An Exploration into the Effects of L1 Explanatory Notes on L2 Oral Production:

Liberation of the Mind or Shackles of Dependency?

by

Kevin Carter

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Department of Curriculum, Teaching, & Learning

University of Manitoba

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Abstract

Based on the premise that novice EAL learners have limited working memory resources to comprehend academic text, L1 explanatory notes were seen as a possible instrument to use in decreasing the cognitive demands of reading and increase the available working memory resources available for discussions. The hypotheses of this study were largely unsupported but from the data emerged a new hypothesis for second language acquisition; The Formality Hypothesis. This hypothesis posits that the presence or absence of the L1 signals various levels of formality in the learning task. Isolation of the L2 may therefore signal high levels of formality leading to the development of learners' CALP (Cummins, 1979) whereas incorporation of the L1 into L2 input signals lower levels of formality leading to the development of learners' BICS (Cummins, 1979).

Dedication and Acknowledgements

This Master thesis is dedicated to the two greatest loves of my life, my daughter Suzanna and my wife Hee-Kyung. I would never have been able to complete such a monumental task as this without their love and understanding. I marvel at the understanding of my daughter who at the age of three has acquired the ability to discuss theses and backing up data. In addition she has on a number of occasions told me to stay at home and work on my thesis, not to go to the coffee shop, and that she would not bother me. I also thank my wife who at times must have felt like a widow with my constant trips to the coffee shop to work. This thesis is therefore their accomplishment as much as it is mine.

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To my participants, I thank you for your time and contributions to the field of SLA. I hope to repay your contribution to my success by building a career whose stated

mission is built upon making L2 education more liberating and accessible for minority students.

Finally, I would also like to thank all of the researchers and academics who can be found in my references. Their contributions and risks are the foundation of progress and I would be honoured to someday join their ranks by gracing the reference pages of future scholars' works.

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Chapter 1

INTRODUCTION

1.0 Ideology of the Researcher

There is an internal struggle taking place within me as I write this thesis; a conflict embodying the fabricated methodological divide between qualitative and quantitative approaches to studying education. Having earned a degree in Biology, the attraction of the scientific approach is strong and compelling. This previous experience instilled within me a preference for quantitative methodologies to educational research; a preference which historically has been embraced by academia since the emergence of science transformed North American society from an agrarian civilization to an industrial one. "[Science] has penetrated to some degree all departments of life and overthrown innumerable ideas and customs hallowed by time" (Counts, 1945, p. 55), to which education was not immune. Thus was born the transition from the traditionalist orientation to curriculum to the social behaviourist orientation. As with industry, the field of education became progressively more concerned with increasing efficiencies and therefore educational scholars utilized scientific methods to discover best practices. The legacy of this age of science in the field of education is rich and should not be devalued. It is an age which gave us insights into cognitive objectives (Bloom, 1956), stages of development (Piaget & Inhelder, 1969), transfer of learning (Judd, 1908), and curriculum building (Tyler, 1949). Influenced by the legacy of these scholars, I entered the Masters program holding a positivist world view to educational research, believing that the keys to understanding second language (L2) acquisition lay in experimental studies. Through

these experiments I believed efficient pedagogies and best practices could be found. However; like a baby discovering the world, my professors opened my eyes to an alternative reality which places priority on context and perspective. I was taught that quality of education is not necessarily synonymous with efficient education as efficiency is usually measured against the priorities of the dominant culture, leaving minorities as outliers and their concerns otherwise discarded. While I still hold reverence for the accomplishments of the scientific approach, I now realize that it is not the pinnacle of knowledge. Buddhists, for example, view western science and efficiency as having "a major contribution to minor needs" (Davis, 2009, p. 183). If I intend to reverse this trend and make a minor contribution to a major need, I can no longer deny the impact that sociocultural factors play in my approach to research or to the interpretation of my work.

Guided by critical theorists such as George Counts (1889-1974), I now realize that "No educational theory bears fruit in a social vacuum; if it is to assume the living form, it must find lodging in some social environment" (Counts, 1927, p.82). This idea is especially valid in studies of L2 education due to the influence and interaction of the cultures, languages, experiences, power differentials, and identities of the participants involved. In other words, there is no dominant culture in L2 education besides that of the teacher's. General theories of L2 education, while still valuable, are therefore limited in their practicality since each classroom with EAL (English as an Additional Language) students is distinctive due to the cultural composition of the student body. Scientific studies must therefore be tempered by a deeper understanding of the sociocultural context of the students if education is to be a liberating force and not an oppressive one. In doing so, educational objectives may become balanced by both the priorities of the dominant

culture and those of the minorities involved, thus promoting the transition from a social behaviorist orientation to curriculum to an experientialist orientation. This new orientation would force us to reflect upon our deepest moral convictions and confront any failures of ours to uphold them within our professional practice. Through such reflections, my work in the field of EAL has increasingly become influenced by issues of inequality and social justice. As such, I have become concerned with the apparent lack of attention content teachers at the secondary and post-secondary level have given to EAL issues. Unless research in L2 education is utilized by teachers other than EAL specialists, the efforts to facilitate EAL learners' success through research will be one of futility.

The challenge facing researchers like myself is to make EAL studies critically relevant to the contemporary social life of educators by appealing to their sense of ethics and professionalism. This relevance cannot be established by the sum of otherwise "objective" research studies in the quantitative paradigm, or by "subjective" studies void of any practical direction in the qualitative paradigm. Counts (1930) argues that philosophical thought disconnected from contemporary social life has little influence on the world; "Consequently the path of educational history from the days of Plato down to the present is literally strewn with theories which have left practice almost unchanged" (p. 4). I therefore resolve my methodological conflict by proceeding with an exploratory study into the effects of reading scaffolds on novice EAL learners' production of oral narrative (the practical element) while simultaneously contextualizing the research in a critical light (the reflective element). In this way the findings of this thesis will have meaning through an understanding of the historical context of EAL pedagogy in North America and its interaction with the phenomenon of globalization. By painting the

context of this thesis in a critical light, the discussion of the results can be framed as a problem to which both educators and L2 learners, through dialogue, can achieve a total understanding of the implications of the study as it relates to hierarchies of power (Freire, 1970). In this way, a thesis which would otherwise be a stale study on cognition in L2 acquisition is breathed life through qualitative positioning.

To further clarify the approach I am taking with this thesis, a brief exploration into the reconceptualization of methodology is needed. As I conceive of it, this thesis is neither a purely quantitative, qualitative, or mixed methods study. None of these approaches capture the essence of my conceptualization of the research process. To name this study according to these established research methodologies would restrict its discourse and limit its transformative value. Similar to how Kumaravadivelu (2003) argues for a postmethod pedagogy operating within the parameters of particularity, practicality, and possibility, I envision a postmethodology to research utilizing the same parameters. This reconceptualization recognizes the need in the field of education to move beyond the discourses representative of quantitative and qualitative methodologies. However; this transcendence beyond established discourses is a difficult task considering the passions of those involved. Debates among postmodernists and rationalists are well documented in the field of second language acquisition (SLA), whose stubbornness against combining the positive attributes of each approach diminish the synergistic potential of their research. On the one hand, postmodernists try to devalue a scientific approach to studying SLA by claiming that a standard scientific language reduces the productivity of the discipline (Lantolf, 1996). In response, rationalists claim that postmodernists like Lantolf "wants to replace scientific research in SLA with "a

kaffeklatsch of solipsists who do nothing but chat-or rather discourse-without actually doing anything" (Gregg, 2000, p. 6)" (Jordan, 2004, p. 3). This conflict has drawn a line in the sand and has created the respective discourses representative of group membership.

It is this conflict which was the source of my internal struggle. Driven by an innate curiosity into the effects of reading scaffolds on novice EAL learners' production of oral narrative, I set out to write my thesis. However; I kept questioning whether the purpose of this research was purely to investigate the role of the working memory in SLA or to highlight the critical need for educators to develop and utilize scaffolds for novice EAL learners. If it was the former, I felt that a deep sociocultural context would be inappropriate to the otherwise quantitative discussion. If it was the latter, maybe a more qualitative investigation into content teachers' perspectives of EAL instruction was better. If it was both, the thesis may become too complex, in terms of the collection and analysis of both quantitative and qualitative data, to be viable. I then realized that I was bringing a consumer perspective of research to the production of it, and in doing so, denying my voice as a participant in the process.

Mooney (1975) uses an analogy of a play, containing an outer drama for the audience and an inner drama for the actor to describe the research process. The consumer of research, as with the consumer of a play, is only presented with the final product. The internal struggle of the researcher is therefore largely hidden, especially in quantitative studies. This situation becomes problematic when novice researchers draw upon their experiences as consumers of research to form their methodological ideology, as argued by Mooney (1975):

I am convinced that the greatest hindrance to the sound development of educational research is our too frequent failure to take into account the difference between a consumer's and a producer's orientation to research, leaving the beginning producer with a mental set which puts the emphasis at the wrong places and leaves the producer without thoughtful guidance on problems connected with the handling of himself in his work (p. 176).

I therefore abandon the shackles of a consumerist mindset in order to produce worthwhile research, "so that what I do is more and more clearly mine" (Mooney, 1975, p. 200). I realize there will be criticisms as to my understanding of the research process, but as a novice researcher I feel that the approach I am taking provides a guide and authenticity to my work that would otherwise be absent. Therefore, while I will utilize the tools of quantitative research to "objectively" study the effects of reading scaffolds on novice EAL learners' production of oral narrative, I will simultaneously make transparent my subjective positioning of the research to reveal my inner drama, thus giving light to my motivations and how I handle myself in my work. This transparency, in an otherwise quantitative study, is in part what I refer to as postmethodology. It is a state of mind from which one can proceed in a research study; a transformative approach, unfettered by established discourses, with praxis at its core.

The remainder of this introduction shall paint the sociocultural context that is used as both a backdrop to this research and a guide to its construction. It is divided into three sections corresponding to the parameters of particularity, practicality, and possibility. It is important to note that these sections contain boundaries which are blurred. The conversation will therefore naturally cross over these lines; "each one shapes and is shaped by the other" (Kumaravadivelu , 2003, p. 37). Furthermore, as these parameters are multifaceted and interrelated, they do not represent all teachers, learners, and

contexts. My presentation of them is a reflection of choices I have made. It is not the final word, but it is my word and reflects my subjective positioning of the research.

1.1 The Parameter of Particularity: Sacrifices of EAL Learners and their Families in North America

During my undergraduate studies in Education professors would stress that instruction should be student-centered. Almost as a mantra, they would say that you do not teach science, you teach students. The teacher candidates, as devout disciples, would recite the mantra and secure their place within the culture of the teaching profession. This marketing was effective as one could hardly argue against the logic that the most important variable in the task of teaching is the learner. Undoubtedly all educators intend to act in accordance with a student-centered philosophy of education, yet the paltry attention given to the sacrifices of EAL learners and their families call into question the strength of this conviction. The problem may arise with the concept of "the learner". It is an abstract concept allowing educators to focus on the needs of the average (dominant culture) student. Having attended to the needs of the students from the dominant culture, educators can continue to pay homage to a student-centered philosophy of education while simultaneously ignoring the needs of EAL students. Even Kumaravdivelu's (2003) parameter of particularity, if interpreted through a quantitative lens, can marginalize some students. This parameter is described as being "sensitive to a particular group of teachers teaching a particular group of learners pursuing a particular set of goals within a particular institutional context embedded in a particular sociocultural milieu" (Kumaravadivelu, 2003, p. 34). The use of the term, "particular group", can be as inclusive or exclusive as the imagination can permit. In the context of a mainstream

course, it is conceivable to define an intact classroom, complete with its cultural and linguistic diversity, to be a "particular group of students". Even defining "a particular group" as including only EAL learners may be too inclusive; leading to assumptions that may marginalize some learners. Consider the diversity of those who are commonly held under the EAL umbrella and one starts to understand the limitations of labeling them as "a particular group". This group would include refugee EAL learners; immigrant EAL learners; international EAL learners; domestic EAL learners; interrupted schooling EAL learners; indigenous EAL learners (including those without a written first language); and special needs EAL learners. Of course we should not get too hung up on the semantics of definitions, least we give evidence to Greg's (2000) argument of discoursing without actually doing much of anything. The point is that educational research needs to define the parameter of particularity as completely as possible. While I am a strong advocate for research into all conceivable subdivisions of EAL learners, this study will primarily focus on the immigrant and international EAL learners pursuing an education primarily in North America. The remainder of this section shall discuss some of the sacrifices these immigrant and international EAL learners make in pursuit of an English education.

Every year thousands of students from around the world journey to English speaking countries at great financial sacrifice to their families to acquire the most dominant language of the modern era, English. In 2006, Korea alone witnessed about 24,000 students leaving their country for *jogi yuhak*, a Korean term given to those who travel abroad to gain fluency in English (Shim & Park, 2008). A similar situation also exists in China where competition for limited space in higher education and the prestige of a North American degree influences parents to send their only children away overseas

(Li, 2004). Each one of these students constitutes an influx of financial resources into the very countries who are the primary benefactors of the power that English wields. If monetary sacrifices can be correlated with the hope one has in a particular course of action then Koreans truly view English as "a Golden Tongue", with one Mother reporting to have spent over $200,000 per year to educate her two sons overseas (Cho, 2007). While this example is an extreme case, a conservative estimate of $18,000 - $25,000 per student per year (Pembina Trails School Division, 2010; Li, 2004) still represents a heavy burden for the families. Even considering those EAL students who do not have to pay international student fees due to their status as landed immigrants, a large financial sacrifice may still have been incurred. Families who are immigrating to Canada often have to invest heavily in the Canadian economy, especially if they are not fluent in English/French, are not a skilled worker in demand, or have any other ties to Canada. A common route to immigration is thus applying under one of three classes of business immigrants, where the applicants "are expected to make a C$400,000 investment or to own and manage businesses in Canada" (Citizenship and Immigration Canada, 2010). It therefore quickly becomes obvious that the opportunities provided to those who acquire English come at a steep price.

While the monetary costs outlined above are strenuous on families, it is the price paid to provide a measure of psychological security for parents. Korean Mothers, for instance, would rather work menial jobs in order to finance their children's education than suffer the guilt and shame of not being able to afford it. This passion parents have to finance the education of their children has been termed by experts as "excessive fever for education", where "housewives voluntarily work as housemaids in order to earn their

children's private tutorial fees, parents push preschool-age children to learn English, and

teachers are bribed by parents, albeit less and less frequently, to ensure extra advantages

for their children" (Lim, 2007, p. 82). In tallying these costs one must also recognize that

they only represent a sub-total. Similar to taxes and fees applied to the sticker price of an

item, there are hidden costs associated with an overseas education, as illustrated in the

following quote from Magnolia, a Chinese international student in Canada:

> The second or third month I came to Edmonton I got very homesick. I
> cried on the phone while talking to my mother. The next day my father
> phoned me. He was very angry because he told me that my mother was so
> sad when she heard me crying on the phone. After that, I never cried over
> the phone. (Li, 2004, p. 31).

The separation of families in the pursuit of a better life through the medium of

English is therefore a cost not easily measured. What value can be placed on a daughter's

need for comforting from her mother, or for a mother's concern for her daughter's well

being? EAL students, stripped of all familiar surroundings, must therefore negotiate the

turbulent waters of a new culture often without the compass of family and language. Like

a sailor lost at sea, EAL students struggle to find their way ashore this island called

English. The sacrifices of parents to provide for their children only add to the pressure

placed upon EAL students' shoulders. These learners are therefore motivated "to study

harder and harder because they [realize] the huge emotional and financial sacrifices their

parents had made to send their only children far away to study in a foreign country" (Li,

2004, p. 38). However; motivation quickly turns to frustration in the North American

classroom. With very few points of reference to guide them on their journey, EAL

students' identity is threatened, as illustrated in the following quote by Nanako, an

international university student in Canada:

All of these factors [e.g., culture differences, language barrier, lack of experience] generate mixed feelings: uneasiness, depression, irritation and so on. Why can I not understand what other students say…? Why can I not speak up in class?... As I further self-analysis, I found that my self-doubt is the biggest reason which causes uncomfortableness in class. I feel as though my personality itself is denied because I cannot participate in class as other students do (Morita, 2004, p. 588).

EAL students often desire to participate in class discussions, despite teachers' stereotypical beliefs to the contrary (Ellwood & Nakane, 2009), but their prior experiences may act as barriers to communication. For example, Japanese students' self perceptions of silence in talk-privileged classrooms are partially attributed to cultural norms. Yukari, a Japanese student studying in Australia, argues that Japanese students feel shame in answering questions wrongly (Ellwood & Nakane, 2009), contributing to their lack of participation. In addition, the style of participation representative in Western classrooms may also lead to student silence. Jun, a Japanese student studying in Canada, "did not appreciate certain aspects of what she saw as "the Canadian classroom culture" (e.g., "free-flowing discussions," "confrontational interactions") and avoided participating in some of the discussions" (Morita, 2004, p. 591). Similarly, Chinese students are "not use to the discussion format and [do] not see any value in it" (Li, 2004, p. 35). This interaction between the students' cultural background and the teachers' pedagogical choices may create tensions detrimental to learning.

Even though adjustment to the culture of the mainstream classroom may be challenging, a pull out program is not one that is embraced by many EAL students. Feelings of being ghettoized, crippled, and/or inferior are common among those students who are placed in EAL classes (Gunderson, 2007; Gunderson 2008). Mainstream content teachers, in consultation with EAL specialists, must therefore plan instruction with these

variables in mind in order to facilitate EAL students' success. Failure to do so would

constitute a violation of the parameter of particularity and further widen the educational

gulf between the dominant culture students and EAL learners. As members of the

dominant culture who benefit financially and socially from the phenomenon of "English

Fever" (Shim & Park, 2008), it is our responsibility to ensure that we are not agents of

oppression and exploitation by dedicating resources to help these students succeed.

Unfortunately the literature is not bearers of good news for those sending their children

overseas as their return on investment may be minimal. The pedagogical choices of

educators encompassing the parameter of practicality should be informed by the

parameter of particularity discussed in this section; however the choices seem to be made

without much knowledge of EAL learners or the phenomenon of L2 acquisition.

1.2 The Parameter of Practicality: Content Teachers' Perspectives on EAL Instruction

Kumaravadivelu (2003) describes the parameter of practicality as entailing a

teacher-generated theory of practice arising from the interactions between teachers'

reflections and actions; and their insights and intuition. It is a bottom-up approach to

pedagogy empowering educators and valuing their prior experiences. Within this

conception of the parameter of practicality is the implicit assumption that all teachers'

reflections are positively influenced by the sociocultural context of EAL students, and

that those teachers' intuitions and insights lead to beneficial facilitations. However; these

assumptions may be misguided, suggesting a danger to this construction of pedagogy

when teachers' prior experiences and insights contribute to placing unnecessary burdens

upon the shoulders of EAL students. For example, there are those educators who believe

that any accommodation for EAL students cheats them of success, believing that "if a student has something to read that's in English … if they have to wade through it for 10 hours to get [it], then that's what they're going to have to do (interview, October 24, 2001, p. 6)" (Reeves, 2004, p. 54). This teacher-generated theory of practice implies a sink or swim ideology for EAL students. It is an approach which places the full onus of learning on the student and frees the teacher from any additional work or training, while simultaneously being framed as a student-centered approach which maintains the teacher's identity as a professional educator. This mismatch between the needs of EAL learners and teachers' pedagogical choices is sure to negatively affect EAL students' identity and color how they perceive future experiences. Dewey (1938) argues that "every experience affects for better or worse the attitudes which help decide the quality of further experiences, by setting up certain preference and aversion, and making it easier or harder to act for this or that end" (p. 37). If the experiences of EAL students are ones of frustration, isolation, and failure, then their future disillusionment is a reflection on the current practices of educators who fostered the initial experience.

