pictures to put language learning into a context that students can visually identify with: “Pictures are a universal language,” says Robert, “they don’t need captions. You can look at something and understand a lot of what’s going on, rather than having to describe it, especially [with the] limited vocabulary of beginners.” Students are using their own understandings, built up from their own past experiences in their first language, to understand a given picture, and as a result, attach previously learned meaning to a new English word they are being exposed to. From this perspective, the idea of eliciting a potential transfer of knowledge from a student’s L1 to inform their L2, English, becomes fundamentally relevant, and will be discussed further in the final discussion of this inquiry.

The Importance of Translation

In Rachel’s classroom, her approach to help English language learners make use of their first language takes a three-pronged approach. First, Rachel encourages translation, particularly through the use of dual language dictionaries. It is here where technology shines, allowing for students to
quickly and easily access the words they need the moment they need them. Second, Rachel encourages peer collaboration as often as possible, trying to pair students up with others who also speak the same language, but are more proficient in English. Third, Rachel places a curricular focus on vocabulary learning in her classroom, stressing that vocabulary learning should be something ELL’s engage in throughout all their classes – a job for all of their teachers, not just the ESL teacher.

Translation is a topic which deserves special mention, and not simply because it was a topic Rachel spoke extensively about, but because it plays such a huge role in the English language classroom, and connects directly with the topic at hand: student L1 impacting L2 learning. Rachel often sees students translating words into their first language, and this often takes the form of retrieving a definition and writing it above the English word, in their own language. Rachel stresses that what students are actually doing with this act is placing what they are reading into the context of their own first language, thereby making their understanding of the written word more accessible. The reason for this is, as Rachel explains, because students’ thoughts are still in their first language, and having all the words on the page, as they read, allows them to use their first language to understand the text. In Rachel’s own words, students are “…drawing already on the knowledge that they have… It’s important for them to hold onto their first language… and build on the skills and knowledge that they already have, to try and inform their second language.” It is clear that translation seems to have a direct positive effect on student learning, and at least a part of the reason for this is this concept of building on the skills and knowledge students already possess within their first language. As students become more comfortable with English, Rachel notes that the translated words slowly dissipate, and they begin to use their newly-learned English tools to understand the reading, without needing to rely on the tools of their first language. In fact, Rachel uses the frequency of translated words she observes on any given piece of student work to judge how far her ELL’s are progressing!
The second major part of Rachel’s classroom is peer editing. “[B]y pairing them up with someone, like from an ambassador’s program, or having peer tutors, will help them be more successful,” says Rachel. Rachel’s utilization of peer editing and same-language pairing reveals her purpose: peer collaboration curtails some of the core issues plaguing English language learning. Through peer editing of essays, someone with more familiarity with English is allowed to coach them through their English, identifying their mistakes; and through working with someone who also speaks their language, they have a voice for translation, allowing weaker students to learn the words they have difficulty using. The comfort students have working with someone who shares their same language and cultural values, and removing the potential issue of teachers judging student mistakes – a concern Robert brought forth that will be directly discussed in the subsequent section on culture– are the reasons why this type of peer collaboration works so well.

From First Language to First Culture

Similar to Rachel, Robert identifies that beginner students often rely on their first language to make sense of what they are reading, but stresses, “… in order to properly acquire a second language, you really have to understand the second culture.” For Robert, it is cultural intersection which allows for first languages to inform the second language, and he provides an example to illustrate the effect. “… [P]eople look at a class and say, why are these students doing so well but these other students aren’t, even though they all started at the same level? Well they’re not starting at the same level – they’re coming, at English, at base level but this [first] group has more exposure to the kinds of things we have in our culture, whereas [the second] group does not.” Here, Robert is referring to the kinds of social and workplace values and norms which a certain culture embraces, but others might very well not share. When these cultural elements are in alignment, Robert explains that students pick up similarities quickly, and they are able to learn the language a lot quicker than students who come from cultures where these elements are very different. “… [C]ultural differences
create barriers in their learning of language,” says Robert, and it is as a result of these cultural differences that students often find themselves in unfamiliar social situations, where their initial impulse is to withdraw. This is ultimately due to their own discomfort and shyness, ending with students being unable to properly integrate with the target culture.

Robert describes a ‘cultural bubble’, where students who, on leaving the classroom, immediately revert back to their first language amongst friends and family, rarely if ever speaking English, out of comfort, safety and/or familiarity. The unfortunate result of this is that “… it becomes [the teacher] trying to teach a language [to students] in an hour and fifteen minutes… fighting against the other twenty-two and a half hours in the day”, a situation far removed from the cultural immersion students need to properly acquire a second language. It is for this reason that Robert places such a heavy emphasis on cultural understanding in his classroom.

There is no question of the importance of first language, as well as first culture, in the English language learning classroom. Rachel identifies that the skills and knowledge contained within first language should be built upon to inform second language learning, and Robert furthers this claim by pointing to an intersection of cultural values which helps make this transition easier. Where problems arise is when there are significant cultural differences between first and second cultures, and Robert points out two key issues that directly relate to language learning. Cultural differences may result in social withdrawal from the second culture, resulting in overall less exposure to the second language, making the process of language learning that much more difficult. Furthermore, large cultural differences make it more difficult for ELLs to relate to the English language itself, most particularly with respect to the aspects of the language that are grounded in culturally-specific norms and customs. This includes not just saying things differently, but even different lifestyles and ways of living that may not even be translatable. This discrepancy creates a
kind of gap or barrier in students’ learning of second language, and it is in these situations where cultural and language norms of the first language begin to act as a hindrance to language learning, an issue which will be explicitly discussed in the fifth chapter of this inquiry. It is for this very reason why Robert sometimes favours limiting first language in his classroom: to curtail the issues first languages can sometimes bring into second language learning. The above analysis therefore makes it evident that although first language use in the English language classroom can benefit student learning, it is not a clear-cut situation, and there are a number of issues educators need to consider when they design classroom practices surrounding first language use in the classroom. The single most significant issue that educators therefore need to consider is the effect of culture in their classroom.