While I agree with Kumaravadivelu's (2003) argument that "no theory of practice can be useful and usable unless it is generated through practice" (p. 35), I equally believe that no practice can be empowering and liberating without reflection on educational research. The parameter of practicality in educational research, if it is to be a catalyst for reflection, must therefore be informed by the parameter of particularity in order to transcend the lens of the dominant culture and ameliorate cultural bias. This sociocultural component of educational research is needed as a basis for reflection considering that EAL students, in all likelihood, will be taught by white, middle-class, monolingual

teachers (see: Brock et al., 2007; Howard, 1999). One must therefore question the validity of using the insights and intuitions of educators in planning EAL instruction when their experiences are culturally deprived. While "the rare individual will strive earnestly to have regard for the best interest of all classes [or cultures...] no one can transcend the limits set by his own experience" (Counts, 1927, p. 90). It is only by increasing one's cultural experience, either directly or indirectly, that one can approach empathy for EAL students and develop appropriate pedagogies (Carter, 2009). Educational research can provide this indirect cultural experience as a basis for praxis and therefore should not be viewed as a top-down approach, but rather a facilitator to a bottom-up approach to pedagogy. In this way, the parameter of practicality in educational research can be perceived as a dialogue between practicing teachers and theorists with the common goal of creating authentic and empowering pedagogy. This dialogue is critical considering that educators currently see little value in accessing EAL research within their professional practice.

Despite predictions that almost half of all students within the next 20 years "will come from diverse cultural and linguistic backgrounds" (Brock et al., 2007, p. 898), gaining an understanding of language acquisition is still a marginalized area of focus for most content area teachers. This marginalization represents a critical intellectual gap considering that "[m]ainstream-content teachers are by far the largest group of educators involved in teaching [EAL] students (Merino, 1999)" (Wang et al., 2008, p. 67). Emblematic of this problem are the results from a study on teachers' perspectives on the inclusion of EAL students in secondary mainstream classrooms. Reeves (2004) found an "ideology of blindness to linguistic difference" (p. 51) permeating throughout a school

district in the United States of America. Even though over half of the faculty in one

school in the district indicated a desire to receive EAL training, only that school's EAL

teacher attended an in-service offering such training. Compounding the problem, Reeves

(2004) found that out of the nearly 800 high school teachers invited; only 15 in the

district attended the in-service. Of the 15 teachers who attended, 7 were EAL teachers.

These results are also consistent with a similar study conducted in Canada, albeit on a

much smaller scale. Carter (2010a) interviewed three highly experienced science teachers

from the same Secondary School and found that they have received virtually no EAL

training, nor have they sought out any resources on their own, despite a majority opinion

that such training is needed and sorely neglected, as the following quote illustrates:

> I think [EAL training is] one of the areas that's probably the most poorly
> prepared of anything because we just don't, sounds like we don't always
> see [EAL learners], or we don't see [specialized training] as a necessity,
> that we need that training (Christine Interview, December, 2009) (Carter,
> 2010a).

It therefore appears that educators recognize the need to be politically correct by

indicating a desire for EAL training while their actions reveal their ideology of

universality. There seems to be this conviction among content teachers that "good

teaching practices that would be supportive of EAL learners are exactly the same

teaching practices; the same teaching philosophies; the same mechanics or strategies; and

pedagogies, […]that would work, that are necessary, for all learners" (Bob Interview,

December, 2009) (Carter, 2010a). This teacher-generated theory of pedagogy reflects the

belief that education in its purest form is universal and politically neutral; that "genuine

education must be completely divorced from politics, live apart from the play of social

forces, and pursue ends peculiar to itself" (Counts, 1932, p. 18). Education is not neutral

though, rather it is immersed within the politics of the society in which it is situated. To advance the concept of a universal pedagogy only serves the dominant culture and its hierarchical position in society. The refutation of the existence of a universal pedagogy is supported by the fact that "given the best of all that we are led to believe would create the ideal situation, [EAL] students are still failing" (Wang, et al., 2008, p. 67) (also see: Adger & Peyton, 1999; Valdes, 1998; Waggoner, 1999; Cheng et al., 2007). "The disproportionate number of linguistically and culturally diverse students who fail in school, drop out, or get placed in low-track or special education courses suggests that merely having access to schooling is an inadequate measure of educational opportunity (National Center for Educational Statistics, 2003)" (Reeves, 2004, p. 45).

This academic gap between EAL and non-EAL students only reifies the deficit hypothesis through which teachers "either implicitly or explicitly blames children's environmental, sociocultural, or linguistic background for their failure in the classroom" (Minami & Ovando, 2004, p. 574). Labeling EAL students as, "weaker members of society" (Gordon, 1999, p. 124) and "'underdogs' [who] compete against their more fortunate peers" (Fritzberg, 2000, p. 65), is therefore common among educators and contributes to differentiated instruction aimed at compensating students for their faulty backgrounds (Reeves, 2004). The idea of EAL students' bilingualism/multiculturalism as being a benefit is not seriously considered.

The deficit hypothesis has a long and troubling history in North America, with the residential school system in Canada serving as a case in point. "According to a provincial committee investigating Indian affairs, only if Native children were `weaned from the habits and feelings of their ancestors' could they be expected to thrive in a European-

based civilization" (Axelrod, 1997, p. 72). One of the pedagogical choices made by educators to facilitate this weaning was to prohibit "students from talking in their native Ojibway tongue (except at teatime)" (Axelrod, 1997, p. 73). In today's climate of cultural sensitivity, this oppressive practice seems despicable, yet it continues today with EAL students under the auspices of the "monolingual principle" (Howatt, 1984), where "instructional use of the target language [is used] to the exclusion of students' home language (L1)" (Cummins, 2009, p. 317). While the English-Only rhetoric has certainly become less harsh in recent years, due in part to the increased importance of the immigrant vote (Canagarajah, 2006); remnants of the monolingual principle are still evident in current pedagogies. However; "[r]ecent methods do not so much forbid the L1 as ignore its existence altogether" (Cook, 2001, p. 404), so while educators may be less inclined to outright ban the use of students' L1, they have yet to embrace multilingualism either.

Similar to the deficit hypothesis, the perseverance of the monolingual principle among content teachers may be attributed to its long history. This principle has more than 100 years of influence on various language teaching approaches (Howatt, 1984; Cook, 2001; Yu, 2001; Cummins, 2009) and has sought to mirror L1 acquisition by "emphasizing the avoidance of translation and the direct use of the foreign language as the medium of instruction in all situations" (Yu, 2000, p. 176). On the surface, this approach seems quite logical and natural when compared to the process of L1 acquisition, but there are serious differences between L1 and L2 acquisition that makes these processes fundamentally different (See: Carter, 2010b). Despite these differences, the validity of the monolingual principle was strengthened by advancements in classical

conditioning (Pavlov, 1927) and the consequential development of the social behaviorist orientation to curriculum utilizing constructs peculiar to the field of psychology. The environment and the effects of frequency therefore became central constructs in language teaching practices. Within this orientation, exposure to English is considered the stimulus that elicits the response behavior, namely the appropriate production of English by the student. As such, the association between the exposure and production of English is believed to be strengthened only by increasing the frequency of exposure and limiting any interference to the desired response behavior. Therefore the ultimate assumptions underlying the monolingual principle are that the natural environment offers the greatest stimulus for language acquisition and that the students' L1 acts as interference to this acquisition. It is thus marketed as a scientific and natural approach to language learning.

There seems to be merit to the assumptions of the monolingual principle, considering that "in a foreign language setting an estimate of the number of years that would be necessary to reach a comparable amount of exposure (such as that provided by 10 years of social immersion) extends well beyond a life-span" (Munoz, 2008, p. 208). However; while exposure is necessary, it does not necessarily guarantee uptake. Chiu (2009) found no significant relationship between EAL learners' semantic knowledge of English and their years of study in the United States. While the natural environment can be a powerful stimulus, "what matters more in facilitating semantic restructuring is what the [EAL] learners think or do (i.e. the `quality' of their language learning), not merely the number of years studying English or number of years studying in the United States" (Chiu, 2009, p. 305). Therefore it is incumbent upon teachers to develop strategies to increase the quality of uptake and not merely provide quantity of exposure.

The need to increase the quality of uptake brings us back to the assumption that the L1 interferes with L2 acquisition. While it may seem logical that the use of an L1 reduces the frequency of an L2 response and thus retards language learning, current research has shown that the judicial use of an L1 may actually facilitate L2 acquisition. Cummins (2009) argues that "[t]here are strong empirical and theoretical reasons to challenge the monolingual principle and articulate a set of bilingual instructional strategies that more adequately address the challenges of English language and academic development" (p. 317). EAL learners bring with them a plethora of prior experiences that provide "the foundation for all future learning (Cummins, 2001, 2007; Garcia, 2008; Lucas & Katz, 1994)" (Cummins, 2009, p. 318). By denying these students access to their prior knowledge, it deprives them of valuable resources in the learning of the target language. For example, Seng and Hashim (2006) found that L2 students frequently resort to using their L1 when encountering difficulties in comprehension, stating that "when tackling vocabulary difficulties, the L1 was used by the students to confirm, to reason through or to guess an unfamiliar L2 word" (p. 45). Similarly, Algeria De La Colina and Del Pilar Garcia Mayo (2009) conducted a study which found that "learners were able to narrate the content of [selected] pictures in the L2, but they uttered L1 interjections or expressions in support of their mental efforts" (p. 343). Studies have even shown that while L1 use varies between writers, "all writers use their L1 while writing in their L2 to some extent (Knutson, 2006; Wang & Wen, 2002)" (van Weijen et al., 2009, p. 245). These studies clearly show that EAL students are accessing their L1 during their processing of the target language and while there will continue to be debates as to its interference in L2 acquisition, failure to take a more multilingual approach to language

teaching will only solidify teachers' perceptions of EAL students through a deficit hypothesis and deny these learners the right of "legitimate peripheral participation" (Lave & Wenger, 1991).

When research has shown that mainstream-content teachers "are on the whole inadequately prepared to teach [EAL] students (Byrnes et al., 1997; Clair, 1995; Harklau, 1994; Merino, 1999; Penfield, 1987)" (Wang et al., 2008, p. 67), one must become concerned as to the validity of educators' pedagogical choices for these learners. The future direction of EAL pedagogy must therefore be more sensitive to the needs of EAL learners, as perceived through an understanding of the parameter of particularity discussed previously, and develop more practical instruments utilizing students' L1 in order to scaffold L2 acquisition and promote EAL students' legitimate participation in mainstream classrooms. Furthermore, teachers must cast away their ideology of universalism and recognize that the school transmits a particular world view. We, as educators, should not shy away from this reality, but should instead embrace the fact that "complete impartiality is utterly impossible, that the school must shape attitudes, develop tastes, and even impose ideas" (Counts, 1932, p. 19). Therefore the question is not whether imposition should take place; rather the question is the manner and degree in which it does. In the realization that EAL students carry with them the particular values characteristic of their home countries, which will either complement or conflict with those of North America, comes the responsibility to reflect upon our deepest moral and professional convictions in the development of pedagogy. This reflection requires strong leadership and empathy for minority students in order to set up an empowering education for all students. Regardless of the choices made, equality must be the goal in our

educational institutions with the understanding that "[t]here is no equality of treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from any meaningful education" (*Lau v. Nichols*, 1974). In addition, equality should not be interpreted as assimilation, lest history repeats itself and we stand guilty of ethnocide, "the destruction of a people's way of life" (Davis, 2009, p. 171).

Facilitating EAL students in mainstream classrooms is a complex and multifaceted problem. I harbor no grand delusions that this thesis will make a major contribution to the issues discussed so far. All I can hope for is a small contribution that will shed light on some benefits of utilizing L1 reading scaffolds during instruction. If this thesis provides even the slightest foundation to help teachers reflect upon their practice and to inspire the development of appropriate and effective EAL pedagogies, then it will be considered a success. The following section on the parameter of possibility will discuss the nature of this research.

1.3 The Parameter of Possibility: Future Directions

The parameter of possibility is influenced by such critical pedagogists as Paulo Freire (1921 - 1997) who "take the position that any pedagogy is implicated in relations of power and dominance, and is implemented to create and sustain social inequalities" (Kumaravadivelu, 2003, p. 36). In the discussion on the parameters of particularity and practicality, I interwove my critical stance on the current state of EAL instruction by content teachers. In summary, it is a state where EAL students are manipulated by global forces to sacrifice wealth and identity in the pursuit of a language and culture that has

conquered all others. Their teachers are largely unqualified to assist them, and do not seek to become qualified. The instructional approach is also one that views EAL students' heritage and language as a deficit, or at the very least as being irrelevant. Whole theses can be written on the oppressive nature of current language teaching practices and teachers' perspectives on EAL learners, but these divisive studies may do more harm to the EAL field than good when no practical alternatives are offered. My contribution will be more narrow and pragmatic by investigating the effects of L1 explanatory notes on novice EAL learners' L2 production of oral narrative. By choosing a pragmatic mode to addressing social inequalities, as opposed to criticizing for criticism's sake, I position the parameter of possibility in educational research as reconciliation between the insights of teachers and those of researchers. In other words, if the parameter of practicality is the discussion on the pragmatics of pedagogy in light of the parameter of particularity, then the parameter of possibility is the action resulting from reflection on this dialogue. I therefore respect, and take into consideration, educators' teaching styles and their prior experiences by offering an instrument that is flexible enough to incorporate into current classroom instructional practices. Through this research more dialogue, reflection, and action may emerge, creating a spiral of constructive creativity aimed at developing empowering pedagogy.

Education is a dynamic field that is influenced by a variety of different disciplines, such as psychology and philosophy. EAL, as a sub-discipline of education, exemplifies the dynamism inherent in pedagogy. This is a time of a flowering of theories aimed at promoting efficient and empowering pedagogies for EAL students. We may be in what Kuhn describes as a pre-paradigm stage of EAL theory, where:

> […]there is no [or little] agreement among those working in the field about essential, fundamental issues of theory, and a general avoidance of theory-building in favour of more or less random, uninformed gathering of data, which is carried out without any general agreement about procedures (Jordan, 2004, p. 38).

Contradictions are plentiful, misunderstandings common, and a sense of disorganization copious, but this is the environment which eventually breeds patterns, understanding, and organization. Through this period of transition lies hope for the future of second language education. Out of this seemingly chaos will emerge a stage of normal science where the "majority of those working in [the EAL] field [will] agree that a certain type of theoretical approach, and the assumptions underlying it, should serve as a model for their research" (Jordan, 2004, p. 38). Similar to when the curriculum theory field was described as "gritty" and "ragged" (Klohr, 1980), the EAL field is struggling to find itself. The foundational knowledge is available, lying latent and unarticulated. It is only when this knowledge is organized and articulated by both educators and researchers that the EAL field will find its voice among the chorus of competing interests. Researchers are doing their part by developing diverse theories on EAL pedagogy. The voice of educators is now needed in shaping the theories through classroom practice. Through a conscientious application and evaluation of these theories by teachers, some theories will undoubtedly wilt while others will bloom. Knowledge of the success and failure of these theories are needed in articulating the direction we are heading in. In short, a dialogue is a prerequisite to understanding and therefore research must be accessible, practical, and flexible enough to invite educators to act upon them and contribute to the discussion. If teachers do not put EAL theories to practice in some fashion, the gulf between theorists and educators will remain wide to the detriment of the L2 education field. Taking action to incorporate these theories into classroom practice is not a submission to an ivory tower

authority. It is a reclaiming of power by having educators' voice at the table as to the practicality of the respective theories. That being said, theories are not going to be tested by educators when they do not fit well within their teaching preferences. Theorists must keep this fact in mind when developing ideas for pedagogy.

Imagine if there was a way to preserve educators' teaching styles while simultaneously facilitating EAL students' "legitimate peripheral participation" (Lave & Wenger, 1991). If EAL research offered such a solution, then I believe that more teachers would access and build upon these studies, considering Rodriguez et al. (2010) found that educators desire instructional strategies that support and enhance, not replace, their professional practice. This exploratory study will thus target those educators who utilize discussion formats as an instructional preference, particularly when these discussions are based on the reading of short texts. This research therefore addresses the problem faced by educators who have EAL students' in their class who struggle with reading comprehension and by extension also struggle with participation in classroom discussions about the text. Faced with these students' difficulties to understand high level text and speak comprehensively about them, educators must choose between several options. First, teachers can exclude EAL students from either the reading or discussion task, giving these students other work to do, such as vocabulary or grammar sheets. However, this option does not allow EAL students to be full members of the learning community and may cause EAL students to feel like outsiders or in some way deficient. Second, teachers can demand that EAL students work harder and longer to comprehend the text, giving them the readings as homework prior to classroom discussions. While some EAL students may do so, many may become discouraged and fall farther behind their peers.

Third, teachers can rationalize EAL student silence by arguing that theses students need time to acquire the language, thus they are not expected to fully comprehend the material before classroom discussions. Teachers may even rationalize EAL students' silence by arguing that they may learn more by listening to native speakers or more advanced EAL learners discuss the text. However, this rationalization may inhibit EAL learners' movement from the periphery of the learning community to the center. Fourth, teachers can use reading scaffolds that facilitates EAL students' reading comprehension and allows them to more confidently participate in discussions. This research investigates the fourth option to address the previously stated problem. Therefore the following general hypothesis is tested: Text with explanatory notes (definitions or explanations integrated into text) written in the participants' L1 will decrease their demand for cognitive resources needed in receptive processing of the text and increase those available for productive processing of L2 speech, thus increasing the quality of participants' L2 oral narrative about the prerequisite text. In addition to this general hypothesis are two guiding questions: What methods or conditions do Korean students feel helps them improve their English reading / speaking? What aspects of a story are remembered by Korean EAL learners?

If evidence for the support of this general hypothesis, in conjunction with the findings of the research questions, emerge from this research, the implications are significant for the advancement of the EAL field. First of all, it would give evidence that further refutes the monolingual principle and inspire additional research into the practical use of students' L1. In addition, recognition of the beneficial effects of students' L1 may help to promote more training for teachers and the hiring of diverse staff from various

linguistic and cultural backgrounds. It may even help local teachers in non-English countries regain some of their authority in developing pedagogies, instead of deferring to monolingual English teachers from Western nations. Theoretically, it may also shed light on the mechanisms and limitations of the working memory by showing that there is a relationship between the "cognitive load" (Sweller, 1976; 2010) of L2 processing and the production of L2 functional elements, such as past-tense verb morphology. The findings may also suggest a cause for the inherent variability of oral proficiency in conversations which make them hard to assess within acceptable limits of validity and reliability (Van Lier, 1989). However, it must also be noted that this research is not suggesting a "best practice". Rather it is investigating a tool to increase reading comprehension as an aid for oral discussion which may lower the demand for cognitive resources; making more available for a possible language processor that stores and compares grammatical information and leads to L2 acquisition (Pienemann, 2007). In other words, I see the potential of explanatory notes as a means to allow EAL learners to organize their prior knowledge within their long term memory which can then be used to facilitate future learning. Therefore other methods of instruction used for building new vocabulary or inferencing skills are seen as those to be used after the use of explanatory notes and discussions.

It is hoped that I have adequately made transparent my sociocultural positioning of this research. The next chapter represents a shift on emphasis by taking on a more scientific approach to EAL studies with a particular focus on the cognitive structures of memory and their effect on L2 acquisition.

Chapter 2

Literature Review

2.0 Language Acquisition as a Cognitive Activity

The primary theoretical framework chosen as a guide for this study on the effects of L1 explanatory notes on L2 oral narrative is the "Cognitive Load Theory" (CLT, see e.g., Sweller, 1976, 1988, 2010; van Merrienboer & Sweller, 2005). The specific constructs of CLT that are relevant to this study will be described in detail later. The implication of choosing this theory as the theoretical framework for this research is that it implies that L2 acquisition is primarily a cognitive activity. To which I would argue that it cannot be anything but. Language in all of its forms is an invention of human creativity; an abstract substitution of concrete objects for wiggles of lines (writing/reading), changes in pitch (speaking/listening), and manipulation of bodies (gestures/sign language). A fully functioning brain is a prerequisite for decoding these abstractions into the concrete items that they represent, and vice versa.