**The Influence of Culture on Second Language Learners**

*The Culture Gap*

Culture was identified by both interview participants as one of the most significant barriers impeding English language learners in the ELL classroom. The recognition and understanding of cultural icons and colloquial sayings plays a big part in language acquisition, affecting ELLs both in a social setting and in performing well academically. As discussed above, there is a pressing need to integrate cultural understanding into the curriculum, and this can be done through a variety means: literature, classroom discussion, questions posed to teachers and fellow classmates, and role plays in a dramatic arts framework were cited as potential options through which English language learning can be made more accessible and practical. Robert points out that “… language isn’t something that is learned in a book… it’s a form of communication. So the more practice [English language learners] get with that, in different situations, the better they are going to be… it helps them contextualize [it] in their own lives.”
A culture gap can be identified which separates ELL students from native English speakers, a gap which leads both directly and indirectly to a number of issues for ELLs in the classroom. Rachel, who is responsible for a class preparing ELL students to take the Grade 10 Literacy test, comments on the difficulties ELLs seem to have with inference, pointing out that many of them fail this section of the test. “The reading is what they are having difficulty with [on the literacy test], because of the cultural connections and some of the slangs and colloquialisms that… we understand, [but] they don’t get.” Robert likewise identified culture-specific elements such as slang, colloquialisms and the recognition of stereotypes and icons as a potential barrier to English language learning, stating that students must become familiar with these elements in order to become comfortable speaking the English language in a culturally relevant and appropriate way.

**The Impact of Technology on Cultural Education**

Paraphrasing and referencing is identified as another skill ELLs often have difficulty with: an artefact of their first culture, says Rachel. Certain cultures, particularly those in East Asia, consider quoting a memorized fact directly from a source as a form of complement and not an issue of plagiarism. For students entering into a Canadian English classroom from these parts of the world, learning to cite their sources, as well as learning to paraphrase from a source when the need arises, becomes a major component of classroom learning. Rachel turns to technology as a tool with which to ease her students into acquiring these skills, and I will be discussing in-depth in the next section how Rachel makes use of an interactive whiteboard to engage students with this type of learning.

Likewise, Robert uses technology to remove yet another culturally-originated issue ELLs face, the propensity to not take risks in the classroom. “A number of students come from places where being incorrect has consequences, and [so] when they come into this system of education, it is radically different.” It is the idea of permanency – where any mistakes they make are evident on the
page, on the written document – that ELLs fear, and of being judged as having made that mistake by a teacher coming around to try to help. Robert points to the benefits of technology as a means with which to assuage this concern: that with the advent of spell-check, thesaurus, and the ease of editing their own work, through word processing programs students become more comfortable working in the classroom, and are therefore more willing to take risks within the classroom. This ideas, and further analyses regarding technology in the ELL classroom, are discussed in the following section.

**Technology as a language learning tool in the ELL classroom**

*Uses and Applications of Technology*

Robert and Rachel both converged on the usefulness of technology in the ELL classroom, with a particular emphasis on its function for translation and facilitating student understanding of the English language within the context of the L1. As discussed in the first section, students employ translation to make sense of the words on the page, often writing the translated word directly above the English word, making the connection to their first language a direct, visual one. Beginner ELLs often rely on this kind of technology in the classroom in order to understand the work they are given by the teacher, and not allowing them to use this technology is “…doing them a huge disservice”, says Robert. Rachel also praises the usefulness and rapid access of dual-language dictionaries on students’ cell phones, and allows her students to very quickly retrieve the information that they need to make sense of what they are reading when given an in-class writing assignment.

Technology and multimedia are also identified as indispensable in the classroom for their ability to engage student interest. It allows for students to put learned content into context with the use of examples through pictures and videos, and it draws their attention in a powerful way. Rachel describes the effect interactive whiteboards have had on her class: students are simply mesmerized
by this “moving screen… like a huge TV”, even when a different class is using it in the vicinity. The positive effect this has had on her students’ learning is clear: Rachel made use of the interactivity, novelty, and intrinsic ability of interactive whiteboards to engage student interest by tackling the difficult issue of citations and referencing, a topic which Rachel notes in her experience ELLs have had consistent difficulty with. “They had to go up to the Smarboard, and… turn a [footnote] into an embedded citation… [T]he kids like going up, and they like touching the board. They get really excited about that, and through their excitement, they’re learning.” Through this combination of student interactivity, visual engagement, and a dose of something students find fun, Rachel has been able to use technology, in this case an interactive whiteboard, as a tool with which improve student learning in the ELL classroom.

**Technology and Vocabulary Acquisition**

A finding that is most particularly relevant to this research is that Robert and Rachel both identified the usefulness of technology as used in a vocabulary learning context, and as a foundational element of classroom learning. Rachel describes Bitstrips, an online comic-book creator, which allows students to design their own comic book strips using a combination of pictures, words, and their own creativity. The benefit she has found has been through the limitation placed on the words: not only do students have to be prudent about their word choice, but they have to take away all the “…unimportant, filler stuff and just concentrate on the most important [parts]… so [the writing becomes] more focussed.” Students are being forced to limit what the characters in their comics say, pushing them to really grapple with their vocabulary. As a result, when they are asked to represent, for example, a soliloquy given by a character in a play, or a large segment of dialogue from a novel, they must choose their words carefully and combine it with pictures in order to tell the story. Here, we are seeing a convergence between vocabulary instruction, technology, and second language learning: and the effect this has on student learning is a thoroughly
positive one, improving students’ ability to communicate and write their thoughts in a more focussed, direct way.