This proposition that a functional brain is a prerequisite for language acquisition is validated by a multitude of studies whose theoretical frameworks are built upon the premise that a mind is needed as a processor of data (Goldschneider & Dekeyser, 2001; Kawaguchi, 2005; Sabourin, 2003). Arguably the most influential researcher into the cognitive base of language acquisition is Noam Chomsky (1928 – present). He argues for a universal grammar that addresses "the poverty of the stimulus", where children attain knowledge of grammar structures that could not have been learned through exposure to input alone (Chomsky, 1986). Chomsky's "Universal Grammar" (UG) therefore implies

"that all human beings are born with an innate grammar" (Jordan, 2004, p. 124) and that this grammar is constrained by a set of principles. One such principle is called "island constraints" (Ross, 1967), which will serve as an example for how a variety of languages can arise out of a *Universal Grammar.*

According to UG, differences between languages are the result of parameter settings. Consider for instance interrogative *wh-* words (what, where, why, etc.) and their equivalents in other languages, such as 무슨 in Korean. There are grammatical differences between East Asian and Germanic; Romance; and Slavic languages with how to deal with wh-words. The former has parameters set for *wh*-in-situ while the latter has parameters set for *wh*-movement (White, 2007). The respective parameter settings determine the grammaticality, and the linguistic rules, of each language through the principle of island constraints. This principle "[specifies] universal restrictions on wh-movement, the idea being that all cases of wh-movement will be subject to such constraints" (White, 2007, p. 42). Therefore since Chinese has parameters set for negative wh-movement, wh-phrases are fixed in position and island constraints are a nonissue. English, on the other hand, has parameters set for positive wh-movement, thereby allowing the movement of wh-phrases. However; White (2007) points out that this "movement is not totally free; rather there are certain kinds of constituents from which a wh-phrase cannot escape" (p. 43). These limitations of wh-movement in English are the island constraints and are what gives rise to some sentences being grammatical after wh-movement while others are not. The presence of island constraints, or wh-islands, therefore restricts ambiguity of interpretation. It is important to also reiterate that children learning English as their L1 come to have knowledge of island constraints despite its

poverty in the stimulus (de Villiers et al., 1990; Roeper & Villiers, 1992);"In other words, the input *underdetermines* the child's linguistic competence" (White, 2007, p. 38). Therefore, "we know the principles of grammar innately, and parameter settings are triggered by input" (Jordan, 2004, p. 132).

This innate knowledge that we possess of the principles of grammar can also be theorized as arising from our evolutionary fitness. Darwin's (1859) theory of evolution dictates that humans, and all organisms, have inherent variations of traits which manifest themselves in offspring. These variations, whether of a physical or biochemical nature, allow the species to adapt to changing environmental conditions through a process called natural selection. In this way, while most organisms may die during a cataclysmic event, those with advantageous traits for the new environment can survive and repopulate the species. Modern studies in the field of genetics show that these variations arise through small mutations of genes which code for particular characteristics. Genetic mutations may be due to toxins, radiation, or errors during cell division. Many of these genetic mutations, however, occur on sites in the DNA which do not code for anything; therefore they have a neutral effect on the organism. While it can be argued that mutations are rarely good for the organism, they happen frequently enough "that just by chance good results occur often enough to provide raw material for natural selection" (Coolidge & Wynn, 2009, p.51). The size of these mutations is logically related to the survival rate of the species. If there are too little mutations over time, leading to homogeneous offspring, then the species is at risk of extinction in the face of variable environmental conditions or a cataclysmic event. If the mutations are too big at any one time, then the offspring may not be able to survive due to the lack, or corruption, of critical organs and functions.

Therefore evolution occurs through many small consecutive mutations over several generations.

van Merrienboer and Sweller (2005) characterize these mutations as a "generate-and-test problem-solving exercise" where each mutation "is tested for effectiveness with effective mutations retained and ineffective ones jettisoned" (p. 153). Therefore the evolution of humans from other primates may have included the retention of mutated genes coding for the architecture of the brain, contributing to our "language instinct" (Pinker, 2007). This acquired instinct persevered in the genetic makeup of our ancestors through the principles of natural selection because they were successful at "solv[ing] new problems without losing the ability to solve critical old problems" (van Merrienboer & Sweller, 2005, p. 153). Understanding this interaction between one's biological design and the environment is crucial in developing theories of language construction and acquisition. While this understanding forces us to acknowledge that cognitive structures are affected by sociocultural factors, it places cognitive structures as the mechanism through which language emerges. Language, being our creation, may follow the same evolutionary lines.

> Similar to the role of genes in natural selection, parameters allow small changes to exist between languages without risking the corruption of the whole system. In this way, language is similar to a living organism that is capable of evolving according to the needs of the community who uses it (Carter, 2010b).

It is believed that the brains of children have evolved architectures specializing in language acquisition. However; this "Language Acquisition Device" (LAD) (Jordan, 2004, p. 124) may have a short shelf life, contributing to the differences observed between L1 and L2 acquisition. It has long been recognized that children learn languages

more successfully than their older counterparts and these observations have formed the basis for the "Critical Period Hypothesis" (Lenneberg, 1967). One theory proposed to account for this critical period of language acquisition centers around the metabolic costs of the brain. Pinker (2007) argues that the dismantling of the LAD may be a mechanism by which the body saves these costs once enough time has passed for L1 acquisition to have taken place. He backs up this proposition with the fact that the brain consumes "a fifth of the body's oxygen and similarly large portions of its calories and phospholipids" (p. 300). The savings accrued from dismantling the LAD can therefore be used to build other architectures specializing in cognitive tasks unrelated to language acquisition, such as analytical reasoning. Pinker (2007) uses an analogy of a floppy disk or turntable to illustrate the practicality of dismantling the LAD.

> It is like borrowing a floppy disk drive to load a new computer with software you will need, or borrowing a turntable to copy your old collection of LP's onto tape; once you are done, the machines can be returned (p. 300).

Evidence for the existence of an LAD is hard to gather since virtually all humans are exposed to language and consequently learn an L1. It can therefore be argued that no such device exists, that the cause of the critical period of language acquisition is due to other factors. While debates as to the causation of this critical period are indeed taking more prominence in recent years (Abello-Contesse, 2009), through the unfortunate events of circumstance some people have offered evidence to support a biological origin of causation. Gleitman et al. (1999, p. 385) describes two isolated children, Isabelle and Genie, who were not exposed to language and therefore failed to learn an L1 prior to being found. With instruction (input) Isabelle linguistically caught up with her peers in the span of a year. Unfortunately, Genie never developed full linguistic abilities despite

extensive educational efforts. The reason for this difference, according to Gleitman et al. (1999), may be due to the age of each child when they first began to learn a language; Isabelle was 6 and Genie was 14. Therefore it can be implied that while Genie was given input, the parameters of English could not be triggered because the cognitive architecture of UG had already been dismantled. Certainly there can be debates on the limitations of these observations and the possible causations of Genie's lack of linguistic development, but the role of an LAD is a strong probability and must be considered as a contributing factor in the critical period of language acquisition.

Further evidence into the cognitive nature of language acquisition comes from studies of people with brain injuries. Garcia-Caballero et al. (2007) reports a case of a bilingual patient exhibiting "an uncommon pattern of aphasic deficit following a right capsulo-putamino infarction" (p. 89). As a result of the stroke, the patient appeared to have lost the productive use of her L1 but maintained use of her L2. Garcia-Caballero et al. (2007) describe their patient as having "presented spontaneous fluent speech in L2 but not in L1, automatic translation into L2, and impaired repetition in L1, whereas comprehension was spared in both L1 and L2" (p. 89). This study is important to the discussion on language acquisition being a cognitive activity because it implies that there may be separate cognitive architectures responsible for L1 and L2 processing. It also implies a separation between cognitive structures responsible for receptive and productive communicative tasks since this patient was able to comprehend her L1, but could not use it in response. If different parts of the brain are responsible for processing L1 and L2 languages, then the processes in acquiring these languages may also be different.

Accepting that there is a cognitive base to language acquisition has direct implications for L2 education. First of all is the realization that the processes of L1 and L2 acquisition are fundamentally different and that L2 acquisition in older learners is exponentially more difficult than L1 acquisition. The age of the learners therefore becomes a critical factor in planning L2 instruction. As discussed previously, while prepubescent learners are superior at learning languages due to an intact LAD, older learners must resort to learning the target language explicitly. This difference affects the optimization of the learning environment for each particular group of learners. While I criticized the "monolingual principle" (Howatt, 1984) earlier, its application may be somewhat appropriate in the context of young learners in naturalistic environments. This principle, while still problematic, is only effective when it is implemented in this context because it allows young learners to implicitly set the parameters of the target language through the principles of UG. Other contexts, such as instructional environments, may actually inhibit L2 acquisition in young learners. For instance, Munoz (2008) argues that the superior ability of children to learn an L2 is only valid in naturalistic environments where young learners have unlimited access to input and who can take advantage of their superior ability to learn implicitly. Older learners who do not have a fully functioning LAD are forced to learn the language explicitly and while this is a disadvantage in naturalistic environments, it is an advantage in classroom settings due to pedagogy utilizing explicit teaching and learning. The implication of these insights is that overseas L2 education utilizing a monolingual program may be beneficial for young learners but not for older ones. Similarly, instructional settings, regardless of location, may be appropriate for older learners but not for younger ones.

My argument for a cognitive base to language acquisition does not dismiss the role of sociocultural factors. For instance, I acknowledge that the superior ability of children to learn in naturalistic environments cannot be fully attributed to the LAD. For example, while Aoyama et al. (2008) supports the argument that young learners immersed in the target language have an advantage over adult learners who also live in the L2 speaking country, they suggest that this advantage may extend beyond the existence of an LAD. They argue that the children who attend school in the United States of America receive more input than the adults who have few speaking opportunities each day. They also suggest that young arrivals are not as concerned with maintaining their L1 (a problem associated with language loss) as are older arrivals and thus their motivation to switch their dominant language may also account for the differences in performance. While I will take into consideration some sociocultural factors in later sections, the argument I am making here is that there is a strong need for educational research into L2 acquisition to utilize theoretical frameworks based on the cognitive sciences. While sociocultural factors may shape the lens through which we interpret our experiences, and which affects how we interact with the present moment, the lens must first be created through our cognitive architectures. The following section shall therefore take a closer look at the role of our working and long-term memory in the acquisition of the target language. Subsequent sections will show how this cognitive base to language acquisition interacts with sociocultural factors. This discussion will focus primarily on older learners, thus assuming that they are learning the language explicitly.

2.1 The Cognitive Load Theory

The Cognitive Load Theory (CLT) emerged from the literature over 30 years ago (Sweller, 1976) and "investigates possibilities for enhancing the efficiency of learning and instruction by optimizing the working memory load" (Mikk, 2008, p. 119). It has been applied to a variety of learning contexts including, but not limited to, L2 acquisition (Diao & Sweller, 2007; Yeung et al., 1997); learning with multimedia (Mayer, Heiser & Lonn, 2001); solving algebra problems (Kalyuga & Sweller, 2005; Kalyuga & Sweller, 2004); and learning concepts in physics (Ward & Sweller, 1990). The need for this theory in educational research is exemplified by educators' commonly held belief that students learn to solve problems by solving more problems (Schnotz & Kurschner, 2007). Educators who hold this simplistic belief will therefore plan instruction with extensive practice in solving problems without regard to the demands it places on the working memory. While this approach is most obviously seen in a context involving algebra or geometry, it would not require much of the imagination to see how it may relate to grammar or literacy instruction, as will be discussed later. The difficulty with this approach is that it is cognitively very demanding for novice learners who lack the prerequisite prior knowledge. These learners therefore have to use means-end analysis to find a solution to a problem. This "requires the individual to hold the current problem state, the goal state, any sub-goal states, the relation between these states, and the possible operators associated with these states continuously in working memory" (Schnotz & Kurschner, 2007, p. 471). This overload of cognitive resources has been found to be detrimental to student learning, sparking investigations into more cognitively efficient pedagogies (Sweller, 1980; Sweller et al., 1982).

At the heart of CLT is the transfer of knowledge from the working memory to the long term memory. This theory therefore follows a long line of researchers whose work in education has centered on the role of memory. Bartlett (1932) for example found that when people were asked to recall a story that they just read, they attributed more organization to it than was originally present. Similarly, Pompi & Lachman (1967) found that participants associated words from their prior knowledge with the theme of a story that they just read, believing that these words were in the story when in fact they were not. Learners' memories are therefore not a reflection of reality, but a product created by cognitive structures to establish some order on the input one receives; "That is, memory is believed to be more of a reconstruction of past events than a literal recalling of them" (Elliott et al., 2000, p. 251).

This ability to create order through selective memory is an evolutionary benefit. Our analytic prowess, and our resultant problem solving skills, comes from our ability to impose order where none seemingly exists. We are able to "look outside the box" in a process of discovery which allows our species to overcome obstacles of time and space and to thrive in otherwise inhospitable environments. This processing of data, however, is not infinite. Consider a scenario where one has to consciously and simultaneously attend to every piece of data received while sitting in a coffee shop, as I am now. One would have to concurrently process the hum of the air conditioning system; the chatting of people, including the semantics of their conversation; the sights of the room, including the placement of people and objects; the lighting, both artificial and natural; the sound of my fingers striking the keys of my computer, the smell of coffee and other fragrances; the bloating feeling of drinking too much coffee; the beating of my heart; the sensation of my

elbow on the table; the sound of a door opening and closing; and my thoughts on this thesis. I could go on, but the point is that if every piece of data that we receive is simultaneously processed and retained, we would experience sensory overload. A firewall, through the process of evolution, has been established to reduce this overload and make possible the solving of particular problems while maintaining the integrity of our critical cognitive structures.

There are two memory systems within contemporary humans. The first one, working memory, is the firewall which filters data. The second, being long-term memory, is what holds our schemata: "unit[s] of organized knowledge about events, situations, or objects, one[s] that [guide] informational input and retrieval (Leahey & Harris, 1985)" (Elliott et al., 2000, p. 251). In this way, working memory and long-term memory are in constant interaction with one another in the selection and processing of data relevant to the solving of particular problems. Principles of CLT therefore attempts to illustrate how some factors can either optimize or hinder the transfer of knowledge from the working memory to the long-term memory, and by extension, optimize or hinder learning.

2.2 Principles of CLT

Diao and Sweller (2007) describe five basic principles of CLT that provide the framework for the theory. These principles are the information store principle; borrowing principle; randomness as genesis principle; narrow limits of change principle; and the environment and linking principle. Each of these principles will be briefly discussed in order to make clear the assumptions behind my research.

It was argued earlier that the long-term memory holds our schemata that guide our cognitive activities. This knowledge helps us to construct our perceptions of ourselves and the world around us and by extension determines our actions. The information store principle, simply put, refers to these assumptions and has important implications for research into second language acquisition (SLA). If the long-term memory contains schemata that guide our cognitive activities, how can particular schema direct the acquisition of an L2? What prerequisite schemata are required? What schemata inhibit acquisition? Are schemata affected by the way input is presented? In other words, what is the most effective way to integrate an additional language into existing schemata? Recognizing that no two schemata are alike leads one to the realization that there is no universal best practice for teaching an L2. While all learners use the same cognitive mechanisms, the pathways may be different depending on the particular experiences of a particular learner. Therefore a focus on particular learners is a requirement for studies utilizing CLT. Furthermore, if the long-term memory represents in part an evolutionary accumulation of critical knowledge, then some aspects of language learning will demand more cognitive resources than others. Speaking and listening for the vast majority of people are a right of birth stemming from their fixation in the long-term memory. It is conceivable that at one time speaking and listening had to be explicitly acquired. Over generations and amid the pressures of natural selection, the emergence of neural architectures facilitating implicit language acquisition (See: Language Acquisition Device; Jordan, 2004) allowed the proliferation and organization of oral language to rise to the level of an instinct (Pinker, 2007). In contrast, reading and writing are more recent forms of language, thus humans as a whole have not had interaction with the printed

word long enough on an evolutionary scale to fixate cognitive architectures facilitating implicit learning of these two skills. Therefore reading and writing are not a birth right and greater cognitive resources must be dedicated in order to develop these two skills. As a result, illiteracy is presently an area of concern in the field of education with 774 million adults worldwide being classified as illiterate in 2006 (Dugdale, 2008).

The borrowing principle has direct implications for the field of education in general and SLA more specifically. Diao and Sweller (2007) describe this principle as reflecting the observation "that the vast bulk of information is acquired by imitating what other people do, listening to what they say or reading what they write" (p. 79). We all stand upon the shoulders of those who came before us by appropriating the long-term memories of others, but pedagogically it is important to recognize that the process is constructive in nature. Viewing the process as a "banking method" (Freire, 1970) would be fallacious as each learner will process the information differently based on their experience and expertise. Bakhtin (1981) argues that there are "two basic modes [that] are recognized for the appropriation and transmission – simultaneously – of another's words" (p.341). The first mode is externally authoritative in nature and involves the wholesale acceptance of another's words through recitation. The second mode is internally persuasive and involves discourse that is "half-ours and half-someone else's" (p. 345). However; it is the internally persuasive discourse wherein Bakhtin (1981) finds latent creative potential, stating that its "creativity and productiveness consist precisely in the fact that such a word awakens new and independent words, that it organizes masses of our words from within, and does not remain in an isolated and static condition" (p. 345). In the context of SLA and current constructive theories of learning, communicative

approaches to instruction are therefore popular because they allow learners to try on the voices of others, modify them, and make them their own. Elements of this pedagogy that have been influenced by Bakhtin have been described as "a welcoming of the infinity of human diversity and the forms of language that express it" (Meacham, 2004, p. 82). To engage in pedagogy utilizing external authoritative discourse is for Bakhtin (2004) a subscription to scholasticism and a reification of a literary elite(Eagleton, 1996; Willinsky, 1989), whereby students are taught "to identify the parts of ready-made language produced by others" (p. 15) without taking into account the importance that stylistics have in bringing grammar to life. In terms of cognitive processing and with consideration to the information store principle described previously, transfer of novel information from the working memory to long-term memory is likely to be more efficient through internally persuasive discourse since learners are able to use their prior knowledge to direct their language acquisition. In contrast, recitation would require more processing time in the working memory due to the incongruity the novel information may have with existing schemata in the long-term memory.

The randomness as genesis principle recognizes that some required information cannot be obtained via the borrowing principle. This principle is therefore concerned with the phenomenon of problem solving. "When deciding a problem solving move, some combination of previous knowledge from long-term memory and random decisions must be used to generate each problem solving transformation" (Diao & Sweller, 2007, p. 79). Effective solutions may be retained while ineffective ones may be abandoned. In the context of SLA, learners are constantly problem solving when they are confronted with new vocabulary and/or contexts. While inferencing has been described by Nation (1990)

as "undoubtedly the most important vocabulary learning strategy" (p. 130), it would be inadvisable to simply give students unmodified texts with the expectation that students will naturally be able to infer unknown words from context. The extent of cognitive resources required for inferencing from any particular text is dependent upon the experience and expertise of the learners, which directly affects the likelihood that learners will be successful in using this skill, thus the appropriateness of the text and pedagogy must be considered. Schmitt (2000, p. 153) lists six factors that affect learners' inferencing from context:

1. The context must be rich enough to offer adequate clues to guess a word's meaning.
2. Readers are better able to use local clues in proximity to an unknown word than more global clues that are located further away.
3. Learners may mistake an unknown word for one they already know with a similar orthographic or phonological form.
4. Cognates can help guessing from context if they are used prudently.
5. Background knowledge about the topic and the culture being discussed aids inferencing.
6. Learners need to be skilled in guessing.

Educators must therefore facilitate learners' knowledge of effective means of problem solving or find ways of eliminating this need altogether through appropriate scaffolds that make use of the borrowing principle, such as word lists or explanatory notes.

Earlier I argued that the working memory acts like a firewall, preventing the corruption of the long-term memory. This firewall characteristic of the working memory (also known as the short-term memory) forms the basis of the narrow limits of change principle. "Alterations to the long-term memory store must first be processed in working memory, and working memory limitations ensure that when dealing with novel

information, any alterations to long-term memory are small and incremental, thus protecting the store from destruction" (Diao & Sweller, 2007, p. 79). Effective pedagogies in SLA are therefore ones which optimize the processing of input by the working memory. This principle also accounts for adult's difficulties in acquiring an L2 due to the vast amount of novel information which needs to be processed in the working memory and integrated with existing schemata of the L1. It is important to clarify that this difficulty of integration is not due to the interference of an L1, but is due to the working memory's role of protecting the existing system. To blame the L1 for the failure to acquire an L2 is akin to blaming a child's talking for his/her failure to sing. As we would not ban the child from talking, we should not ban the learner from using his/her L1. In other words, the L1 cannot be ignored if full integration is to take place, rather it must be utilized effectively to facilitate L2 acquisition. My research thus makes critical the limitations of the working memory and argues for the utilization of the L1 to facilitate L2 processing and acquisition.

The environment organizing and linking principle recognizes that "there are no limits to the amount of information that can be dealt with by working memory if that information has been previously organized and stored in long-term memory" (Diao & Sweller, 2007, p. 79). This assumption therefore helps to explain the phenomenon of the "power law of practice" (see: Anderson, 1982, 1987, 1992; Cohen, Dunbar, & McClelland, 1990; Ericsson, Krampe, & Tesch-Romer, 1993; Logan, 1988, 1992; MacKay, 1982; Nosofsky & Palmeri, 1997; Palmeri, 1997; Rickard, 1997). This law represents a common finding in experimental psychology showing "that the time needed to perform most tasks decreases [exponentially] with practice" (Palmeri, 1999, p. 543).

According to CLT, limits on the processing capacity of the working memory "only apply to novel, not-yet-organized information" (Diao & Sweller, 2007, p. 79). Therefore it stands to reason that in the early stages of learning, response times in solving particular problems will be high. As more information is integrated with existing schemata in the long-term memory, limits of the working memory are transcended and the response times decrease exponentially. DeKeyser (2007) argues that this change "represents first a shift from declarative to procedural knowledge […], followed by a much slower process of automatization of procedural knowledge" (p. 99). The implications for SLA are that while practice is critical for L2 acquisition, equally important is the efficiency of transfer of novel information from the working memory to the long-term memory, especially in the stage of automatization. In other words, if we can increase the efficiency of this transfer then learners may be able to reduce their response times within a shorter interval.

Each of these principles is important for an understanding of the framework for my thesis. They also show that the focal point for studies on skill acquisition, including L2 acquisition, is the working memory. The next few sections shall therefore explore the construct of "cognitive load" (Sweller, 1988; 2010), which refers "to any demands on working memory storage and processing of information" (Schnotz & Kurschner, 2007, p.471). There are three types of cognitive load which will be discussed below: Intrinsic Cognitive Load, Extraneous Cognitive Load, and Germane Cognitive Load (Sweller, 2010).

2.3 Intrinsic Cognitive Load

The mental effort, or cognitive load, required for a learner to complete a particular task determines the difficulty of the task. This cognitive load represents the simultaneous processing of all input received at any particular moment. For the purpose of this discussion, I shall artificially isolate only the input related to the problem itself. This isolated input provides the "Intrinsic Cognitive Load", which "is determined entirely by element- interactivity, that is, by the number of cognitive elements that have to be held simultaneously in working memory (Sweller and Chandler 1994)" (Schnotz & Kurschner, 2007, p. 476). Based in part on the findings of Miller (1956), it is assumed that the working memory "stores about seven elements but operates on just two to four elements" (van Merrienboer & Sweller, 2005, p. 148). However, these elements are relative to the expertise of the particular learners involved. Consider for example a novice EAL student reading an English sentence; the element interactivity is high because "[t]he learner has to analyze how each word of a sentence is related to its other words" (Schnotz & Kurschner, 2007, p. 476). This high element interactivity may lead to an overload of the learner's working memory, thus causing incomprehensibility of the sentence. More expert EAL learners reading the same English sentence deal with lower element interactivity due to their acquisition of phrase structures, such as noun, verb, and prepositional phrases (Carter, 2010b). By grouping words within phrase structures, element interactivity decreases and thus lowers the intrinsic cognitive load, allowing comprehensibility of the sentence. For example, consider the following sentence: *The boy chased the cat in the house.* The novice learner has to process each word as one element, thus with 8 elements, the intrinsic cognitive load may be too high for comprehensibility

to occur. The more expert learners only have to process 3 elements (Noun Phrase = the boy, Verb Phrase = chased the cat, Prepositional Phrase = in the house). Of course there are a multitude of other permutations of elements possible. For instance, a beginner EAL learner who is still associating letters with their phonetic sounds would have to process 28 elements in the example sentence just to be at the same starting position as the novice learner.

This construct of intrinsic cognitive load can also be extended beyond the sentence level and into the passage level. Consider a novice learner reading a paragraph. He/She must analyze how each sentence in a passage relates to the other sentences in it. This is not possible if the learner must retain every sentence, complete with all of the words it holds, and concurrently process their element-interactivity. There simply are too many interactive elements for the working memory to process; the intrinsic cognitive load is too high. This problem is solved by more expert learners by connecting the content of the text with the learners' prior knowledge, thus decreasing the number of elements to process and by extension decreasing the intrinsic cognitive load. In other words, the theme of the content can become a single element and where a similar theme has already been acquired, the novel information can more easily transfer to the long-term memory. Since the framework for the theme is already fixated in the long-term memory, it is only the novel bits of information that needs to be processed and integrated with the existing schemata. If this theory is correct, it may explain why learners attribute more organization to a story than was originally present (Bartlett, 1932) or why they associate words with a story that were not actually used (Pompi & Lachman, 1967). The implications of these propositions is that "element interactivity cannot be determined

merely by analyzing the tasks or the learning material, because a large number of interacting elements for one learner may be only a single element for another learner with more expertise" (Schnotz & Kurschner, 2007, p. 476).

This construct of intrinsic cognitive load has major implications for L2 education. First of all, it makes critical the monitoring of learners' expertise. If the element-interactivity of a problem is dependent upon the expertise of the learner, then the pedagogy of instruction must also depend on this expertise. In other words, to simply have novice learners solve more problems without differentiated instruction from the expert group is to employ an inefficient pedagogy. Each group perceives the problem differently and therefore a universal pedagogy will undoubtedly favor one group of learners over another. Secondly, this construct implies a need to prioritize input and to give thought to its presentation. With such a limited working memory, educators must therefore direct students to the most important aspects of the problem, especially when learners have little experience solving similar ones. Thirdly, educators must be clear in their goals of instruction. An educator whose instructional goal is students' comprehension of text must consider whether the cognitive demands required in processing text with or without scaffolds meets this end. The next section explores the extraneous effects of instruction that may be detrimental to learning.

2.4 Extraneous Cognitive Load

The working memory is constantly inundated with novel input which forces the individual to make choices on which aspects of the input to focus on. A portion of this input will consist of the intrinsic elements of a problem to be solved while another

portion deals with the extraneous elements of presentation through which learners must maneuver. As these extraneous elements are not germane to the solving of the problem, the cognitive resources used to process them affect the degree of learning which takes place. When the processing of extraneous elements is too high, the learner may experience confusion, frustration, and ultimately a sense of incompetence. The demands placed upon the working memory that is extraneous in nature is thus termed "extraneous cognitive load" (Sweller, 2010). Since intrinsic and extraneous cognitive load are summative, the goal of CLT is therefore to minimize extraneous cognitive load in order to maximize the cognitive resources available in processing the intrinsic elements of a problem. While it is impossible to completely eliminate extraneous cognitive load, it may be possible to significantly reduce it through effective pedagogy.

Various educational studies utilizing CLT has illustrated the detrimental effects of extraneous cognitive load on student learning. For example, Mayer et al. (2001) studied the cognitive restraints on multimedia learning and found that when college students viewed animations teaching them about the formation of lightning, their test performance was hindered when the audio narration was supplemented with on-screen text that summarized, or was a verbatim representation, of the narration. They attributed this decrease in performance to the "redundancy effect", where the working memory must process redundant information, consequently leaving fewer resources available for subsequent learning (Also see: Bobis, Sweller, & Cooper, 1993; Chandler & Sweller, 1991, 1996; Kalyuga et al., 1998; Sweller & Chandler, 1994).

Consistent with these findings are those of Diao and Sweller (2007) who investigated the effects of concurrent written and spoken presentations on the reading

comprehension of EAL students. They found that little is to be gained by this concurrent presentation, arguing that without the necessary prerequisite knowledge, "[the L2 learner] must randomly test the hypothesis that a particular part of written text corresponds to a particular string of spoken words" (p. 84). Here the redundancy effect is due to the extraneous cognitive load of processing the element interactivity between the text and oral speech. As each modality is providing redundant information, the cognitive resources expended in processing their interactivity are not an efficient use of resources when the goal of instruction is reading comprehension. These findings have implications for pedagogy that are often employed in EAL classrooms. Teachers will often read a text and tell their students to follow along in their own books. On the surface this practice seems appropriate because it increases learners' exposure to input of the target language and makes use of two different modes of learning; aural and visual. Even CLT recognizes a "modality effect" that reduces extraneous cognitive load when information is presented in more than one mode. This reduction is due to the use of both the "visual and auditory processor of working memory" (van Merrienboer & Sweller, 2005, p. 151). However, this only applies when the information being processed by each processor is not redundant. Therefore it may be more efficient to have novice EAL learners view illustrations while the teacher reads in order to prevent the redundancy effect.

If one accepts the proposition that the concurrent presentation of written and spoken presentation is not appropriate for increasing the reading comprehension of novice EAL students, other instructional strategies must be explored. Yeung et al. (1997) investigated the effects of explanatory notes (definitions or explanations embedded within text) on learners' vocabulary building and reading comprehension. They found

that the presence of explanatory notes significantly improved the reading comprehension of novice learners but actually decreased their vocabulary building. Yeung et al. (1997) argue that since novice learners were able to access the meaning of unknown words quickly, they spent less time processing them in their working memory, thus these words were not transferred to the long-term memory. When a word list was used instead of explanatory notes, the opposite effect was seen; reading comprehension decreased and vocabulary knowledge increased. This phenomenon was attributed to the "split-attention effect", where "learners must split their attention between and mentally integrate multiple sources of information" (Yeung et al., 1997, p. 2). The students therefore had to hold the unknown word in their mind, move to the word list, learn the word, hold its meaning, and try to integrate it in the sentence. While the time frame was too long to comprehend the sentence, the longer processing of unknown words facilitated vocabulary building. In more advanced learners using explanatory notes, the redundancy effect was seen. Yeung et al. (1997) argue that these learners could not ignore the explanatory notes, even though they knew the words or could guess their meanings from context, therefore this processing of redundant information was detrimental to advanced learners' reading comprehension. This finding illustrates a phenomenon known as the "expertise reversal effect" (Kalyuga et al., 2003; Sweller, 2010), where a scaffold that is beneficial for novice learners is a detriment for more advanced ones.

The study conducted by Yeung et al. (1997) on explanatory notes, however, only used the L2. Since explanatory notes were found not to increase EAL learners' vocabulary building, a more efficient form of explanatory notes to increase their reading comprehension may be those which use the learners' L1. Where L2 explanatory notes

may have to use several words to describe a low frequency word, thus increasing the elements to be processed, L1 explanatory notes may only use one or two words. In addition, it is possible that the words used in L2 explanatory notes are also not known by the reader, thus affecting comprehension. In terms of the building of vocabulary, Yeung et al. (1997) only tested the acquisition of those words used in the text. It is possible that with increased comprehension of text due to the presence of explanatory notes, learners may be able to discuss the text using other low frequency words that were previously acquired yet remain unorganized. In other words, these words may only be recalled and produced when sufficient cognitive resources are available. My study therefore explores these extensions of Yeung et al.'s (1997) study.

2.5 Germane Cognitive Load

Early studies utilizing the framework of CLT exclusively used the constructs of intrinsic and extraneous cognitive load when discussing the demands placed upon the working memory. Effective instruction was therefore discussed in terms of reducing the extraneous cognitive load sufficiently enough to allow the working memory to process the intrinsic cognitive load associated with the problem to be solved. While both the characteristics of the material and the learner are involved in conceptualizing intrinsic and extraneous cognitive load, the emphasis is heavily on the characteristics of the material (Sweller, 2010). Starting in the late 1990's, a third type of cognitive load, "Germane Cognitive Load" (Sweller et al., 1998; Sweller, 2010), emerged in the literature that "is concerned only with learner characteristics" (Sweller, 2010, p. 126). In other words, it refers to the amount of cognitive resources that are used by the learner to process the intrinsic elements of a problem. This distinction between intrinsic and

germane cognitive load is beneficial because it highlights the fact that the intrinsic cognitive load of a problem is fixed relative to a learner's expertise level. Determining the intrinsic cognitive load of a particular learner completing a particular task, however, does not guarantee that sufficient cognitive resources will be available to solve the problem, especially in the presence of stimulus which exerts a heavy extraneous cognitive load. "If extraneous cognitive load is increased, germane cognitive load is reduced and learning is reduced because the learner is using working memory resources to deal with extraneous elements imposed by the instructional procedure rather than the essential, intrinsic material" (Sweller, 2010, p. 126). Germane cognitive load therefore must equal intrinsic cognitive load for the problem to be solved. Introduction of this new concept also allows discussion about the ability of learners to exceed expectations and to acquire more knowledge from the material than was pedagogically planned for. Consider once again the sentence: *the boy chased the cat in the house*. A novice reader who has previously learned similar sentences of this type, and/or is utilizing scaffolds such as pictures, would find the sentence very easy to read and comprehend. In this scenario, very little of the learner's cognitive resources are used in the processing of novel information. In other words, the Germane Cognitive load required to comprehend the sentence does not exceed the amount of cognitive resources available, thus where extraneous cognitive load is low and motivation is high, the extra cognitive resources available after comprehension of the sentence can be used for further learning that is not pedagogically planned for, such as acquiring phrase structures.

This emphasis on the learners' cognitive resources and how they use them for their own learning is critical for the advancement of educational studies. B.O. Smith

suggested that "while there may be a lot of teaching taking place in a classroom, there may be no learning at all taking place" during a keynote address at the 1960 Association For Supervision And Curriculum Development (A.S.C.D.) Conference (Rosenstock, 2009). This insight underlies the danger in only concentrating on the material to be taught and not on how the students are engaging the material. Even the constructs of intrinsic and extraneous cognitive load, with its emphasis on material, is only viewed through an educator's lens. While the educator allocates some interacting elements to intrinsic cognitive load and others to extraneous cognitive load, all which is perceived by the learner is the number of interacting elements (Sweller, 2010). The learner directs his/her cognitive resources to processing all of these elements and the concept of germane cognitive load is a means for the educator/researcher to discuss how much of these resources are being directed towards the intrinsic properties of the pedagogically planned for problem. It is important to note however that the priorities of the teacher and student may differ, which will undoubtedly affect learning. In other words, just because the learner may have the cognitive resources available for processing the intrinsic elements of a problem does not mean that he/she will do so. In this case, motivation is low and consequently the germane cognitive load is reduced along with learning.

The relative nature of the constructs of CLT highlights the need for studies to go beyond objectivity and generalizability; instead moving into the direction of particularity, practicality, and possibility (Kumaravadivelu, 2003). While language acquisition may be a result of a common cognitive architecture, it is the variability of sociocultural factors which, in the case of L1 acquisition, sets the parameters of language, and in the case of L2 acquisition, facilitates linguistic integration of the L1 and L2. The following section

will therefore discuss how the cognitive mechanisms of language may interact with sociocultural factors.

2.6 Language Acquisition as a Sociocultural Activity

Language is more than the use of vocabulary constrained by rules of grammar. This fact is apparent by comparing the following two sentences: "Colorless green ideas sleep furiously" (Chomsky cited in Pinker, 2007, p. 79) and "Sally poured the glass with water" (Pinker, 2007, p. 79). The former is grammatical but incomprehensible while the latter is comprehensible but ungrammatical. If we are being truly objective and our instructional goal is for students to learn how to use vocabulary in a grammatically correct way, then the former sentence must be considered correct and the latter incorrect. Of course this is absurd. Given the choice between the two sentences, we would rather have our students produce the latter one, despite its ungrammaticality. This is because language is not an academic exercise but an instrument for communication. It is therefore crucial for educators to shift assessment practices from one of linguistic competence to one of communicative competence. To this end, Olaofe (1992) proposes a hierarchically categorized assessment model with the highest levels consisting of communicative abilities and the lower ones consisting of lexico-grammatical abilities. Olaofe (1992) states that this model should "contribute more to our knowledge of error gravity since categories at the higher layer of the assessment model are to be considered more serious than those at the lower layer that may not affect intelligibility very significantly" (p. 215). This shift is necessary because where the goal of instruction is lexico-grammatical abilities, learners' working memory resources may be fully spent, leaving little to no resources available for developing communicative abilities. This lack of cognitive

resources due to the instructional emphasis on lexico-grammatical abilities may explain why some individuals do well on tests but not on communicative tasks (Olaofe, 1992). The pedagogical choices of educators are therefore a critical component for how learners will process the L2 input, which influences whether they will ultimately acquire an additional language.

An emphasis on developing communicative abilities is especially relevant within the context of mainstream academic courses. Here the educator must try to teach EAL students language skills while still trying to cover the full contents of the curriculum for both EAL and non-EAL students alike. It is therefore problematic to fully teach EAL students the four skills (reading, writing, speaking, and listening) that are necessary for complete comprehension of the material while concurrently teaching the content. There simply is not enough instructional time available to fully engage in explicit instruction of the four skills without sacrificing content and the integrity of the course. As such, instruction in content courses may be more efficient by judicially utilizing incidental instruction. However, there is disagreement in the field about the role incidental instruction has in L2 acquisition. While Ellis (1994) argues that "most L2 vocabulary is learned incidentally, much of it from oral input" (p. 24), Milton (2009) disagrees with an incidental approach to L2 instruction, calling it "wishful thinking" because of evidence which suggests that:

> the vocabulary uptake from truly incidental language exposure is usually
> negligible and that successful learners acquire large volumes of
> vocabulary from the words explicitly taught in the classroom and
> supplement their learning by targeting vocabulary in activities, like
> learning the words of songs, outside of class (p. 2).

Whether one agrees or disagrees with either Ellis (1994) or Milton (2009) may very well depend upon the characteristics of the particular learners one has in mind (age, motivation, goals, etc.), the particular learning environment (EAL course, content course, naturalistic environment, self-study, etc.), and the goals of instruction (content, lexico-grammatical skills, conversation, reading, writing, etc.). As I discussed previously (see section 2.0), incidental learning may be more appropriate for young prepubescent children who still have cognitive architectures in place specializing in language acquisition, while explicit learning may be more appropriate for older learners whose specialized architectures have been dismantled. As my study investigates learners over the age of 18 using explanatory notes for academic purposes, I agree with Milton (2009) that explicit instruction must play a central role, but with the limitations of time and the concern for the cognitive strain placed upon EAL students, more efficient methods must be explored to concurrently develop learners' academic and linguistic competence. Furthermore, it is impossible to explicitly teach all facets of a language, especially with a communicative emphasis. If it was possible to do so, then "Genie" (Gleitman et al., 1999) would have been able to gain full fluency in an L1 despite only being exposed to input from the age of 14 (see section 2.0). Incidental, or unconscious factors, must therefore play some role in language acquisition and the presence of an existing L1 must facilitate this incidental learning. To dismiss incidental learning, or to attribute to it a negligible influence, may cause instructors to engage in the "Banking Method" (Freire, 1970) of instruction where the educator must deposit his/her knowledge into the student and thereby disregard the creative aspect of language arising instinctively from one's prior experiences and current goals.

Before continuing this discussion on incidental learning, it is important to first

discuss sociocultural influences on SLA because failure to acknowledge these influences

may inhibit L2 and content acquisition despite whether explicit or incidental instruction is

employed. Let us first explore the concept of "Community of Practice" (COP) as

introduced by Lave and Wenger (1991). This concept views learning as being socially

situated and therefore there is an emphasis on participation in the learning community.

Wenger (1998) identifies mutual engagement, joint enterprise, and a shared repertoire of

negotiable resources as being critical dimensions of COP. "Mutual engagement involves

regular interaction between members of a community. Joint enterprise is a negotiated

enterprise through mutual responsibilities and a shared repertoire of negotiable resources

is a result of the joint pursuit of an enterprise" (Buettner, 2010, p. 11). The extent that

EAL students participate in these three critical dimensions of COP dictates whether these

learners stay on the periphery of the learning community or advance to the center of it.

Within content courses, it appears that EAL students struggle for full membership in the

learning community as Norton (1997) argues that non-EAL students tend to avoid

interactions with EAL students, thus limiting mutual engagement. Furthermore, the

dimension of joint enterprise appears to also be lacking in some classroom communities.

For example, Nanako felt that international students in her University class, who were all

master's students, were largely ignored:

> Most of the discussions were with the whole class. The instructor would
> raise an issue, some Ph.D. students would discuss it, and then the
> instructor would provide comments. The class was clearly divided into
> two groups, the Ph.D. group and the silent group. The only activities I
> could join were watching videos and eating snacks during the break.
> (Nanako, Interview 2, December 15, 1999) (Morita, 2004, p.589)

Nanako therefore did not have any substantial responsibilities in this learning

community compared with her non-EAL Ph.D. peers, thus there is no reasonable

argument that there was a joint enterprise in this particular community. An extension of

the dimension of joint enterprise is a shared repertoire of negotiable resources. Where

EAL learners lack the linguistic or sociocultural knowledge required for negotiation of

these resources, some learning communities do not make any substantial modifications to

help facilitate EAL learners' movement from the periphery of the learning community to

the center. Rie, an international University student, tried to reposition herself in the

learning community by appealing to her peers and the instructor to consider her needs as

a learner. Despite this assertiveness, the instructor responded by saying that it is difficult

to adjust the course for an EAL student "without slowing down the rest of the class"

(Morita, 2004, p. 593). Therefore, despite their financial and emotional scarifies,

international students are considered expendable members of the learning community at

worst or primarily peripheral at best.