In a similar fashion as Rachel, Robert makes use of internet sites that utilize a combination of pictures, vocabulary, and phonology to help students get familiar with English. A site depicting a common or familiar sight, such as household items, is brought up and beginner students are asked to click on various pieces of furniture around the house. The object’s name would be voiced out loud by the computer, and students would have to repeat the sound. This kind of multimedia integration provides many layers of engagement, reports Robert, benefiting student learning as well as allowing for differentiation, by asking more advanced students to take the chosen words and construct sentences out of them. What is most interesting, however, is that this same model of voicing words out loud is also repeated in Rachel’s classroom. Rachel commented that in her class, students like to hear the sound of a word when they see it. When reading a novel, Rachel asks them to read aloud, and when they come across a word that they are having difficulty with, she urges them to grapple with it and sound it out as they go, working through the challenge themselves. In both cases, the teachers have reported that the students like sounding the words out, and that they learn a lot from the experience of sounding out the words. This classroom emphasis on phonology connects directly to the University Phonology Principle discussed in the literature: that this is one of the most prominent means with which transfer of knowledge between L1 and L2 occurs. Allowing students to experience and learn a new language through phonology in this way, while simultaneously bringing in the context of their first language (i.e. familiar household objects or familiar situations with which to make a comic out of), can form the basis of additional activities that efficiently accelerate student language learning – an issue that will be explored to great depth in the Discussion section.
Issues and Limitations of Technology

Despite all of the positive effects of technology in the classroom, however, there are some issues that educators need to be acutely aware of. First and foremost, cheating becomes an issue with unsupervised classroom use of smartphones that can connect to the internet, and careful policing of how students make use of their phones is necessary. Furthermore, Rachel stresses that students will naturally begin to rely too heavily on technology, if you allow them to: “…using technology to help facilitate learning – absolutely [a great idea]. But I don’t want it to be their crutch.” Teachers need to strike a balance, allowing students to use the technology, but to also teach other learning skills not bound by technology, such as using a paper dictionary, suggests Rachel, or deriving a word’s meaning by breaking it down to its roots rather than looking it up. Finally, technology has the potential to become a distraction in the class, particularly when the technology is given no concrete purpose. The example Rachel provided regarding the interactive whiteboard summarizes the issue quite succinctly: students are simply mesmerized by the technology, even when it is not their class using it! This propensity for technology to become a distraction is therefore a significant classroom issue, and both Robert and Rachel dealt with that issue by ensuring that the technology being used in their classroom had a purpose: it was used when there was a need, and it served a curricular purpose. Students weren’t sent onto the computers every day in Rachel’s classroom, they were sent to work with BitStrips (a program for creating comic strips); students weren’t allowed to come up and use the interactive whiteboard in Robert’s classroom for fun, they were using it as a part of a classroom vocabulary learning exercise. Extending this statement to student smartphones, an inescapable aspect of the modern technological classroom, it can be said that they should only be used only when there is a need for it, and it is for the purpose of classroom learning: such as for translation, or research. Otherwise, it begins to subvert its own usefulness – and
it here where clear and concise classroom policies regarding technology use need to be established with students.

The Role of Vocabulary Acquisition in Improving English Language Proficiency

Vocabulary Acquisition and the Beginner ELL

A key component of the classroom learning prevalent in both Robert and Rachel’s classrooms, and one that has already come up numerous times in the preceding analysis, is vocabulary learning. For beginners new to English, focussing explicitly on vocabulary is essential to their learning. Teachers need to give students a base from which to work form, so that teachers “…can then use [it] to extrapolate into other skills and activities we do in class”, says Robert. Vocabulary learning thus forms the foundation of English language learning, and it is the goal of the English language learning classroom to catch students up with their English-born peers, whose pool of vocabulary exposure would be, necessarily, at a much higher level. As students’ exposure to English words increases, students become more comfortable with their use, and teachers begin to see, as Rachel reports, “… a progression [towards] less and less translated words”. Students need to begin thinking in English to really become accustomed to the English language, but getting to this point has its own share of complexities, with vocabulary learning forming merely the jumping off point for students to reach this goal. For Robert, the need to accommodate student familiarity with English words affects his very speech: when he walks into a class of beginner students, he explains that it is necessary for him to speak at a beginner level with his students, and to then grow with them, building a familiar language base that everyone is comfortable using. In this way, everyone is “on the same page”, building a sense of inclusion, safety, and community with his students.
The Plateau Effect

As students begin to progress in their education, they become more familiar with additional vocabulary words and the English language in general, but both Robert and Rachel pointed out that students still regularly run into difficulties with their learning – and these difficulties are not simply with unfamiliar vocabulary. Robert described this as a plateau effect:

[S]tudents get to a certain level, and they can’t seem to progress past that level for a very long time… a lot of students seem very eager to learn at the beginning because they see results. Quickly! You learn vocabulary, and use that vocabulary pretty much right away. But then once you get beyond the vocabulary, into cultural things, cultural connections, then it takes longer to grasp that.

For Robert, beginner exposure to vocabulary learning takes place at a rapid rate, but as time progresses, students begin to plateau in their improvement, seeing less and less immediate effects (See Figure 1). What takes paramount importance in these moments is cultural integration: learning to make those key cultural connections apparent, and learning to recognize important cultural symbols and colloquialisms, in order to push their learning to the next level. Rachel echoes this concern, with students regularly having issues with colloquial sayings and cultural expressions, their deficiencies in these areas being the primary reason for their difficulties in passing the reading comprehension and inference component of the Grade 10 EQAO literacy test.

Although the effect of culture on student learning is pronounced, vocabulary continues to be an issue for students even past the beginner stage. New and unfamiliar words regularly come up for ELL students, who continue to lag behind their peers in terms of English language exposure – every year they spend catching up with their peers, is another year their peers increase their exposure to vocabulary, forcing ELL students to work even harder to catch up (Ontario, 2005). In practice,
vocabulary learning seems to have an interesting trajectory regarding student language learning. Although its importance remains consistent throughout their learning, and remains important for the rest of their lives, in the early stages of their learning, vocabulary learning improves their English proficiency dramatically, tapering off in later years and ending with a plateau when you reach more advanced levels. It is cultural education, and learning English within the context of cultural familiarity, which seems to have a significant effect on student English language proficiency at this point, and which really improves student language learning past this plateau, towards the proficiency that their first-language peers converse in.