Certainly the degree of participation in terms of the three dimensions of COP will

vary from community to community, but one cannot deny that EAL learners are

marginalized to some extent in mainstream content courses. To ameliorate this

marginalization we must return to the discussion on incidental and explicit instruction.

Aside from the limitations of time and the inhibition of the creative aspect of language,

the potential problem with exclusively engaging in explicit instruction of language skills

concurrently with content is the large amount of novel information that must be

processed. If the working memory of a learner is constantly processing new vocabularies

and grammatical structures, fewer cognitive resources will be available to process

elements related to content. The implications of which may be the development of EAL learners' communicative skills, but where the grades are primarily determined by content knowledge, the success of EAL learners will suffer. On the other hand, if the working memory is constantly processing elements related to the comprehension of content, there may be fewer cognitive resources available to process novel L2 input. What may result is a misunderstanding of the content based on an incomplete understanding of the L2. Again, the result is lower grades and fewer opportunities. Thus an emphasis solely on explicit instruction, either for linguistic or content skills, may keep EAL learners in the declarative stage of skill acquisition instead of facilitating their progress through the procedural and automatic stages (Anderson, 1982; 1983; Anderson, Bothell, Byrne, Douglass, Lebiere & Qin, 2004; DeKeyser, 2007). Educators must therefore utilize both explicit and incidental instruction with consideration to the limitations of the working memory in achieving particular communicative and academic goals. While explicit instruction and learning may lead to the bulk of L2 and content acquisition, this study primarily investigates the role of incidental acquisition with an emphasis on communicative competency within a content course with text providing the stimulus for communication.

What does incidental instruction and learning entail? This is a question which must be addressed if we are to develop effective pedagogies. First, let's start with what it is not. Incidental instruction is not immersion, or a sink-or-swim approach. To think of it as such is a slippery slope into a nonchalant attitude among educators that EAL learners just have to keep up, regardless of the mental effort required, and that they have to disregard their L1 prior knowledge, thus adopting an English-only philosophy. The onus

therefore is completely on the learner and the teacher is free from any additional work and training. As discussed previously (see section 1.2), this attitude is already prevalent in the EAL field, especially among content teachers. Instead, I see incidental instruction and learning as one part of a much larger language program embedded within a content course. Let's consider science (biology, chemistry, physics) as a content course wherein EAL learners are participants. These students must concurrently process two sets of interacting elements; the scientific concepts and the L2 which encodes them. This L2 input may be in an oral or literary mode, with either a purpose for basic interpersonal communication or academic discourse. The nature of this L2 input in a content course setting is critical in determining the stress it will have on novice EAL learners' working memory.

Cummins (1979) identifies two forms of L2; one set that builds "basic interpersonal communicative skills" (BICS) and another that is required for "cognitive academic language proficiency" (CALP). It has been argued that EAL learners can acquire BICS in about two years but that CALP takes at least five years for acquisition to take place (Collier, 1987; Klesmer, 1994; Cummins, 1979; 1981). If the time it takes to acquire a skill is directly proportional to the mental effort required for acquisition, then one can argue that CALP is more likely to stress learners' working memory and inhibit learning. This insight then uncovers a need for educators to pedagogically address this problem. However, educator's pedagogical choices may not be addressing this need effectively.

I would argue that text, with its greater use of low frequency vocabulary (Cummins, 2008) and greater logical composition, is more representative of CALP than

BICS, thus calling for a greater use of text in the classroom to address EAL students'

need to acquire CALP. It appears though, at least at the secondary level, that science

teachers have moved away from text as an instructional instrument (Norris & Philips,

2003). For example, Carter (2010a) found that secondary science teachers do not

prioritize the building of literacy skills in science courses, as represented in the following

quote from "Lucy":

> I find especially in high school science, the reading, they don't need to get a lot
> out of the scientific reading. Maybe if they were going on in science, and you
> want them to develop papers, or something like that, you want them to be able
> to read the science. But I think for the levels we're looking at, there's so much
> other stuff you can do, like a hands-on activity or group work, have them sit
> down with someone in the class to go over it with them and bring out some of
> the highlights (Carter, 2010a).

Test-taking aside, this basic oral communicative approach to language learning

within a content course on the surface appears to be reasonable with consideration to

cognitive limitations. Previously (section 2.0), I argued that oral language has developed

into an instinct through the principles of evolution while literacy has not, thus acquiring

literacy skills requires more cognitive resources. Therefore concurrently processing both

the written word and the scientific concepts it encodes may overload working memory

resources and inhibit learning. By devaluing literacy within content courses, the stress on

students' working memory may be lessened and more resources may therefore be

available to concurrently process L2 oral input, graphic organizers, and the concepts they

encode; thus contributing to increased learning. As it is unlikely that science content

teachers will explicitly teach L2 vocabulary (beyond those which are specific to the

discipline) and grammar, any increase in basic oral communication skills are thus

incidental. However, this conception of incidental learning is the slippery slope that I

referred to previously because beyond removing the stress that reading causes, there is no

further consideration to the needs of EAL students in terms of increasing their CALP.

The EAL field is dynamic due to the innumerable influences acting upon

humans, which confounds studies into L2 acquisition. Consider the above pedagogical

choice to devalue reading in content courses. Theoretically it may appear to be a sound

choice with respect to conserving cognitive resources, but practically it may be inefficient

in respect to particular learners' goals and the influences of their prior experiences. While

the teachers in Carter's (2010a) study emphasized that the students (both EAL and non-

EAL alike) did not need to use a textbook, invariably it was the EAL students who

deemed it necessary to sign one out and to actively use them.

> I find that [EAL students] refer to the textbook because I'm teaching a
> lesson that's based on notes that I've made. A lot of them will be
> interested in what are the page numbers for references because they want
> to read it in a different style and then make sure, I think to, what they said
> is, make sure they understand it if they read it from a different point of
> view as well and then ... So a lot of them, probably 50% of them are very
> careful about checking on meaning for things that way, by using the
> textbook to help them out and they think they got it from the notes but go
> back and read it again in the textbook just so that they can make sure that
> they know what they're doing. They're very thorough, lots of them
> (Christine Interview; Carter, 2010a).

It is therefore apparent that while the educator sets the parameters of learning,

EAL students are still influenced by their prior experiences. In this case, the importance

of literacy and the textbook has been instilled within some students, therefore they will

continue to process the written word even when it is devalued by the teacher and requires

more cognitive resources. These students therefore must concurrently process the

interacting elements of scientific concepts, L2 oral input, L2 written input, and graphic

organizers. In the absence of facilitations by the educator, these students must engage in

prolonged practice and means-end analysis in order to succeed, which puts a great strain on their cognitive resources. Certainly there are those whose strong motivation carries them through this period of acquisition, but this learning can be argued to be in spite of, instead of due to, the pedagogical choices of the teacher.

But how do we develop CALP through literacy if the students are at a novice level and lack the prerequisite skills necessary to comprehend the text within the time limits of the course? This study will use L1 explanatory notes to explore incidental learning. The assumptions behind this study is that by giving the students access to their L1 for low frequency L2 words in text, more cognitive resources will be available to focus on the grammar and the meaning of the passage. If the students encounter novel grammatical structures, they will be in a better position to infer possible meanings. The students may therefore also be in a better position to participate in follow up discussions because they can more clearly focus on producing L2 to communicate their understanding of the text instead of diverting cognitive resources for means-end analysis, which would otherwise inhibit both comprehension and L2 production. It is theorized that these learners will subconsciously (incidentally) recall low frequency vocabulary and grammatical structures, which are not fully integrated in their long-term memory, to be used in their production of L2. Judicial use of L1 explanatory notes may therefore help learners to incidentally acquire / organize the patterns and vocabulary inherent in literacy and by extension develop both their CALP and BICS.

This section has shown that language acquisition, while primarily a cognitive phenomenon, is also socially situated. Various researchers, such as Halliday (1973, 1985) and Bachman (1990) have argued for a functional framework for language acquisition,

but there remains a need to integrate elements theorizing the specific cognitive mechanisms involved. Similarly, those who solely take a formal, syntactic approach to SLA instead of integrating some functional and semantic elements will fail to see the creative aspects of language and its use in negotiated interactions. The theoretical framework of my research thus attempts to integrate both the cognitive and functional perspectives of SLA. The following section will theorize about how both of the functional and cognitive perspectives of SLA may interact.

2.7 Balancing the Functional and Cognitive Loads Associated with SLA

I have already discussed in some length the concept of cognitive load (Sweller, 1988; 2010), but taking a more functional and semantic perspective of SLA, one can also argue that there is a "functional load" (Bardovi-Harlig, 2007) at play as well. Every part of speech, text, and/or gesture has a communicative function. The presence of these features reduces the need to infer the possible meanings of the interaction by reducing ambiguities. If a particular word, morpheme, structure, or gesture carries the full weight of a function, it can be said to have a high functional load.

> For example, if an adverb such as *yesterday* is the only indicator in a sentence that an event happened in the past, then the functional load of the adverb is high. If the sentence also employs past-tense verb morphology to indicate the time frame, the functional load of both the adverb and the verbal morphology is less than either one occurring alone (Bardovi-Harlig, 1992) (Bardovi-Harlig, 2007, p. 59).

Returning to the concept of cognitive load, sentences with low functional loads for a particular part of speech will have a high cognitive load because the learner must process the interacting elements involved (See: Carter, 2010b). Consider the sentence: *Yesterday I walked to school.* The functional load of the adverb (yesterday) and past-

tense verb morphology (-ed) is low because they both share the function of indicating past-tense. Meanwhile the cognitive load of processing these two elements is high because of their element interactivity. Therefore the sentences, "*I walked to school*" and "*Yesterday I walk to school*", will have higher functional loads for past-tense and lower cognitive loads. This insight therefore suggests an inverse relationship between functional and cognitive loads. If one accepts the premise that language acquisition results in the lowering of functional loads, one must ask why there is a need to do so, considering that the elements involved in lowering the functional loads are redundant in nature, thus reducing cognitive resources that may be better utilized elsewhere.

I argue that the redundancies are necessary to protect the message from corruption. Let us return to the sentence, *Yesterday I walked to school*. Now consider if a mistake was made to the time adverb and the sentence became: *Tomorrow I walked to school.* The incomprehensibility of the sentence is due to incongruity between the time adverb (Tomorrow) and the past-tense verb morphology (-ed). The practice of using functional redundancies may help the interlocutor to identify message corruptions. The interlocutor then has the option to either accept the more semantically rich adverb or the less salient past-tense verb morphology as being true. Alternatively, he/she can ask for clarification. EAL learners, despite the increased cognitive demands involved, must proceed to develop linguistic skills utilizing low functional loads to ensure that their message is clearly understood. It is believed, however, that EAL learners will only enter into this procedural stage of skill acquisition (Anderson, 1982; 1983; Anderson, Bothell, Byrne, Douglass, Lebiere & Qin, 2004; DeKeyser, 2007) if the increased cognitive load does not overload their working memory.

Assuming that an EAL learner's working memory is overloaded; the mind must subconsciously delete some elements for either receptive or productive processing. If the adverb and past-tense morphology are deleted in order to conserve cognitive resources, there is no functional load for past-tense embedded within the sentence and the cognitive load is decreased due to less interacting elements. The resulting sentence, *I walk to school*, is both comprehensible and grammatical. However, functionally, the message has been corrupted because the action has already taken place. On the other hand, one may argue that the context of the message carries the function of past-tense. In this case the context carries a high functional load for past-tense. If we keep the past-tense verb morphology and delete the adverb (I walked to school), the message is still comprehensible and grammatical, but now it has accurately portrayed the task as having already happened. In this case the cognitive load has increased due to greater element interactivity while the functional load has decreased, assuming that both the past-tense verb morphology and context holds the same function. The increased cognitive cost therefore pays for the integrity of the message. However, the message still lacks specificity in terms of exactly when in the past the action took place.

If we were instead to keep the adverb, but discard the past-tense verb morphology, the sentence then becomes, *Yesterday I walk to school*. In this case, the sentence still portrays the action as having already happened, but unlike the other simplified sentences above, this one is ungrammatical. Theoretically, the cognitive and functional loads are the same as the previous sentence, but this one may be preferable, despite its ungrammaticality, because the adverb contains more semantic information. I therefore argue that when the cognitive load demands of processing or producing L2 with

low functional loads is too great, the mind must unconsciously decide which elements to either receptively or productively discard. In the example above, discarding of the past-tense verb morphology is the better choice because the past-tense is retained by the time adverbial while also adding specificity. This line of reasoning also explains the stages of acquisition, namely research which shows that time adverbials are acquired before past-tense verb morphologies (Bardovi-Harlig, 1992). Moreover, the observation that the increased accurate use of past-tense verb morphology comes after the decreased use of time adverbials (Bardovi-Harlig, 1992) can also be theoretically explained using the construct of cognitive load.

> As the concept and use of adverbs become integrated with schemata in the long term memory, element interactivity decreases; freeing more resources in the working memory to be used to acquire new skills. [It is] hypothesize[d] that as the expertise of the learner increases, and the use of adverbs become automated in the long term memory, the learner becomes aware that not every sentence requires the semantic information contained within adverbs. The increased cognitive resources allow the learner to selectively judge when using an adverb is appropriate. The learner is thus free to experiment with using past-tense [verb] morphology in the absence of adverbials. However, the accurate use of past-tense [verb morphology] takes time to occur. First, an L2 learner has to notice the form in the input, which is not as salient as adverbs […]. Second, she has to practice using various past-tense [verb] morphologies and correct any errors that may arise (Carter, 2010b).

Using the above framework, if EAL learners can gain access to their L1 through explanatory notes, they may better comprehend the text and reduce the cognitive demands of means-end analysis. The increased cognitive resources available may then be used incidentally to recall L2 low frequency words and grammatical structures during oral discussions of the text. While errors may be present, this increased use may indicate that the EAL learners are progressing into practice representative of the procedural and automatic stages of skill acquisition (Anderson, 1982; 1983; Anderson, Bothell, Byrne,

Douglass, Lebiere & Qin, 2004; DeKeyser, 2007). In addition, where these students are better equipped to participate in discussions, the better their chances are to move from the periphery of a learning community to the center. The following chapter will discuss the methodology of this research with consideration of the framework discussed thus far.

Chapter 3

Methodology

3.0 Introduction to Methodology

The theoretical framework for the methodology of this research is based primarily on the constructs of the Cognitive Load Theory (CLT, see e.g. , Sweller 1988; 2010; van Merrienboer & Sweller, 2005). This framework is also consistent with my ideology as a researcher in so far as satisfying the parameters of particularity, practicality, and possibility (Kumaravadivelu, 2003). The chosen methodology thus aims to explore whether Korean novice learners of English are affected by the presence of explanatory notes used during instruction. More specifically, whether the cognitive demands of receptive processing of text affects the quality of one's concurrent production of L2 speech. Working under the assumption that novice / intermediate EAL learners have a finite processing capacity of the target language due to their developing linguistic schemata, it is hypothesized that their oral production of language will be affected by their receptive processing of a prerequisite text. This problem is a necessary one to explore both theoretically and practically. Theoretically, Carter (2010b) theorized an inverse relationship between the demand for cognitive resources and the quality of L2 production; that the mind must unconsciously sacrifice the processing of L2 functional elements in order to prevent overloading of the working memory. Furthermore, this sacrificing must not compromise comprehensibility therefore the functional elements that remain must be semantically rich whereas the ones that were discarded must be somewhat redundant. This research therefore sought to give some empirical evidence for

Carter's (2010b) "Inverse Load Theory". Practically, explanatory notes were theorized to be beneficial in facilitating EAL learners' "legitimate peripheral participation" (Lave & Wenger, 1991). These students, through their L1, were theorized to gain access to higher level text that are pedagogically used to spark discussion and interest as opposed to building vocabulary and grammatical knowledge. This instrument was designed to reduce extraneous efforts on the part of EAL students in processing text with low frequency words, ones which are unlikely to be used again during the course of study. In other words, novice EAL learners were theorized to comprehend text with explanatory notes nearly as fast as advanced EAL learners and therefore become more confident and cognitively able to contribute to classroom discussions about the text. This research utilizes methodology which investigates both the theoretical and practical aspects of the problem through a "randomized-to-groups posttest-only design" (McMillan, 2008) to explore any such effects. While there are many limitations of this research due to its preliminary status, it represents a base from which further studies and theories may emerge. Its potential is only limited by the lack of dialogue; I therefore welcome criticisms and look forward to the discussion.

3.1 Research Hypotheses and Questions

In discussing the methodology of this research, this chapter outlines the rationale for the selection of the participants, instruments, and procedures which is used to test the following 5 hypotheses:

1. Text with explanatory notes written in the participants'L1 will increase their reading and oral fluency.

2. Text with explanatory notes written in the participants' L1 will increase their oral use of L2 low frequency words.

3. Text with explanatory notes written in the participants' L1 will increase the functionality of their oral grammar.

4. Text with explanatory notes written in the participants' L1 will increase their accurate retention of content.

5. Text with explanatory notes written in the participants'L1 will be less cognitively demanding.

In line with my sociocultural positioning of this research is my decision to use the term "participants" as opposed to "subjects" in my hypotheses. "Participants" suggests a partnership of sorts where both they and the researcher may benefit. In contrast, "subjects" implies a hierarchy where the researcher reaps the majority of the benefits. As active participants, they also play a role in expressing their opinions about how best to develop reading comprehension and speaking skills. Thus a guiding question is added to this study: What methods or conditions do Korean students feel helps them improve their English reading / speaking? At first glance this addition appears to identify this research as a mixed-methods design, thus questioning why I am not labelling it as such. While the information the participants will give in exploring this question may be valuable for the discussion of this research, it also serves as a distraction for them as part of the methodology used to test the above hypotheses. Therefore saturation of rich data is not obtained and the results of this qualitative question should be used as a starting point for discussion, not the conclusion of it.

A second guiding question is also added: What aspects of the story are remembered and emphasized by Korean EAL learners in both the treatment and control groups? This question takes into consideration the role that culture / society plays in how we interpret and recreate a story. Furthermore, by analyzing the data in both the treatment and control groups, it may be possible to observe how explanatory notes affect how particular aspects of the story are remembered and emphasized. The addition of this guiding question also illustrates the thin line between quantitative and qualitative methodologies. Omission of either the hypotheses or questions leaves the study as something less than authentic or transformative; each part requires the other. In other words, a study on how culture affects our memory of a story, and by extension our interpretation of it, is incomplete in an EAL setting as comprehension becomes a confounding variable. Similarly, a study on reading scaffolds to facilitate EAL students' comprehension of text is also incomplete without taking into consideration the role that culture / society plays in how we interpret a text. However, I still hesitate to label this study as a mixed-methods study, even with the addition of this guiding question, because I view the methodology of this research as a whole. The term "mixed-methods" suggests something less than either component on its own; a lack of purity from the core components. Alternatively, it may also imply that each core component and their underlying ideologies and frameworks are maintained even as they are "mixed". If any field is in a position to start challenging established methodological discourses, it is the EAL field.

Similar discourse has emerged in the EAL field in the context of those whose parents are from two different ethnic and linguistic backgrounds. Labelling these

individuals as "mixed" or "half and half" has been shown to be problematic. Thus the term "hybrid" emerged in place of "mixed" to address this problem. Bakhtin (1981) views hybrid socio-linguistic consciousnesses as those "that come together and consciously fight it out in the territory of the utterance" (p. 360). What results is a "third space" (Bhabha, 1991) where the sum of the components of one's identity is greater than its parts. Thus applying these insights to methodology, one can become to see the limitations of a "mixed-method" design. Maybe more appropriate would be the term "hybrid-method" design, but one would then have to concede that this hybridity creates new world views on methodology that must be valued and accepted. Certainly future studies can isolate the different components of this research, but I feel that as this is an exploratory study, it is important to emphasize looking for relationships between both the cognitive and sociocultural influences on SLA. Not doing so would be to deny my ideology as a researcher and theorist, resulting in work that does not capture the complexity of my thoughts.