![Figure 1: Graphical Representation of the ‘plateau’ as described by Robert.](image)

The Benefits of Repetition on English Language Learning

*Obstacles for the English Language Learner*

As discussed in the above section, students eventually reach a plateau in their learning, which cultural exposure could potentially help students overcome. In order to provide such cultural
integration for students, however, there are numerous obstacles that the English language learner needs to overcome, not the least of which being the discomfort, shyness, demotivation, and sense of exclusion they may feel just learning the language. As Robert mentions, these issues become much more prominent when the values and norms of the students’ first culture are very different from those of the English culture they are trying to integrate into: large differences between first culture and second culture cause students to not just have difficulty with the colloquialisms and language itself, but in socialization. They become shy and closed off, choosing not to integrate with their first-language peers. Moreover, as discussed in the preceding section, once the plateau is reached, Robert describes that students often become demotivated, not seeing the visible signs of progression they once did when they first began studying English. It is situations such as these which lead to students creating a cultural bubble of sorts, where they begin to shut out all English language the moment they step out of the classroom. Robert’s comment here rings true once more, where “… it becomes [the teacher] trying to teach a language [to students] in an hour and fifteen minutes… fighting against the other twenty-two and a half hours in the day”. These are only some of the obstacles plaguing ELLs who are attempting to integrate into English culture, and in order for these students to reach success, solutions to these issues need to be found, and it becomes our job as educators to find them, and give these students the opportunity to comfortably integrate with the culture around them.

*The Benefits of Repetition*

An instructional focus on repetition can provide one such answer to this issue. As we shall see, repetition can provide students with the motivation to continue studying English past their plateau, it can allow students to see observable, positive effects in their learning when otherwise they might not see progress, and it provides students with the opportunity to comfortably increase their exposure and familiarity with cultural elements. Language learning is something that is constant, says
Robert, and requires both immersion and constant repetition. Robert refers to the strengthening aspect of repetition on language learning, most specifically on how it really helps students be positive about what they are learning:

If you learn something, and you’ve done it a few times, you know two weeks later you come back to it – ‘I remember that’. Positive feedback for students. Ultimately, [students] are going to be more engaged, and more interested in what they’re doing if they’re getting this positive response.

The key aspect of repetition that Robert is alluding to is positive reinforcement, which works to help engage and motivate students, and can even help them overcome the frustration of not seeing the immediate effects of their learning when they reach the ‘plateau’. Students continue to see, well past the point where they have already learned new vocabulary terms, that there is continued recollection of the repeated material over time, building a sense of confidence and internal motivation. Implementing repetitive learning through the means of technology into classroom instruction can also build on this motivation, due to the effect technology, particularly word processors and translation software, have on students’ confidence in their own learning. As has been mentioned previously, the ability for word processors to quickly and neatly edit student work and erase evidence of errors is a source of comfort for ELL students, who fear teacher judgement – a relic students’ first culture manifesting as an obstacle to future learning.

Ultimately, the effect that implementing repetition into learning will have is to make students more comfortable as an ELL in a foreign language environment. Students are given the means with which to understand the new language around them, and receive positive reinforcement along the way, improving in their confidence and ability to function in this new culture. By providing students with a strong base of learned core language concepts (such as grammar, sentence structure, and
translatable vocabulary), and implementing culturally-specific symbols and colloquialisms into the classroom learning along the way, instructors are attempting to give students the opportunity to then begin to learn and understand culturally-specific norms and values on their own terms. In order for ELLs to take this step, however, they need to first become comfortable with their own language learning, and students need to find a way around their obstacles: the shyness, exclusion, and demotivation that spring up during the process of language learning. The conjoint effect repetition and technology have in providing positive reinforcement and internal motivation, as well as the proven, positive effect repetition has on learning and recall, a topic discussed in great length in the second chapter, in addition to the significant benefits repetition provide the language learning process, which will be discussed in the subsequent chapter, thus potentially makes it an ideal tool with which to push ELLs forward in their cultural understanding, and therefore, accelerate their language learning.
Chapter 5: Discussion

Transfer of Knowledge: The implications of the L1-L2 interaction

The Situation for the Beginner ELL

For both my participants, first language was a large piece of classroom instruction, mirroring the discoveries in research. As stated, it is no longer a question of whether or not first language impacts second language learning; rather, the question now, is how exactly that occurs (Faerch, 1987). What are the elements of first language that are informing second language learning, either positively or negatively? The classroom examples described by both Rachel and Robert provide the beginnings of an answer of this question.

Returning briefly to the componential approach to language learning and reading, there were two distinct bodies of language knowledge that were defined: declarative or external knowledge of language, learned knowledge of linguistic rules and elements such as grammar and vocabulary, versus procedural or internal knowledge of language, the innate understanding of language that draws on said explicit knowledge to perform language procedures such as speech (Faerch, 1987; Francis, 2010). Under this framework, second language learners are learning to think and perform procedures in their L2, but they retain two distinct sets of declarative knowledge: the learned content of their L1 and their L2. Transfer of knowledge thus occurs when students employ their L1 declarative knowledge in combination with their learned L2 declarative knowledge, in order to perform a procedure, such as speech, in their L2. In other words, these students are relying on some elements of their L1 to help construct meaning in their L2.

Within Rachel’s classroom, she identified that one of the biggest concerns students often have is that they know what they want to say in their first language, but do not have the tools to
express it in English. Applying the theories of transfer of knowledge to Rachel’s case, I posit that in this scenario, often observed in beginners new to the language, students would conceivably have little declarative L2 knowledge, and are relying very heavily on their already-learned L1 declarative knowledge to supplement the gap. It is not simply that students do not understand the procedure they are being asked to perform – that may or not be the case, depending on a student’s individual speech recognition ability. Students in this state simply do not yet have all the tools they need in their L2 declarative knowledge to perform the procedure. There is a lack of learned language content in their L2, usually vocabulary, but potentially also sentence structure, grammar, and syntax (Faerch, 1987), and without these fundamental language components, students cannot use their L2 declarative knowledge alone to perform an L2 procedure such as speech. Students here would have to rely on their already-learned L1 declarative knowledge (i.e. first language vocabulary, grammar, sentence structure, etc…) to inform their L2 declarative knowledge. It is this process that is termed transfer of knowledge, and as I will soon discuss, this transfer can be both in the positive and negative direction.

**Transfer of Knowledge: Translation**

Rachel’s approach to helping these students is to encourage translation and peer pairing with same-language partners as much as possible. She has observed that allowing students access to bilingual dictionaries in order to translate vocabulary words presented to them significantly aids their English language performance. This decision is not only a recommendation mirrored in the literature (Larotta, 2011), but one backed up by the psycholinguistic studies of transfer of knowledge we have thus far been engaged in. For less proficient learners who are still building a basic toolkit of L2 declarative knowledge with which to operate in, translation proves a natural vehicle with which to transfer learned L1 vocabulary content into the L2 (Schmitt, 2008). In fact, psycholinguistic studies have hypothesized that the initial connection of meaning (the definition of a word) to form
(the way the word is represented on the page) for an L2 learner “consists of the new L2 word form being attached to a representation of the corresponding L1 word which already exists in memory” (as cited in Schmitt, 2008; Hall, 2002). In other words, when a language learner learns a new word in English, the consolidation of this word’s meaning in their memory is attached to the corresponding word in their L1. From this perspective, allowing students to use translations to make sense of newly presented words only seems like a natural consequence, and one which would be of significant help to students trying to build that core set of L2 declarative knowledge. In situations such as this, transfer of knowledge becomes a key instrument with which to accelerate student English language learning: rather than try to build a set of declarative L2 knowledge independent of their L1, students should be drawing on their L1 declarative knowledge as much as possible, such as in this case with vocabulary, in order to build a functional declarative knowledge base in their L2.

Within Robert’s classroom, we can observe a similar transfer of knowledge effect, but this time, in the form of phonology rather than vocabulary learning. By merging second language learning and computer technology, Robert engages students in vocabulary-building exercises through activities that employ phonology-based learning. Earlier, he described an activity using an interactive whiteboard in conjunction with internet sites depicting common household objects. Students would come up to the board and point to the objects they were interested in, at which point the object being pointed out would be voiced out loud by the computer, and the students would be asked to repeat it. Robert commented that this provided multiple levels of engagement for the students, and we are now in a position to reflect on this comment.

Transfer of Knowledge: Phonology

The single most important point we can observe in relation to our current topic of discussion, is the use of phonology in classroom learning. More specifically, that this learning is
employed for the purpose of vocabulary acquisition: students are being asked to sound the words out as they learn. In Rachel’s classroom, we explored how allowing students to make use of translation through bilingual dictionaries and same-language peer pairings makes sense from a psycholinguistic standpoint, and a similar kind of thought experiment can be engaged in with Robert’s classroom. In this activity, Robert is utilizing learned contexts that cross cultural boundaries (i.e. common household objects), and using them to draw on already-learned declarative L1 constructs (i.e. a student recognizes a lamp or a bed for its familiar function) rather than the as-yet unfamiliar L2 declarative constructs (i.e., the morphology and phonology of the L2 words “lamp” and “bed”) to learn a new English word. In other words, rather than present a student the word “lamp” and ask students to learn what it means, this activity presents students with the shape and function of a lamp first, which should already be familiar to most students, and asks students to then connect that to the new L2 word, “lamp”. Following this, students are asked to voice the word out loud themselves, with visual and aural support being provided for them through the medium of technology. In this way, what students already know about the common household object, already stored in their L1 as familiar information, is used as a foundation with which to build new L2 understanding (i.e. the phonology and morphology of the word in the L2). Students are then asked to replicate this through their own speech, thus performing a task in the realm of L2 procedural knowledge.

The key component of this activity is the fact that it makes use of phonology as the learning instrument with which to connect the meaning and function of the recognizable word and concept in a student’s L1 with the proper phonology and morphology of those same words in the L2. The word, already familiar to the student in their L1, is being connected to the word in their L2, by having the students speaking out loud, with their peers. As has been discussed, making use of phonology in second language learning in this way is in itself a proven benefit for students, but the
real utility of this activity becomes apparent when you look at the specifics. Simply, this kind of learning is, in most cases, actually independent of a student’s particular L1. By using pictorial representations of words rather than the L1 words themselves, which would only apply to a small subset of the students in any given ELL classroom, we have an activity that can be used simultaneously with a very diverse population of students, with the procedural activity of performing speech in the L2 benefitting the entire class, all of whom ostensibly have the same goal of producing that same speech. The success Robert has observed in using this kind of technology is therefore not only a result of the proven phonology-based learning that it seems to operate on, but also the fact that it seems to cross language boundaries, thereby including everyone that is familiar with the objects being shown on the screen.

As has been discussed, the research literature makes a very strong argument for pointing out phonology as being fundamentally significant in the learning an L2 (Faerch, 1987; Proctor, 2006; Verhoeven, 2007; Ping, 2010), and we can see the power of this effect in Robert’s classroom. It is therefore not a surprise that in Rachel’s classroom, a not altogether dissimilar phonology-focused learning environment is observed: Rachel commented that students in her class like to hear the sound of a word when they see it. As a result, Rachel has made it a policy in her classroom that whenever a new word is encountered, students are encouraged to grapple with the word by sounding it out – a policy which, as Rachel pointed out, students seem very keen to follow and are apt to learn a lot from as a result. Clearly, the evidence gleaned from the literature regarding phonology as a fundamental component of transfer of knowledge, and indeed, in the language learning classroom, is well backed up by classroom evidence. What remains is for educators to begin to systematically make use of classroom activities and strategies similar to the ones described by Rachel and Robert that mobilize transfer of knowledge and a student’s L1 for the purpose of accelerating student English language learning.
The positive and negative effects of culture on the language learning classroom

The Impact of Cultural Differences

One of the most intriguing results of this research was the emergence of cultural effects on language learning as a fundamental concern for both of the teachers interviewed. I had expected, going into the interviews, that culture would be considered as a subset of first language influences on second language learning; but it became rapidly clear that cultural effects go far beyond that. For Robert, cultural understanding is yet another step of the language learning process – something to supplement the more traditional classroom instructional activities of vocabulary, grammar, sentence structure, and phonology acquisition. “In order to properly acquire a second language, you really have to understand the second culture”, explains Robert, but the distinction Robert draws goes far beyond that. A quote by Robert, repeated here to elucidate the point, explains this issue succinctly:

[People look at a class and say, why are these students doing so well but these other students aren’t, even though they all started at the same level? Well they’re not starting at the same level – they’re coming, at English, at base level but this [first] group has more exposure to the kinds of things we have in our culture, whereas [the second] group does not.