3.2.0 Participant selection

This section discusses the criteria and procedures for participant selection, the instruments used, and the rationales for their implementation. Participant selection occurred on day one of the study and those who were selected was invited to meet a week later for data collection. Those who did not meet my criteria for selection were thanked for their time and were not invited for further participation. Major characteristics of the participants used as a basis for selection are age, breadth of written English vocabulary knowledge, first language (L1) / culture, and motivation. While these characteristics are not an exhaustive list of confounding variables for this study, as reading and second

language acquisition (SLA) are multi-faceted, they do cover a large range of possible

influencing elements. It is felt that participant selection based upon these major

characteristics strike a reasonable balance between reducing confounding variables and

providing enough variability among the participants to allow authenticity and limited

generalizability of the findings. In light of the above considerations, the recruitment

procedures, including the number of participants recruited, are also presented in this

section.

I will first discuss the procedures for participant selection before explaining in

more detail the criteria used and the instruments utilized for selection, along with their

respective rationales.

3.2.1 Procedures for Participant Selection (Session 1)

The first session constituted the screening of potential Korean participants who

are over the age of 18. Each participant was tested individually at a mutually agreed upon

location where possible distractions, such as can be found in restaurants and other public

locations, are at a minimum. Having said this, however, two of the participants

(O'Donnell and Carpenter) felt more comfortable meeting at a coffee shop and fast-food

restaurant respectively. As the comfort of the participants is the priority during this study,

both methodologically and ethically, this location was accepted despite the added

difficulties it added for the Researcher in the transcription process. After I obtained

informed consent from the participant (see appendix D), the session started with

assessing the participant's breadth of written English vocabulary knowledge. The

participant was given the vocabulary checklist test (see appendix C). The Researcher

explained that he/she was to look at each word carefully and to circle only the words that he/she has seen before and knows. The participants were also made aware that some of the words are nonsensical. Only those who scored below 79% continued on to complete the other two screening instruments as those who scored above this value were disqualified from further participation.

Immediately following the vocabulary checklist test, each participant completed the motivation survey (See Appendix B). This survey took about five to ten minutes to complete as there are only 20 questions, with each of them written in Korean. As motivation is a critical criterion for participation, any participant who had an average score below 4 was disqualified from selection. Therefore only those who scored below 79% on the vocabulary checklist test and above an average rating of 4 on the motivation survey completed the final screening instrument. All others were disqualified from further participation and thanked for their time.

The participants were then given the Vocabulary Levels Test (Nation, 1990) and I went through the instructions and the provided example to ensure that each participant understood what to do. The participant had a maximum of 50 minutes to complete the assessment without assistance. Since this study is dealing with reading of the target language; oral facilitations such as pronunciation of items were not provided. The time limit served two functions. First, it ensured that the total time commitment of the participants in session 1 did not exceed 75 minutes. Secondly, the time limit encouraged the participants to spend minimal time on each individual item, thus reducing strategic guessing. Had a participant not answered some items at the end of 50 minutes the items would have been considered to have been answered incorrectly as Nation (1990) suggests

that EAL students should be able to finish the test within this time. All of the selected

participants for this study were able to complete this test within the time limit provided.

The Researcher then sorted the participants, whose motivation survey and

vocabulary checklist scores qualified them for participation, into word-level groups

resulting from their vocabulary levels test scores. Having all participants working in the

2,000 word-level was ideal, however with the difficulty in recruiting participants, five of

the six participants selected were working in the 5,000 level and one was working in the

2,000 level. The 5,000 word-level was my predetermined limit for identifying novice

learners so this grouping, while not ideal, was acceptable. In addition it would have been

ideal to select all participants working in the same word-level but with the difficulty in

recruiting participants I had to accept the lone participant working in the 2000 word-

level. By chance this participant was assigned to the treatment group and therefore this

situation provides an opportunity to see if L1 explanatory notes help her to perform as

well as the other participants in the study. The Researcher randomly assigned each

participant to either the control or treatment group by flipping a coin prior to session two.

Randomization of the control and treatment groups resulted in some unevenness

between the two groups. While on average both groups are working in the 5,000 word-

level, the control group scores on average just under 12 out of 18 at this level compared

to the treatment group with an average score of just over 9 out of 18. In addition, the

control group on average scored 40% on the vocabulary checklist test compared to the

treatment group who scored just 26%. However, in terms of motivation to learn English,

the treatment group scored on average 5 out of 5 (rounding off to the nearest 1) compared

to the control group who scored 4 out of 5. While the imbalance between the two groups

pose some limitations, chance has offered us an opportunity for testing L1 explanatory notes in helping less expert learners in comparison to more advanced learners with no scaffolds. In other words, where the treatment group matches or exceeds the performance of the control group one may argue that the L1 explanatory notes may have been helpful.

3.2.2 Participants' ages

Participation in this research was restricted to those who were above the age of 18 to ensure that any effects of L1 explanatory notes on L2 oral production are due to explicit learning pathways and not a result of the facilitation from a "Language Acquisition Device" (LAD: Jordan, 2004, p. 124). While I did not set a maximum age restriction, I am cognizant of the possibility that neural pathways may deteriorate over time and that the cognitive abilities of older participants may be differentiated from their younger peers. Although there is debate in recent years as to the validity of the assumptions that adult brains continuously lose neurons, that these neurons are not replaced, and that the retention of cognitive functions are solely the result of new synaptic connections (Dubuc, 2010), I set out to recruit participants who were all approximately the same age (within 10 years of each other) to ameliorate this possible confounding variable and maintain the parameter of particularity (Kumaravadivelu, 2003) in so far as selecting participants who represent an authentic group of learners in an institutional setting. While most of the participants selected were within about 10 years of each other, ranging from their late twenties to late thirties, the oldest participant was 46 years old. This particular group of participants, while not ideal, may still represent learners at the university level, considering that some older EAL students are in graduate

studies or upgrading their professional certifications. Results from this study therefore still allow discussion of the findings to be directed towards a particular group of students. Furthermore, by selecting participants who represent a particular group of students contributes to the parameter of practicality (Kumaravadivelu, 2003). In other words, educators who teach students of similar ages can make use of the findings as they see fit in the development of pedagogy. This in turn may stimulate further research or instructional pedagogies that empower students, thus addressing the parameter of possibility (Kumaravadivelu, 2003).

3.2.3 Participants' breadth of written English vocabulary knowledge

Working under the assumption that reading is more cognitively demanding than speaking, participants' breadth of written English vocabulary knowledge is a major selection criterion. The challenge in determining learners' vocabulary size is well documented and regardless of the instrument used there is bound to be critics of their informative capabilities. In making my choice for an instrument to determine the vocabulary size of my participants I had to first ask myself a guiding question posed by Nation (1990) who asks, "Do we want to test recognition or recall of vocabulary" (p. 79)? This question struck at the heart of this study and forced me to consider the goals of the intervention I aim to investigate. Should the goal of using L1 explanatory notes as an instructional instrument be for facilitating the acquisition of receptive or productive knowledge of the target language? The answer to this question affects the lens through which the findings of this study will be viewed and therefore it requires careful reflection. However, it is not as simple a question as it appears on the surface. If one considers only the acquisition of productive L2 vocabulary knowledge, then explanatory notes may not

help to achieve this learning. Yeung et al. (1997) found that explanatory notes facilitated

novice learner's comprehension of text but not the building of their vocabulary

knowledge. If explanatory notes are therefore not expected to facilitate the acquisition of

productive L2 vocabulary knowledge, what about facilitating the acquisition of receptive

L2 vocabulary knowledge? This too is problematic as one can effectively argue that the

use of L1 explanatory notes does not facilitate L2 vocabulary recognition because

learner's can simply look at their first language equivalents and spend little time

processing L2 low frequency words. It would seem then that the appropriate goal of using

explanatory notes goes beyond the acquisition of both receptive and productive L2

vocabulary knowledge found in the text.

While recognizing that "without grammar very little can be conveyed, without

vocabulary *nothing* can be conveyed" (Wilkins, 1972, p. 111), I see the acquisition,

recognition, and recall of the specific L2 vocabulary used in the article as playing a minor

role in this study. Rather I see explanatory notes as facilitating a form of organizational

practice where one's cognitive resources are more fully dedicated to recognizing,

organizing, and producing already acquired knowledge. In other words, it may not be

necessary for the participants to produce or even recognize the low frequency L2 words

used in the text, provided that they are able to express the concepts using other words

which are more fully integrated in their lexicon. In this way, the ability to discuss a text

can be thought of as a problem to be solved. An EAL learner must then find a solution to

this problem using the resources made available to him/her. Where there are no reading

scaffolds, the learner must use means-end analysis to solve the problem of

comprehension while concurrently formulating an L2 response. This situation may

overload the working memory resources of the learner and the mind may have to delete the processing of some L2 functional elements in order to save costs, thus affecting the quality of the learner's text comprehension and L2 output. Conversely, reading scaffolds may conserve the leaner's cognitive resources and allow him/her to access unorganized prior knowledge more easily, thus facilitating text comprehension and L2 output.

Recognizing the declarative, procedural, and automatic stages of development for skill acquisition (Anderson, 1982; 1983; Anderson, Bothell, Byrne, Douglass, Lebiere & Qin, 2004; DeKeyser, 2007), explanatory notes may help to move students past the declarative stage of learning and into the procedural and automatic stages where the practice of previously acquired L2 vocabulary and grammatical structures make possible the solving of communicative problems. This practice may be a critical step in L2 acquisition as DeKeyser (2007) argues that a "large amount of practice is needed to decrease the time required to execute [a] task (reaction time), the percentage of errors (error rate), and the amount of attention required (and hence interference with/from other tasks)" (pp. 98-99). Since text without scaffolds may overload the working memory of novice learners, they are thus denied the opportunity for progressing into the procedural and automatic stages of skill acquisition and are instead kept isolated in the declarative stage where they must accumulate more knowledge without fully being able to practice its use. Thus their L2 production may not display consistency with respect to fluency and spontaneity (DeKeyser, 2007) and they may therefore fail to solve communicative problems, thus inhibiting their progressive development of general and academic L2 skills. Incomprehensibility of the text may also lower motivation and further decrease learners' L2 acquisition and skill development. Having now considered the goal of using

L1 explanatory notes as being a means for L2 skill acquisition in the procedural and automatic stages, a more informed consideration of instruments to test vocabulary knowledge is now possible.

The article used in this study is one to spark reflection and discussion. It is the concepts, not the vocabulary, which is the most crucial learning aspect of the reading task. However, in order to comprehend the concepts discussed, one must understand the vocabulary used. As the intervention for this study employs L1 explanatory notes for low frequency words, the participants must not know a certain percentage of these words in order for the scaffold to be beneficial and not detrimental due to the "expertise reversal effect" (Kalyuga et al., 2003; Sweller, 2010). To make sure that there are enough unknown low frequency L2 words in the text to validate the participants' involvement, a vocabulary checklist test developed by Anderson and Freebody (1983) was used (See Appendix C). The selected participants all had to score below 79% (0.79) on this test for inclusion in this research. This score represents the percentage of the low frequency words used in the article that the participant knows. The participant did not have to demonstrate his/her knowledge of the word; he/she merely had to indicate knowledge of it. The benefit of this test is that it is fast and therefore more words can be tested. The drawback is that the participant can just guess or he/she may erroneously think that he/she knows a word when he/she actually does not. To control for the participants' overestimating their vocabulary knowledge, about 30% of the words in the list are nonsensical. Using the following formula, the percentage of real words known (expressed as a decimal) can be calculated:

Words known = real words marked – nonwords marked / 1 – nonwords marked

While it would be beneficial if most of the real words in this test are not known by the participants, I would have accepted those who scored as high as 79% on the test in consideration that comprehension of text is affected by as little as 2% of the words it contains (Wallace, 2008).The text used for this study has 374 words (including the title), therefore 2% of this is 7.48 words. The total real words used in the vocabulary checklist test is 39, therefore if we subtract from this total 8 words, we get 31. Substituting this value into the above formula then gives us our maximum score allowed for participation (words known = 31/39 = 0.79 or 79%). The highest score was obtained by O'Donnell (0.56) and the lowest was obtained by Helena (0.019). While it would have been beneficial to have all of the selected participants with similar scores, recruitment difficulties prevented this from happening.

While the above formula reduces errors due to guessing or misinterpretation, it does not determine whether the participants actually understand the words in context. It also does not determine whether the participants have acquired high frequency words needed for comprehension of text, nor does it take into consideration that the participants may know many other low frequency words, thus indicating a greater expertise in the target language. All participants therefore took Nation's (1990) vocabulary levels test to validate that the participants are novice learners. Only those participants who scored between the 2,000 and 5,000-word level were selected for participation in this study. Since the Vocabulary Levels Test (Nation, 1990) is based in part on the general service list (West, 1936), it allows one to categorize learners based on their knowledge of high and low frequency words. There are 5 sections of the test corresponding to the 2,000 word-level; 3,000 word-level; 5,000 word level; the university word-level; and the 10,000

word-level. There are 36 words (18 representative words from each level and 18 distracters) that are tested in each section. "If someone scores 12 or less out of 18 in a section of the test, then it is worth helping that learner study the vocabulary at that level" (Nation, 1990, p. 262). It is also important to note that while this test has been frequently used; more research into its validity is needed. Encouraging though is initial evidence of validity provided by Schmitt, Schmitt, and Clapham (2001) through their research of 2 newer versions of the test.

As this research is exploratory in nature, thus utilizing a small number of participants (6), I would have liked to recruit participants operating at the 2,000-word level as they are the ones I hypothesize as benefiting the most from explanatory notes and who are most clearly identified as being novice learners. However, with Helena as the one exception at the 2,000 word-level, all selected participants were working at the 5,000 word-level. While not ideal, EAL students operating even at the 5,000-word level may also benefit from explanatory notes considering that Chiu (2009) found that Chinese EAL students at the 5,000-word level performed significantly worse than native speakers of English in their semantic knowledge of English.

Even as I use the terms novice, intermediate, and advanced levels of English knowledge, limitations of these terms become apparent. Each level is subjective and is of little practical value beyond comparing individuals' relative performance to some norm, usually derived from monolingual English speakers. The question is whether these comparisons are ultimately helpful, considering that EAL learners can never acquire monolingual norms simply because they are not monolingual, rather "they possess a psycholinguistically distinct form of multicompetence" (Ortega, 2007, p. 246). To

continue to maintain a monolingual bias is to place monolingual English speakers at the

apex of the social hierarchy and devalue the unique skills that bilinguals have attained. In

other words, the status quo gives EAL learners an impossible goal; to be monolingual

English speakers. While current assessment instruments, such as Nation's (1990)

vocabulary levels test, primarily uses monolingual norms and cannot be avoided until

new instruments are developed based on bilingual norms, I address this methodological

problem by operationalizing the term "novice learners" as being those EAL learners who

positively benefit from reading scaffolds compared to their EAL peers who do not have

these scaffolds. At the outset of this research, I assumed that the participants I selected

would in fact benefit from explanatory notes, as reflected in my hypotheses. It is possible

that I may have to reclassify them as being intermediate or advanced learners after data

analysis if the scaffolds appear to be a detriment, thus reflecting an "expertise reversal

effect" (Kalyuga et al., 2003; Sweller, 2010). This methodology therefore embraces the

parameter of possibility (Kumaravadivelu, 2003) by choosing not to use native speakers

of English as a norm for L2 competency, thus empowering EAL students through

recognition of multicompetencies as benchmarks for interlanguage and learners' ultimate

attainment of English (Ortega, 2007).

It is important to also note that while this research investigates both reading and

speaking, only L2 written vocabulary knowledge is used as a selection criterion for two

main reasons. First of all, the methodology of this study allows a comparison of each

participant's L2 oral proficiency when it is both dependent and independent of a text.

Any appreciable differences in their L2 speech between these two contexts may therefore

be attributed to the processing of text, especially if the text-dependent context results in

lower oral proficiency in the absence of reading scaffolds. While there may be some wide variations between the performances of all the participants, if the control group shows negative trends and the treatment group shows positive ones, it may be argued that the reading scaffolds have beneficial effects for novice learners. Secondly, comprehensible speech requires as little as 1200 headwords (West, 1960) and therefore it is clear that "to speak English it is not necessary to have a large vocabulary" (Nation, 1990, p. 93). In contrast, reading comprehension requires a greater knowledge of vocabulary, with research showing that the ability of readers to comprehend text is affected by as little as 2% of the words it contains (Wallace, 2008). This research is significant considering that low frequency words in academic texts generally make up about 5% of these readings (Zhang & Anual, 2008); the text used in this study contains 11% low frequency L2 words ($40/374 = 0.1069$). Thus the participants' oral vocabulary knowledge can be well below that of their written vocabulary knowledge and yet their communicative abilities may be greater than their literary ones. It is therefore assumed that communicative tasks place much less stress on the working memory than literary ones. In addition, oral speech or conversations are hard to assess within acceptable limits of validity and reliability because of its inherent variability (Van Lier, 1989). This variability is also a limitation of this study in investigating the effects of explanatory notes on L2 speech, but it is believed that this study's methodology and theoretical framework may shed light on some possible causes of this variability, which in turn may have pedagogical implications. Regardless of whether the participants have a high or low oral proficiency, assuming that the processing of text either overloads or stresses the capacity of their working memory, relative changes

in speech can be expected because with fewer resources made available in the working memory, the less the mind's ability to recall vocabulary and organize content.

3.2.4 Participants' L1 and culture

All of the participants have Korean as their first language and culture as the intervention uses Korean explanatory notes as a scaffold for an English text. There are four reasons for choosing to use Korean as the language for the explanatory notes. First of all, I have connections with the Korean community both domestically and abroad through work and marriage. These connections were beneficial in recruiting participants for this study. Furthermore, my familiarity with Korean culture may have helped to build trust with my participants, which is a requirement in qualitative studies; elements of which are present in my methodology. For example, Bogdan and Knopp Biklen (2007) argue that "the researcher's goal is to increase the subjects' level of comfort, encouraging them to talk about what they normally talk about and, eventually, to confide in the researcher" (p. 82). In addition to making the participants feel comfortable answering questions about their English learning, keeping the participants at ease also limits extraneous mental processing which may otherwise be a confounding variable for this study.

Secondly, Korea is a very modern society with a heavy emphasis on education, so much so that it has sometimes been described as being excessive (Lim, 2007). It is therefore assumed that the participants are literate in Korean writings. This assumption is valid considering that since the 1930s, the adult illiteracy rate dropped from over 70% to under 2% in 2000, due in large part to Korea's value of education in conjunction with

other factors (The EFA 2000 Assessment, 2010). This prior literacy knowledge is important because the use of explanatory notes assumes that the reader can draw upon his/her L1 knowledge of written vocabulary and inferencing skills in the comprehension of an L2 text. These same assumptions cannot be as readily made with participants from countries with a lower emphasis on education and the resultant decrease in literacy rates. This point also illuminates the fact that the findings of this research will have only limited generalizability. In the context of students with limited literacy in their L1, explanatory notes may offer little benefits.

Thirdly, the structure of Korean and English are markedly different (Vincent & Yeon, 2003). Where the parameters of English are set for subject, verb, object (SVO), those of Korean are set for subject, object, verb (SOV). In addition, Korean and English are not derived from common roots and therefore learners of either language cannot make use of similar and related vocabularies, otherwise known as cognates. Furthermore, while Korean writings are phonetic, they do not make use of the alphabet. These differences are important for this study because they increase the burden on the working memory of learners. Therefore if the findings of this study show no effects of explanatory notes on participants' English production and comprehension, it can be argued that no effects are also likely to be seen with other linguistic groups. Conversely, if the explanatory notes are shown to have beneficial effects, it can be argued that all linguistic groups dissimilar from English may also benefit from them. However, European linguistic groups may not benefit from explanatory notes as their L1 may intrinsically facilitate acquisition through incidental means, making the scaffolds of explanatory notes redundant and possibly leading to an "expertise reversal effect" (Kalyuga et al., 2003; Sweller, 2010). Assuming

that Asian students have the higher learning burden, it is felt that the testing of explanatory notes is best served by using Korean participants. To further argue this point, consider if French explanatory notes were used instead of Korean. If the results of this study showed that there was no effect, or even a detrimental effect, one may argue that explanatory notes are not effective and that other means must be utilized. Some researchers may also argue that an incidental learning approach (immersion) may be more effective considering that Milton and Meara (1995) found that European exchange students studying in a British university increased their vocabulary about five times compared to those who studied at home. However, the learning burden of these students would be less than those from Asia because of the similarities between the languages. Due to the linguistic differences discussed above between Korean and English, it would seem reasonable to suggest that Asian students would not acquire English at the same pace and ease as their European counterparts. To disregard an intervention based solely on studies utilizing European derived languages would represent a Western bias and therefore exclude a large percentage of EAL students. Furthermore, if explanatory notes are shown to be ineffective for Korean students, they cannot be expected to be effective for European students who are better facilitated by their L1.