Robert makes the distinction that cultural differences create barriers in the learning of language, particularly when the cultures are very different from each other. Large cultural differences first result in social withdrawal and isolation, and can lead to a host of additional concerns such as loneliness, homesickness, irritability, fatigue, sense of loss, and inferiority (Li, 2007). Just as important, however, is the effect cultural differences have on understanding the language itself, as it relates to the elements of language that are embedded in culturally-specific norms and values, such as colloquialisms, slangs, and idioms. Many international students travel to English speaking countries with at least some prior experience with English in a foreign language classroom (Li,
2007), but on arrival, international students very rapidly learn that what they have learned in the classroom does not necessarily apply directly in the social world; that “... different from written language, oral language involves a great many idioms and colloquial expressions, accumulating from one generation to another.” (Li, 2007) It is when faced with these small variations in language that students attempting to learn English stumble, potentially leading to the issues of social withdrawal and isolation discussed above. Dario J. Amarza, assistant professor of social studies at the University of Missouri-Columbia, puts it in the following way:

In order to be able to operate in a society with a different language, the second language learner has to learn the culture in which that language is embedded. Unfortunately, the English teachers in our countries believe that second language learners of English are better off if they learn “standard” English that could be used everywhere, that is, a language without any cultural context. (as cited in Li, 2007)

What is essentially being argued by Professor Amarza is that there needs to be a focussed, direct instruction of cultural elements in the classroom, because without it, ELLs simply cannot operate in English society. This kind of cultural learning is crucial to the language learning process in itself, a sentiment shared by both Robert and Rachel. Rachel points out, in her class that prepares ELL students to take the grade 10 literacy test, that her students struggle in the area of reading comprehension and inquiry due to the connection it has to the slangs and colloquialisms that native English speakers are familiar with, but foreign ELLs are not.

*Cultural Barriers and Second Language Learning*

What is most intriguing to me is the fact that cultural differences can potentially create barriers for students trying to learn a second language. In many cases, students have to actively fight against learning that has been culturally instilled in them, and in this light, Rachel’s provided example
of Asian students having trouble with citation and referencing is particularly elucidating. This problem has its roots in fundamental differences in the schools of thought governing Western and Eastern thought, where “… Asian cultures value listening more than speaking, due to modesty being an important virtue… this is one reason that Asian cultures emphasize memorization” (as cited in Li, 2007). As we can see, the tendency for Asian students to memorize facts, and subsequently not reference that same fact since it has been memorized, has to do with a deeply ingrained cultural value embedded in their learning. This issue becomes exaggerated when we enter into the psycholinguistic realm, where there is evidence of transfer of knowledge actually being a detriment to students, such as in the case of Japanese students’ tendency to replace /l/ with /r/ in English speech (Ping, 2010). It could very well be that the difficulty these students face with differentiating these letters in speech is simply one such iteration of transfer of knowledge working in the negative direction, where learned language knowledge based in L1 cultural language norms negatively impacts L2 language learning, necessitating the need for specific intervention.

The final cultural concern that was uncovered during these interviews was one of a fear of being incorrect – and a general fear of taking risks, as commented by Robert. “A number of students come from places where being incorrect has consequences, and [so] when they come into this system of education, it is radically different.” In fact, this fear of being incorrect often has a number of additional effects for students. The fear of choosing an incorrect vocabulary word can lead to students avoiding using unfamiliar words altogether, increasing timidity when speaking with native English speakers, and at worst, can prevent them from engaging in conversation with native speakers at all (Li, 2007). Robert and Rachel’s approach to solving this problem was to make technology readily available for students: by having word processors that auto-correct spelling and grammatical errors, and having access to dictionaries and thesauruses that provide additional meaning and vocabulary terms, students can become more comfortable in the ELL classroom.
Suggestions

Technology addresses this concern in Robert and Rachel’s classrooms quite neatly, but what about the remaining issues surrounding culture? How are educators to efficiently solve the culture dilemma, especially if culture can, in certain cases, begin to act as a detriment to learning? The single most important thing educators can do, the literature states, is to above all else treat cultural differences as an enhancement of the classroom learning environment, not a detriment – the Asset Model rather than the Deficit Model (Holmes, 2009). Holmes (2009) additionally offers some practical suggestions that educators can employ in the classroom in order to assuage the effects of cultural differences:

- Incorporate culture into curriculum, and use it to highlight areas of interest and strength for the students;

- Provide visuals and artefacts from student culture as a support for sharing information at a linguistic level;

- Encourage community with peers, fostering conversation and communication with other ELLs;

- Assess students formatively, focussing on phonological processing, letter knowledge, and word or text reading.

Ultimately it is up to the individual second language teacher – in conjunction with the school community, colleagues, parents, and even the students themselves – to uncover ways in which to leverage cultural differences in favour of language learning. Identifying and understanding the sources and causes of the problem is simply the first step in addressing these concerns.
The Cooperative Effects of Vocabulary Acquisition and Technology

*Curricular Focus on Vocabulary*

In searching through the literature regarding English language learning, one of the most prominent recommendations, and perhaps the single most important recommendation that can be found, is that an instructional focus on vocabulary acquisition is crucial to the success of the English language learner. Vocabulary acquisition is at the heart of communication, and absolutely necessary for the success of English language learners (Francis, 2010; Larotta, 2011; Li, 2010; Mohr, 2004). As has been discussed, English language learners have a lot of catching up to do: the sheer scope of the challenge ahead of them, the need to learn anywhere between 8000 to 9000 word families in order to function efficiently in English reading (Schmitt, 2008), and already considering how far behind they already lag behind their native-language peers (Ontario, 2005), results in vocabulary learning being one of the most hotly debated issues for teachers and educators (Larotta, 2011). The question is: how can educators improve, and ideally accelerate, the vocabulary learning of their students?