Fourthly, culture affects the way text is interpreted and remembered. What readers bring to the text affects how it is integrated into their schemata. The ideas in the reading must in some way connect, either positively or negatively, to those in the reader's cognitive architecture. It is this integration which facilitates memory. Assuming that each culture has a collective memory, each group is likely to focus on slightly different aspects of the text that tap into their collective memories. Consider the text used for this study,

where it discusses the differences between the rich world and the poor. If the reader comes from the poor world, his/her recall of the text may shift towards emphasizing elements associated with the poor. If the reader comes from the rich world, his/her recall of the text may shift towards emphasizing elements associated with the rich. It is therefore hypothesized that if explanatory notes are beneficial that they will allow the participants to focus on those elements of the story that are consistent with their culture's collective memory. In other words, the participants in the treatment group were hypothesized to have similar recalls of the text in terms of emphasis while the control group will show more variety in their recalls. It was therefore important that the participants in this study have all been raised and educated, at least up to the secondary level, in the same culture, namely Korean, to ensure all participants have this collective memory.

3.2.5 Participants' motivation

Studies on the importance of motivation in SLA have been conducted by many researchers. For example, Krashen developed the "Affective Filter Hypothesis" which posits that "learners who are comfortable and have a positive attitude toward language learning have their filters set low, allowing unfettered access to comprehensible input" (VanPatten & Williams, 2007, p. 28). The evidence for such a filter, however, is indirect and does not fully address the mechanisms responsible for this filtering. While the causality of the effects of motivation on language learning is yet to be fully investigated, the theoretical framework of this study posits that the working memory is this filter. When motivation is low, the mind redirects its limited cognitive resources to process information in which it deems to have more priority. Stimuli, either concrete or imagined,

that decrease motivation can therefore be considered as contributing to "extraneous processing, in which the learner engages in cognitive processing that does not support the learning objective" (Deleeuw & Mayer, 2008, p. 223). Therefore when extraneous processing overloads the working memory's capacity, the L2 becomes incomprehensible. Motivation then is clearly a confounding variable for this study and one in which was considered during participant selection. As mentioned previously, Korean's have great value for education and this motivation to learn has manifested itself into "English Fever" (Shim & Park, 2008). Koreans as whole therefore are assumed to be quite motivated to learn English, however to ensure that I selected the most motivated participants, I have created a short motivation survey (See appendix B) that each participant had to complete prior to selection. Only those who had an average score between 4 and 5 (by rounding off to the nearest 1) on the Likert scale were selected in conjunction with meeting the other requirements already discussed. While I do not have any studies validating the use of this survey, I feel that the items capture both the intrinsic and extrinsic factors of motivation to study an L2. Admittedly, the cutoff average rating of 4 is quite arbitrary, but it was chosen to indicate that the participant likely has an above average motivation to learn English. I feel that the use of a generic survey on motivation would not as accurately tap into participants' motivation to study an L2.

3.2.6 Recruiting of Participants

Recruiting of participants occurred mainly through my personal connections with the Korean community. As such, participants were recruited who resided in South Korea. I utilized snowball sampling (Bogdan & Knopp Biklen, 2007) where the participants that I initially recruited suggested other people who meet my selection criteria. Out of nine

participants who were tested during session one, four were those with whom I had prior

associations with but who I was not in a position of power over. Three more of the

participants resulted directly from snowball sampling while the remaining two came from

friends of my wife who recommended people for participation. Six participants were

selected for participation, three for the control group and three for the treatment group.

The implication for such a small number of participants is that valid inferential tests, such

as the t-test or ANOVA, cannot be done because "if only a few [participants] are used,

what appears to be a large difference or relationship may not be statistically significant"

(McMillan, 2008, p. 267). This inability, however, to do valid inferential statistics is not

problematic because of the exploratory nature of this research. Furthermore, the

methodology of this study is quite laborious and therefore it is not practical at this stage

of the investigation to utilize a large number of participants. Rather than seeking

statistically significant data, I aim to search for possible avenues of future research. If

there appears to be large differences between the groups, for any aspect of the

investigation, future studies utilizing larger numbers of participants and inferential

statistics may be possible. Besides, there is a difference between statistical and practical

significance. Researchers who aim for practical significance, while recognizing the

contributions of statistical significance, therefore argue that "[t]he results of inferential

analyses should not be the sole criteria for conclusions about changing a practice or other

decisions" (McMillan, 2008, p. 267). My sociocultural positioning of this research makes

clear that statistical significance is not the sole criteria for whether explanatory notes may

be a good alternative instrument for educators to utilize.

Each participant received a consent letter outlining the research and their role in it. They were fully informed that they can discontinue their participation in the study at any time with no repercussions. In addition, the consent letters make clear that their participation is anonymous with pseudonyms used in place of the participants' actual names and that in the event that their answers during the interview stage of the research contains identifying information, such as the names of cities, schools, teachers, etc., pseudonyms would also be used. In addition, the consent letters explain that the audio recordings and all transcripts are to be stored in a safe place that only I have access to and that transcription of all audio recordings were also to be done solely by me to further ensure anonymity of the participants. The consent letters also fully disclose that there is no compensation to be given to the participants other than those which are intrinsic to participation, such as practicing their English and sharing their ideas about second language learning and teaching.

3.3.0 Data collection

This section will discuss the procedures, instruments, and rationales used for data collection. Participant selection and data collection occurred on three separate days, each within approximately a week of each other; the first two sessions lasted approximately an hour and the third lasted less than 30 minutes. It is felt that this separation was necessary in order to reduce the participants' extraneous cognitive load (Sweller, 2010). In other words, having shorter sessions may keep the participants' motivation at a high level and lessen its impact as a confounding variable. The short interval between sessions also

makes it unlikely that the participants' vocabulary knowledge will have significantly

changed within that time period.

3.3.1 Data Collection Procedures (Session 2 and 3)

Data was individually collected from each participant at mutually agreed upon

locations and times. Each participant in the treatment group was introduced to a sample

text using explanatory notes. I ensured that the participants understood that the

explanatory notes are definitions for the words below them. The L1 explanatory notes

used in the text were created by translating the vocabulary in the text into Korean that

were determined by Thorndike and Lorge (1944) as occurring less than 50 times per

million words.

The Participants were told that they had to read a short article and that they would

be required to retell the story afterwards. I stressed that the participants do not have to

memorize the story word-for-word; they just have to be able to discuss what it was about

in as much detail as possible. They were not, however, able to read the article again once

they finished reading it the first time. They also had a 20 minute time limit. This time

limit was used to discourage memorization as well as being representative of the amount

of time a content instructor may give students to read it. It is felt that this procedure is a

good indirect way to test reading comprehension because in the retelling of the story the

participants must use mostly their own words because not enough time is provided for

complete memorization. The article chosen is also valid for representing academic text

because Zhang and Anual (2008) have found that academic text generally consists of 5%

low frequency words, while the chosen article in this study contains 11% low frequency

words. I placed the article face down in front of the participants and instructed them to flip the paper over once they were ready to read and to flip it back over when finished.

Once the participants were finished reading the article, they were asked how difficult the reading was on a 9-point Likert scale (1 being extremely easy and 9 being extremely difficult). The remainder of the session was audio recorded. The participants had to retell the story in as much detail as possible. This oral recall was timed, but since it was audio recorded, the timing can be done afterwards. In this way, the participants were not be distracted by the presence of a timer.

It is the recalls of the article which forms the backbone of the methodology of this study, which is an adaptation of Bartlett's (1932) method of repeated reproduction. Bartlett's (1932) methodology involves giving a participant a story and having him/her reproduce it after an interval of 15 minutes, followed by further reproductions at intervals of increasing lengths. While Bartlett (1932) had his participants write their recalls, my participants will recall the article orally. While this added a great deal of work for me in terms of transcription, it was necessary to fully investigate the effects of explanatory notes on L2 production. Writing the recalls would allow the participants to see what they previously wrote and to consider changes. This would hide the effects of explanatory notes on L2 production because of the decoupling of L2 production and recall. In other words, the working memory only becomes overloaded with the concurrent processing of novel information, in this case the recalling of events in a story and the organization of L2 speech needed to report these events. If the participants have a chance to revisit what they said, they can focus solely on correcting grammatical mistakes. While the content of the story may still be wrong, grammatically it may be correct. As such, one would not be

able to investigate the functionality of the grammar used as a result of the presence or absence of explanatory notes.

The participants recalled the article four times; once immediately after reading the article, then two more times separated at intervals of approximately 15 minutes. The fourth recall occurred about a week later. Bartlett (1932) used longer intervals, however he found that with frequent reproduction "the form and items of remembered detail very quickly become stereotyped and thereafter suffer little change" (p. 93). The longer interval for the fourth recall was to test whether the article becomes successfully integrated into the long-term memories of the participants in both the control and treatment groups. Another difference between the methodology of this study and that of Bartlett's (1932) is that the gap between each recall in the second session was filled by interviewing each participant using a semi-structured format. While an interview protocol (See Appendix A) was utilized, the Researcher gave the participants latitude to control the direction of the conversation on the topic of English education/learning. While the data from this interview is useful for discussing the findings of this research, it primarily acts as a distraction for the participants as well as a control for L2 production, as it is text-independent. As such, the conversation varies from participant to participant and each topic that arose was not discussed in great lengths. The qualitative results of analyzing the interview should be considered a starting point for discussion and not the final say on the matter.

3.4.0 Analysis of Data

This section will discuss how the data collected was analyzed in order to test/answer the previously stated hypotheses and research questions. Analysis of data makes use of methods derived from both quantitative and qualitative studies. In order to make clear how the analyses will test/answer the hypotheses/research questions, I will consider each hypothesis/ question separately. It is also important to note that all mathematical calculations make use of significant figures and therefore rounding off with consideration to significant figures may result in answers which appear less or greater than expected. The use of significant figures in all calculations takes into account the accuracy with which each value is measured.

3.4.1 Analysis of data for hypothesis 1

The first hypothesis states that text with explanatory notes written in the participants'L1 will increase their reading and oral fluency. Both the control and treatment groups had their reading of the text timed. Reading fluency was calculated by dividing the number of words read by the number of minutes it took for the participants to read them. Reading fluency was also adjusted by dividing the number of different words in the article by the number of minutes it took for the participants to read them. The text without explanatory notes used in this study has 374 total words (including the title) and 207 different words. While the explanatory notes version has more than 374 words if the L1 words are included, only the number of L2 (English) words are used for the calculation of reading fluency. Therefore in the event that the reading fluency of the treatment group is higher than, or the same as, the control group, one may argue that this

first hypothesis is supported. Note that this argument is still valid even when both groups have statistically equal reading fluency rates because the participants in the treatment group, in addition to reading the L2 words, may have also read the L1 explanatory notes. The reading fluency of the treatment group may therefore be underestimated if one was to consider both L2 and L1 words. Where the reading fluency rate of the treatment group is lower than the control group, the hypothesis is not supported. In this case, two possibilities exist for the failure of the hypothesis. First, explanatory notes may be a distraction that actually inhibits reading fluency and learning. The second possibility is that EAL learners in the treatment group may be reading all of the words (both L1 and L2) thus the failure of the hypothesis may be due to underestimating the reading fluency of the treatment group.

In isolation, the results of reading fluency, as discussed above, does not give much insight into the effects of explanatory notes on L2 production as one can speculate the causes for the findings that either supports or opposes the benefits of explanatory notes. For example, it is possible that participants in the control group may reread passages of the text more than the treatment group, thus lowering their reading fluency rate. However, this increased processing of the text may have more beneficial effects on recall and vocabulary. Therefore the results for reading fluency will only become meaningful in conjunction with the findings of this study as a whole.

The calculation of oral fluency was calculated in much the same way as reading fluency. After transcription of the audio-recordings, the number of words the participants used in their oral recall of the article was divided by the number of minutes it took them to fully recall the text. In order to eliminate the effect that stuttering or repeating the same

word has on fluency rates oral fluency was also adjusted to account for only the number of different words used per minute. Incomplete words and fillers, such as "um" were not used in these calculations. The time taken for interjections and questions from the Researcher, primarily during the interview, is omitted in the calculations of oral fluency. Note that oral fluency was calculated on four separate occasions, representing the oral fluency of the participants for each recall. The first hypothesis was expected to be supported more during the first and second recalls of the text. If this phenomenon is indeed observed, it can be explained by the observation that "in a chain of reproductions obtained from a single individual, the general form, or outline, is remarkably persistent, once the first version has been given" (Bartlett, 1932, p. 93). In other words, the first reproduction, or recall, is highly dependent upon the text while successive recalls are built upon previous recalls, with the gaps filled in and organized by each participant's prior knowledge. Where the treatment group has a higher oral fluency initially, the hypothesis can be supported, even if the differences between oral fluency rates decrease with successive recalls.

Oral fluency rates were also calculated on participants' answers to interview questions. Since these narrations are text-independent, they can act as a control for oral fluency. It was theorized that if participants in the control group exhibit lower oral fluency rates during the recalls, then it can also be expected that these participants' text-independent speech will exhibit a greater rate of oral fluency. Less of a difference was expected to be observed between text-dependent and text-independent speech within the treatment group. Oral fluency rates, however, offer little insight into L2 acquisition and skill development without consideration to other findings of this research because one

may be able to say a lot of words within a minute without being comprehensible and/or accurate.

3.4.2 Analysis of data for hypothesis 2

The second hypothesis states that text with explanatory notes written in the participants' L1 will increase their oral use of L2 low frequency words. This hypothesis assumes that when the working memory is not overloaded that it has more resources available to recall previously acquired low frequency words. In this situation, an EAL learner can move from the declarative stage of skill acquisition to the procedural and automatic stages (DeKeyser, 2007). Here I see the declarative stage of skill acquisition as having mostly occurred prior to this study. EAL learners undoubtedly have acquired many low frequency words which they have not had the opportunity to effectively use, either due to situational or cognitive reasons. The theoretical argument that a mind whose working memory is not stressed will more easily be able to recall previously acquired low frequency words is consistent with constructive theories of learning which argues that knowledge is integrated into schemata, "unit[s] of organized knowledge about events, situations, or objects, one[s] that [guide] informational input and retrieval (Leahey & Harris, 1985)" (Elliott et al., 2000, p. 251). Multiple connections between schemata only become possible by integrating acquired knowledge with one's prior experiences. Therefore the more schemata a low frequency word is attached to, the more integrated it is in one's long-term memory and the easier its retrieval. Logically then is the assumption that if low frequency words have not been practiced during authentic contexts, the less synaptic connections there will be for this word and the more cognitive resources needed for its retrieval.

Using frequency counts from Thorndike and Lorge (1944), I counted all of the low frequency words the participants orally used for each recall, as well as those used to answer interview questions. These low frequency words did not need to be only those used in the text. These numbers then was represented as a ratio between the number of low frequency words used and the total number of words used. This ratio was then also adjusted to account for only the number of different low frequency words used per number of different words used. This adjusted value eliminates the effect of frequently using the same low frequency word and thus affecting the ratio. It was expected that the treatment group would have a higher ratio compared with the control group, especially during the early recalls. In addition, there was expected to be a greater difference in ratios between text-dependent and independent speech within the control group than within the treatment group. As with oral fluency, the speech used to answer interview questions act as an internal control due to its independence from the text. Also note that incorrectly used L2 low frequency words will be counted and therefore accuracy is not a part of this hypothesis. The reason for counting incorrectly used words is the expectation of errors during the transition from the procedural to the automatic stages of skill acquisition (DeKeyser, 2007).

3.4.3 Analysis of data for hypothesis 3

The third hypothesis states that text with explanatory notes written in the participants' L1 will increase the functionality of their oral grammar. Bardovi-Harlig (1992) found that the use of time adverbials decrease as the accurate use of past-tense verb morphology increases, however this shift is not simultaneous and may reflect the influence of the working memory. Carter (2010b) argues that this phenomenon results

from the limitations of the working memory. When the working memory is stressed, cognitive resources become limited and therefore redundancies in speech must be reduced in order to conserve these resources for the production of comprehensible speech, especially when past-tense grammatical structures are not fully integrated in the long-term memory. As time adverbials become more integrated in the long-term memory, more resources become available to allow the learner to enter into the procedural stage of skill acquisition (DeKeyser, 2007) for past-tense verb morphology. Within this stage there is expected to be erroneous use of past-tense verb morphology until one passes into the automatic stage of skill acquisition (DeKeyser, 2007). It was therefore expected that the control group would show a higher frequency use of time adverbials and a lower frequency use of past-tense verb morphology compared to the treatment group.

Frequencies were calculated as a ratio between time adverbials; verbs with past-tense morphologies (lexical irregular forms and lexical regular forms); verbs unmarked for past-tense; auxiliary verbs and the total number of verbs used for each sample. Each verb and time adverbial was counted only once to eliminate the effect that repeating the same verb frequently would have on these calculations. Using past-tense as a means to determine the functionality of the participants' grammar is valid because the recalls of the text lend themselves to using past-tense grammatical structures.

3.4.4 Analysis of data for hypothesis 4

The fourth hypothesis states that text with explanatory notes written in the participants' L1 will increase their accurate retention of content. To test this hypothesis I

have selected 11 details from the article that were used to analyze the participants'

recalls:

1. Dorothy traveled to Africa.
2. The town was dirty.
3. Dorothy got food poisoning.
4. Dorothy's friend got malaria.
5. Dorothy took her friend to the private hospital.
6. The next day they both took a plane back to America.
7. The experience caused Dorothy to reflect about health care in poor countries.
8. Dorothy argues that it is impossible to fight diseases caused by infections without money for food and clean water to drink.
9. Dorothy argues that doctors are more concerned about the curative effects of medicine than why people become ill.
10. In the rich world many diseases are caused by affluence.
11. Other diseases in the rich world are caused by hazards.

The maximum score for each participant is therefore 11/11 for each recall. These

scores are converted to percentages. Also note that the participants did not need to use the

exact wordings of the details listed above, as long as their recalls conveyed their

meanings. In addition, had the participants used examples from their own prior

experiences that relate to one of the points above, it would have been counted as correct.

For example, if they had been discussing diseases caused by affluence and they had used

the example of diabetes instead of heart disease, it would have been marked as correct for

point number 10 above. The reason for this acceptance is the recognition that we interact

with text by bringing to it our own prior experiences. This interaction thus affects how we

remember what we read; "That is, memory is believed to be more of a reconstruction of

past events than a literal recalling of them" (Elliott et al., 2000, p. 251). The scoring for

accurate retention of content is admittedly subjective and therefore to give the greatest

latitude in answers 1 point was awarded for clearly correct recall of details from the story

and 0.5 for partially recalled details. The Researcher did not assist the participants through any interactions.

3.4.5 Analysis of data for hypothesis 5

The fifth hypothesis states that text with explanatory notes written in the participants'L1 will be less cognitively demanding. After both the control and treatment groups finished reading the article they had to answer how difficult the reading was to understand on a 9-point Likert scale utilizing the following options: 1 - extremely easy, 2 - very easy, 3 - moderately easy, 4 - slightly easy, 5 - neither easy nor difficult, 6 - slightly difficult, 7 - moderately difficult, 8 - very difficult, or 9 - extremely difficult. Then using the cognitive efficiency formula $(E = P /R)$ developed by Kalyuga and Sweller (2005), the cognitive efficiency of the control and treatment groups were calculated for the participants' retention of content and oral recall of the low frequency words used in the article. Also note that separate calculations will be made for each recall.