Mirroring the research, Rachel and Robert both commented on the importance of vocabulary to the language learning process. Robert noted that in working with beginners, vocabulary learning fosters significant returns in the learning of students, and these beginner ELLs exhibit rapid acceleration in their grasp of the English language when you provide a curricular focus on vocabulary. Rachel echoes this comment by placing a curricular focus on vocabulary learning in her classroom, but stressing that vocabulary learning should not just be something ELL’s engage in with the ESL teacher – but rather, that it should be a curricular focus throughout all of their classes. Such a comment indicates that Rachel believes vocabulary learning should be an integral part of the life and learning of ELL in an English-speaking country, an idea supported by the sheer volume of vocabulary they need to acquire to be proficient within English.
Technology for the Purpose of Vocabulary Acquisition

What I have observed in both Rachel and Robert’s classroom, and in potential answer to the above question, is an alignment between vocabulary learning and technology integration. In both of these teachers’ classrooms, technology implementation and a focus on vocabulary acquisition go hand-in-hand, and the provided examples of the interactive whiteboard activity in Robert’s classroom, and the Bitstrips activity in Rachel’s classroom serve as exemplars for this. As already discussed, Robert makes use of an activity that combines vocabulary learning, technology, and phonology to draw from a language learner’s L1 through an interactive website-based activity where common household items are presented to students. To recap, in this activity, students are asked to touch the familiar object on the screen, whereby the word is said out loud and the students are then expected to repeat the word. How this relates to phonology and transfer of knowledge was discussed in the above section, but another important aspect of this activity is the focus it places on vocabulary acquisition. Useful for mainly beginners and less advanced students, this activity engages students with vocabulary learning in a familiar context that is both interactive and fun. Similarly, in Rachel’s higher-level ESL class, she makes use of BitStrips, an online comic-book creation software, to engage student interest when studying literature, but the real benefit she sees in the activity is in the limits it places on word choice. The comic book software only allows for a short series of words to be chosen for each speech bubble a character speaks, and when Rachel asks her students to represent a section of the novel or play they are reading in the comic, suddenly, the focus of the activity is shifted: students have to, in Rachel’s own words, take away all the “…unimportant, filler stuff and just concentrate on the most important [parts of the writing]… so the [the writing becomes] more focussed.” When limits are placed on word choice, English language learners are faced with the task of grappling with their vocabulary, and picking the right words among the many
variations and synonyms the English language has to offer – and it is in this struggle where the real learning is occurring.

It is clear with the examples provided by both Rachel and Robert that vocabulary acquisition conjoined with computer technology can be a powerful tool in the language learning classroom. The literature on the intersection of these two fields, still relatively new, interestingly reveals a very similar result. The two studies reviewed above in the second chapter of this research, Li (2010) and Chen (2010), describe additional examples of technology-based vocabulary learning software geared specifically for the English language learning classroom. Both the e-Lective program and the tag-based collaborative reading learning system, respectively, focus on the recognition and understanding of key individual vocabulary words as central to the learning process, and make use of computer technology to supplement the learning. CALL technology such as these demonstrates that their use and implementation into an English language learning environment can be a boon for students, and should really begin to see more widespread use. As newer and more advanced technologies begin to make their way into all schools, and with many local and international schools even turning to a full 1-to-1 laptop-based system, more focussed technologies that are targeted specifically to the language learning classroom, such as these CALL technologies, need to be developed and implemented in the classroom. I believe that programs such as these that represent a natural progression for the English language learning classroom.

**Spaced Repetition Systems: The Cumulative Effect of Transfer of Knowledge, Vocabulary Acquisition, and Computer-Assisted Language Learning**

*The Effects of Spaced Repetition on Vocabulary Acquisition*

As has been discussed previously, spaced repetition as an efficient and effective learning tool is a well-established fact that has been documented in the literature for decades (Cepeda, 2006;
Dempster, 1988; Greene, 2008; Janiszewski, 2003; Reynolds & Glacer, 1964; Toppino, Casserman & Mracek, 1991, Kornell, Castel, Eich, & Bjork, 2010). The importance of this fact to the current study begins with the following simple yet significant correlation: that vocabulary acquisition cannot occur efficiently without repetition. The following quote, repeated and expanded upon here, summarizes the issue succinctly:

Words will have to be met in many different contexts in order to develop a mastery of the different word knowledge types, and this entails a long-term recursive approach to vocabulary learning. Indeed, some research suggests that single episodes of instruction many not only be ineffective, but may actually be counterproductive under certain circumstances. (Schmitt, 2008)

Vocabulary learning requires not just explicit teaching time, but requires repeated exposure to the same vocabulary words over time in order for the learning to be cemented in the minds of students. This applies to all students, but most particularly to English language learners who have a truly significant volume of vocabulary to master. It is in their best interest to make sure what is learned in the classroom sticks, and the fact is that “…it is well established that lexical items need to be met many times in order to be learned” (Schmitt 2008). As such, vocabulary instruction – and indeed, all education – should be incorporating repetition into the learning process as ubiquitously as possible. Both Robert and Rachel commented on the importance of repetition in their classroom, Robert in particular mentioning that making use of repetition in vocabulary learning provides positive reinforcement to students, potentially motivating them to continue their studies and not get demotivated when their learning reaches his described “plateau”. Repetition is such a fundamental learning tool that when not used, it can actually be to detriment to the learner – which is precisely what the above quote is referring to. Consolidating learned content is more important than learning
new content, which in practice means that moving on too quickly from vocabulary list to vocabulary list without first consolidating the learning can result in little net gain for students.

*Spaced Repetition Systems in the Language Learning Classroom*

In many ways, this whole inquiry has led to the presentation of this single idea: that making use of spaced repetition systems (SRS) in the English language classroom can prove to be one of the single most significant ways in which to accelerate English language learning. The study performed by Chen & Chung (2008) and detailed in the literature review above describes the use of an SRS whose purpose was to teach EFL learners English in China. I myself use, and continue to use, an identical SRS with which to learn Japanese on my own free time. What is most intriguing about the SRS, and particularly relevant now at the end of this paper, is that not only the proven, beneficial effect that it has on learning, memory, and recall, but that it also combines all of the elements that have been so far discussed into a single efficient learning tool. The SRS focuses on vocabulary acquisition, presenting users with words to be learned that are user-generated or user-selected based on personal proficiency level and familiarity, and also dependant on the particular level of customizability the SRS has built in. Furthermore, it employs not just repetition, but a carefully regimented, spaced repetition that spaces out the learning and consolidation of the learned words over time. In addition, it draws on the L1-L2 transfer of knowledge constructs through its interface: it is made up of flash cards, and the SRS presents users with the target word first in a user’s L1, and asks them to identify the word in the target L2, touching on those same psycholinguistic elements as discussed in Rachel’s classroom and her students’ use of translation. Finally, it is a modern technological tool, making it a highly engaging activity due to its ability to incorporate pictures and sound, as well as its rapid ease of access through mobile devices. In combination with Robert’s comments on the positive reinforcement repeated exposure to learned content provides students, and the potential for such positive reinforcement to push students past their plateau and on to
additional learning, spaced repetition systems are thusly framed as a unique tool with a very unique purpose: they may perhaps be one of the single most efficient ways to accelerate English language learning.

**Limitations and Future Study**

Unfortunately, the literature related to its use in education, let alone the English language learning classroom is scarce, and too few people even know of the existence of spaced repetition as a learning tool in itself. In addition, SRS technology faces some limitations in application, due to the fact that it does not appear to directly aid the cultural learning (i.e. recognition of cultural norms, slangs, and colloquialisms) that the participants in this research indicated were necessary for further developing the English language proficiency of students. The use and applicability of the SRS in accelerating the recall and consolidation of vocabulary remains a powerful possibility, however, and a possible area of further investigation thus presents itself: finding ways to use technology to further facilitate the development of cultural knowledge in our students. My recommendation to researchers in the field is to cement the benefits space repetition systems offer students, particularly for language learning. Furthermore, my recommendation to teachers both within this same field of language learning and without, is to seek out and make use of the already-proven benefits spaced repetition systems and other language-learning specific technologies can offer their classrooms, and work towards providing the English language learners in the classroom the tools and techniques they need to truly accelerate their learning.
References:


Appendix A: Letter of Consent

Teacher Participant Letter of Information and Consent Form

Dear Jennifer Biernacki,

My name is Shawnt Kazar, a Master of Teaching student at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT). This is a letter inviting you to participate as an interview participant for the research I will be conducting regarding English as a Second Language (ESL) education. In this research, I will be exploring the ways in which English language learning can be accelerated in the classroom through instructional practice and the use of technology.

Your involvement in this study would consist of a 30-40 minute audio-recorded interview, taken at a time most convenient to you. Prior to the interview, the list of general questions we will be engaged with during the interview will be provided to you. The recordings of the interview will be transcribed, and the data will be analyzed and incorporated into the research paper. Your specific responses will be kept confidential, and your identity will be kept anonymous as pseudonyms will be used in any written report or presentation which arises from this work. Only my supervisor and myself will have access to this data as it will be stored in a secure location and all data will be erased five years following the conclusion of this study.

I would like to assure you that your participation in this project is completely voluntary. You may refuse to answer any question in the interview, stop the interview at any time, or withdraw from the study at any time, for any reason.

The information gained from this study and from your interview will help provide some insight regarding ESL education, and uncover means with which educators can help English language learners improve their capacity to function and grow within the English language. A summary of my research results, including the full report, will be sent to you via e-mail should you like a copy. Please feel free to contact myself, or my faculty supervisor, Dr. Kim Mackinnon, should have any questions.

If you agree to be interviewed, please sign this form and return a copy to myself at the time of the interview, keeping a copy of this letter for your own records. Thank you very much for your help.

Sincerely,
Shawnt Kazar
Principal Investigator

Dr. Kim Mackinnon
Research Supervisor

shawnt.kazar@utoronto.ca

Consent to Participate

[ ] I, ______________________________________________________, agree to participate in the OISE/UT research project as outlined above.

Participant's Signature: __________________________________________ Date: ________________
Appendix B: Interview Questions

(1) I wanted to start, by talking about your experiences with ESL education and ELL learners in the classroom. What does a regular day in your classroom look like?

(2) Over your years of experience teaching and working with ELL learners, what are some common observations you’ve made about your students?

(3) Ostensibly, the goal of the ELL classroom is to improve students’ ability to function academically and socially within the English language. As an ESL teacher, what do you consider to be most important in reaching this goal?

(4) What are some barriers you regularly come across when trying to support ELL students in your classroom?

(5) In your opinion, what role does vocabulary learning play for an ELL student? Do you think it has a significant impact on the students’ quest for gaining improved language skills?
   a. Follow-up: How do you think we can foster student engagement with vocabulary learning in the classroom? Outside the classroom?

(6) Some of the problems ELL learners encounter are summed as the ‘Beginner’s paradox’: how can students learn enough words to make reading easier, when they do not know enough words to read efficiently in the first place? What are some of the ways you think we can facilitate this learning process for students?
   a. Follow-up: What are some of the classroom techniques you use to push students outside of their comfort zone? How do you judge how far you can push student expectations?

(7) What role does technology play in your classroom?
   a. Follow-up: What role do you think technology can play to improve student language learning?

(8) Do you think certain tools are more useful for beginner, intermediate, or advanced students?

(9) Can you describe how you’ve used technology to support ELL students in your classroom? How did you differentiate the application of technology for the different groups (beginner, intermediate, and advanced)?

(10) Would you say technology can inspire (motivate?) ELL students to learn more English? How so, or why not?

(11) There exists a model of learning called spaced repetition, where learned material is repeated over time but spaced out in increasing intervals; an example would be to repeat learned material the next day, three days later, a week later, and three weeks later. Could you see such a system of learning having a potential role in your classroom? Why or why not?

(12) Is there anything you would like to add, that we haven’t covered or you would like to expand upon?