The validity of using this formula can be called into question considering that it has only been used in reference to learning mathematics in an E-learning environment; however the general premise fits for how I am using it. The features of this formula dictate that "efficiency is higher if similar levels of performance are reached with less effort or, alternatively, higher levels of performance are reached with the same mental effort invested" (Kalyuga & Sweller, 2005, p. 87). As P stands for performance, one can use the raw scores from the participants' retention of content (see above) for this variable. As the variable R stands for the mental effort expended in completing a task, its value is

determined by the Likert Scale discussed above. While the P variable may vary with each recall, the R variable is fixed for the calculations. The rationale for this is that since all of the recalls are based on the reading, all subsequence performances are also based on the mental effort expended during the reading task. In this way, the effect of L1 explanatory notes on the cognitive efficiency of retaining content may be determined.

Similarly, this formula was used to test the cognitive efficiency of using explanatory notes to recall the specific low frequency words from the text. Each recalled word from the text was counted only once and different derivatives of each word were also accepted, such as poisoness for poisoning. Therefore with 39 low frequency words used in the article, the maximum P score is 39/39 for each recall.

The cognitive efficiency values calculated above are subjective in that they have no meaning unless the values of the control and treatment group are compared with each other. Since they were calculated in the same way, the group with the higher E rating thus indicates higher cognitive efficiency. An alternative way to analyze the data is in comparison with a critical level of cognitive efficiency (Ecr = Pmax / Rmax; see Kalyuga & Sweller, 2005).

> The rationale for such levels was based on the general assumption that if someone invests maximum mental effort in a task but does not display the maximum level of the task performance, his or her cognitive performance should not be regarded as efficient […] On the other hand, if someone performs at the maximum level with less than maximum mental effort, his or her cognitive performance should be regarded as efficient. (Kalyuga & Sweller, 2005, p. 87).

Taking the calculation for the cognitive efficiency of content retention as an example, the maximum performance rating is 11/11 (or 1) and the maximum cognitive effort is 9. Substituting these variables into the equation yields a critical level of cognitive

efficiency (Ecr) of 1/9 (0.1). Both the control and treatment groups can now be discussed as being competent or less competent in terms of the factors being tested (content retention and vocabulary knowledge). Where E >Ecr, the cognitive performance of the group can be considered efficient and the individuals competent. Where E < Ecr, the cognitive performance of the group can be considered relatively inefficient and the individuals less competent (Kalyuga & Sweller, 2005).

3.4.6 Analysis of data for research question 1

The first research question asks what methods or conditions do Korean students feel helps them improve their English reading / speaking? Despite this interview acting primarily as a distracter and an internal control for the two groups, the answers are ones which may give insights into the practicality and possibility of using L1 explanatory notes as an instructional instrument. I read through all of the transcripts, looking for patterns and coding them. My aim was not to look for very specific methods, such as the SQR3 method (Robinson, 1970), but rather more global ones addressing such things as the participants' comfort levels, their means of seeking help, and their use of their first language. These more global methods are therefore thought to encompass their entire learning experience regardless of which specific method is utilized. This procedure was taken in part to ameliorate the limitations of this study in terms of traditional qualitative methodologies. The methodology of this research is such that the documentation of rich data and saturation of the participants' ideas were not fully established. Recognizing that the aim of qualitative research is one of understanding, it is felt that within the limitations of this study that the overarching sentiments of the participants more aptly represents their perspectives on English learning methods than any one specific example which they

have disclosed. In discussing the results of this paper I also utilized a critical lens (Freire, 1970) through which inherent power structures may become illuminated and which therefore may have influenced how learners' view their own language learning process. Specifically, I make an argument about how the findings relate to Freire's (1970) antidialogical action of manipulation and dialogical action of cooperation as applied to globalized English (Carter, 2010c). However, Freire's (1970) other antidialogical and dialogical actions are also considerations while discussing the results.

Freire (1970) identifies four antidialogical actions: conquest; divide and rule; manipulation; and cultural invasion. He also balances each of these antidialogical actions with four dialogical ones: cooperation; unity for liberation; organization; and cultural synthesis. These actions are used as a backdrop in discussing the findings. The use of this critical lens addresses the difficulty in implementing instructional scaffolds where students have been conditioned against their use. For example, if learners believe that the best way to acquire English is by not using their L1, it may then be argued that they have adopted the lens of the dominant English culture and therefore view themselves as the dominant culture views them. If learners believe that an instrument is ineffective they will rebel against its implementation, thus a strong belief on the part of the educator would be a requirement for implementation in order to counteract the learners' scepticism. However; as much as the educator may believe in an instrument, the learners must be the ones to embrace its implementation, thus they must look at their language learning from a critical perspective. This situations leads to the second implication; that in order to create liberating pedagogies educators must act as compatriots of EAL learners by discussing with them the power issues involved in learning English. While the

easier route would be to abandon L1 instruments, especially in light of the possible

beliefs of learners, the more liberating one is to explore all avenues that may both

empower and educate learners. Discussing English learning through a critical lens with

the learners themselves and conducting research in light of these discussions would

validate some of the investments that EAL learners and their families have made to learn

English, especially in Western nations. While fully investigating the utilization of critical

pedagogy in courses with EAL students is beyond the scope of this research, critical

analysis of the interviews may help to identify the need for implementation of L1

instruments, as well as the potential obstacles that are needed to overcome.

The application of this critical analysis recognizes that "No educational theory

bears fruit in a social vacuum; if it is to assume the living form, it must find lodging in

some social environment" (Counts, 1927, p.82). Research into the effects of L1

explanatory notes on L2 oral production is therefore an exercise in futility if the social

context is not taken into consideration. My aim is therefore to breathe life into this study

while simultaneously recognizing that this critical element remains incomplete due to the

vast contextual differences between instructional settings. It does, however, allow

educators to consider their own context and reflect on their own practices. Through this

reflection they may decide to experiment with the utilization of L1 scaffolds and by doing

so contribute to the pedagogical and theoretical discussion as it relates to EAL learners.

In this way, the parameters of particularity, practicality, and possibility (Kumaravadivelu,

2003) are all met.

3.4.7 Analysis of data for research question 2

The second research question asks what aspects of the story are remembered and emphasized by Korean EAL learners in both the treatment and control groups. Analysis of the data for this question may therefore identify the role that culture plays in the interpretation of text and how L1 explanatory notes affects this interpretation. It is reasonable to suggest that any similarities in recalls between the control and treatment groups are a result of cultural influences, especially in consideration to omissions from the text and inclusions not originally present in the text. The differences on emphasis between the control and treatment groups may therefore indicate the degree in which L1 explanatory notes facilitates reading comprehension with respect to one's cultural background.

To help compare the recalls of both the control and treatment group composite recalls were created using the data generated from each participant in the control and treatment groups for accurate retention of content by first averaging the participants' scores for each of the 11 selected details from the story. Each selected detail with an average score of 0.5 or above is included in each group's composite recall. Then each group's transcripts were reviewed for each of these details and the wordings for the composite recalls were chosen as being representative of the participants' speech. Comparisons of these composite recalls are then used to analyze the effect of L1 explanatory notes on recall of a text. It should be noted that creation of these composite recalls make use of both quantitative and qualitative methods and therefore there can be some debate as to the validity of my choice of wording for them. Regardless; these

composite recalls do help to consolidate and simplify the data by only showing the most common recalled information for each group and eliminating redundant information.

3.5 Methodology Summary Statement

The methodology of this study is quite extensive, which creates a problem with the presentation of the raw data and the calculations involving it. The following chapter will therefore present the findings with respect to each group's performance. I will then walk though Leila's data and show how the calculations were made.

Chapter 4

Results

4.0 Summary of Results

The results show that there is little difference between the control and treatment groups. The treatment group appears to have a slight advantage when it comes to reading fluency (see figure 1), whereas the advantage appears to be with the control group for all other categories. The greatest difference between the two groups appears to be with their use of past-tense vocabulary (see figures 7 and 8). While both groups made use primarily of verbs unmarked for past-tense, the control group made greater use of lexical irregular verbs and lexical regular verbs in the past-tense. Regardless of which group has the advantage in particular categories, both the control and treatment groups have cognitive efficiency ratings for accurate retention of content and vocabulary which suggest that all participants' cognitive performances are inefficient (see figure 10). It should also be noted that the sample size is too small and the deviations between individual participants too great to allow for calculations of statistical significance.

The participants in this study also report, either directly or indirectly, that in order to learn English they must be comfortable, have self-actualization, and increase their interaction with the target language. The participants are also largely against the use of L1 explanatory notes for their own learning, fearing that they reduce their interaction with the L2 and lead to long-term struggles with acquisition. The remainder of this chapter presents the data and their calculations in greater detail. The implications and limitations of these results are discussed in chapter 5.

4.1 Participants' Reading Fluency

The results show that the treatment group outperformed the control group in terms of reading fluency by 7 words per minute (total) and 3.8 words per minute (adjusted). These results are in support of the hypothesis which states that text with L1 explanatory notes will increase participants' reading fluency. However; cause and effect cannot be firmly established in consideration of the small sample size and large deviations between participants.

Figure 1: Participants` Reading Fluency
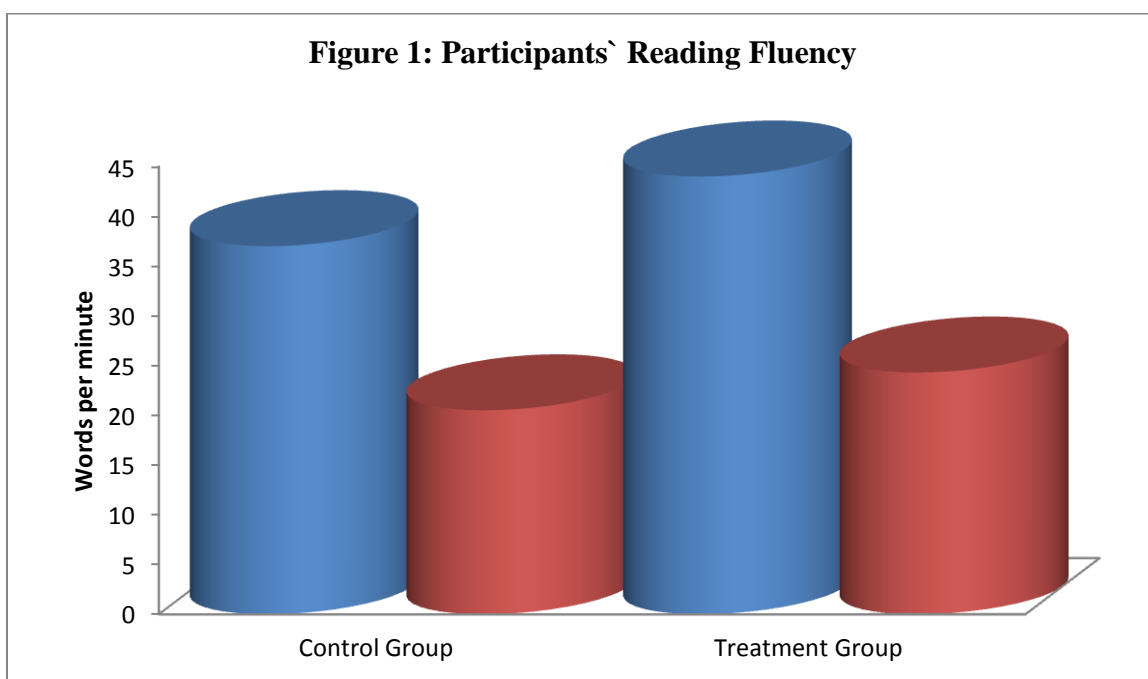
4.2 Participants' Oral Fluency

The results show that overall the control group outperformed the treatment group in terms of oral fluency during the recalls (see figure 2). In terms of total oral fluency, the treatment group had a greater performance by 6 words per minute in the first recall. The control group then went on to outperform the treatment group in recalls 2 and 3 by 7 and

1 words per minute respectively. Both groups had the same performance in recall 4 and their best performances were during recall 3. In terms of adjusted oral fluency, the control group outperformed the treatment group in all 4 recalls by 4, 4, 2, and 7 words per minute respectively. Both groups had their best performance in recall 3. While these results do not support the hypothesis that text with L1 explanatory notes will increase the participants' oral fluency, cause and effect cannot be firmly established due to the small sample size and large deviations between participants.

Figure 2: Participants`Oral Fluency Across Four Recalls
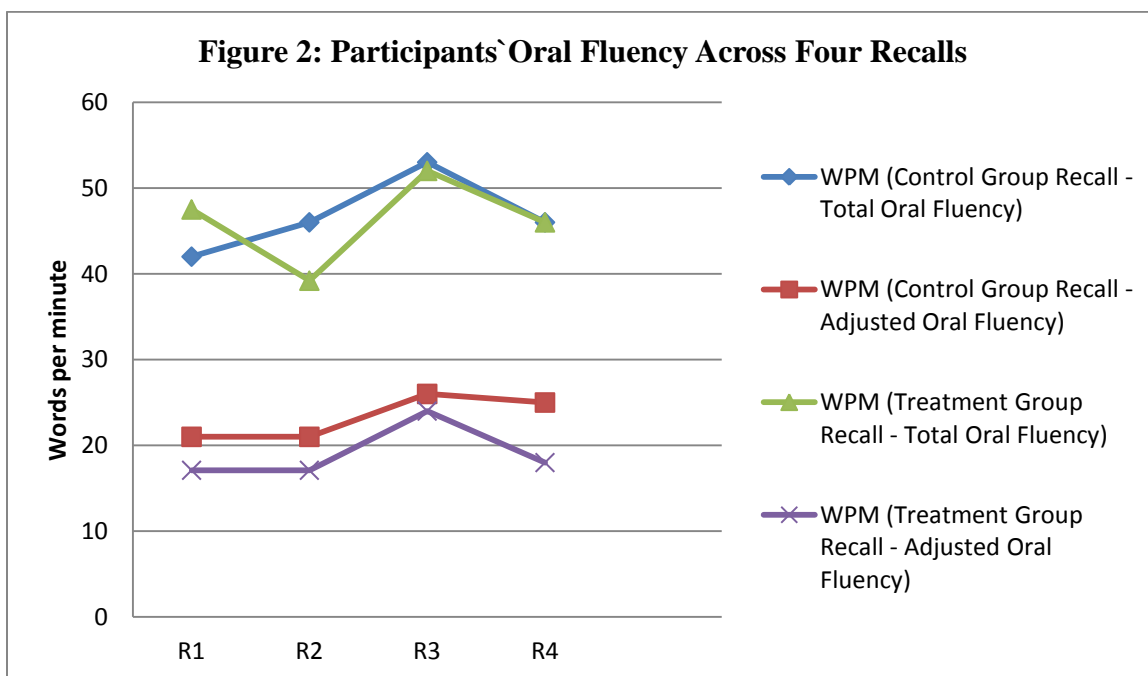
The interview acted as an internal control for both groups. The control group outperformed the treatment group for both the total and adjusted oral fluencies by 3.9 and 0.5 words per minute respectively (see figure 3). As the adjusted oral fluency is a better indication of the participants' oral fluency, both groups matched up fairly well in this category thus suggesting that comparisons between these two groups are valid.

Figure 3: Participants` Oral Fluency During the Interviews
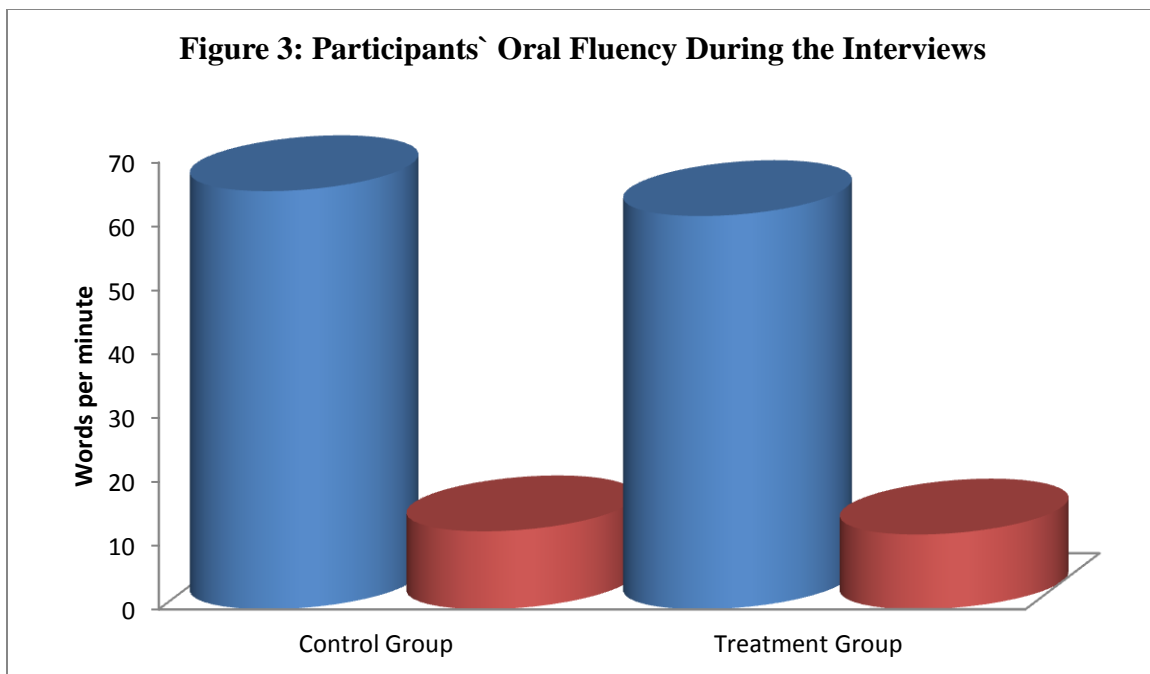
4.3 Participants' Use of Low Frequency Vocabulary

Figure 4 shows that while the total use of low frequency vocabulary (LFV) is very similar between the two groups, their adjusted use shows marked differences. The most notable difference is seen during recall 2 where the control group has a positive spike in the use of LFV. While the control group used more LFV during their interview (see figure 5), possibly indicating a larger working vocabulary than the treatment group, the spike must have been from recalling LFV from the article as Figure 6 also has a large spike for the control group during recall 2. Despite the treatment group recalling slightly more LFV during recall 1 (see figure 4) these results do not support the hypothesis that text with L1 explanatory notes will increase the participants' recall and use of LFV. However; cause and effect cannot be firmly established in consideration of the small sample size and large deviations between participants.

Figure 4: Participants` Use of Low Frequency Vocabulary Across Four Recalls
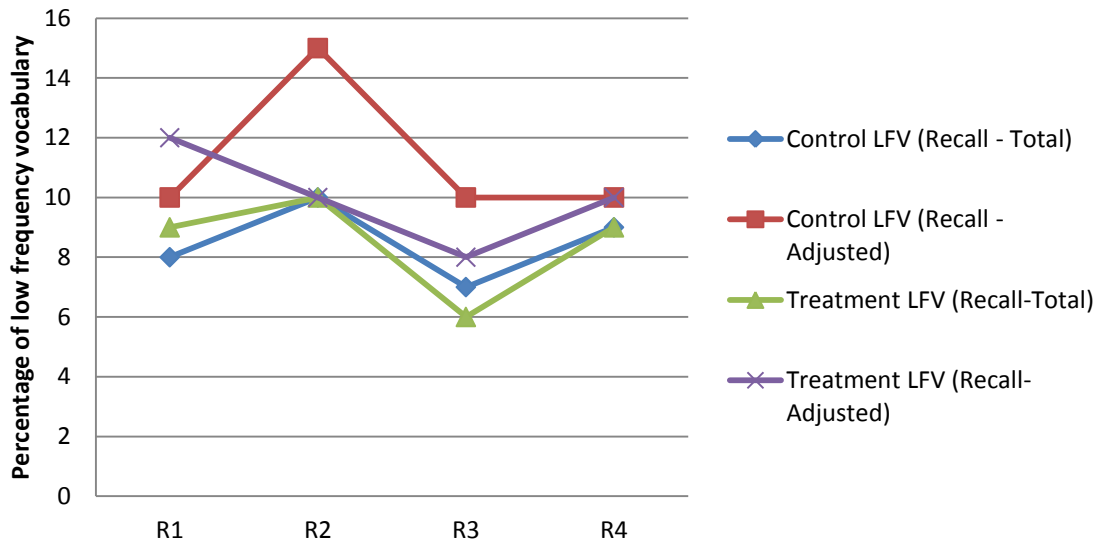
Figure 5: Participants` Use of Low Frequency Vocabulary Across During the Interviews

Figure 6: Participants` Percent Recall of Low Frequency Vocabulary From the Story Across Four Recalls
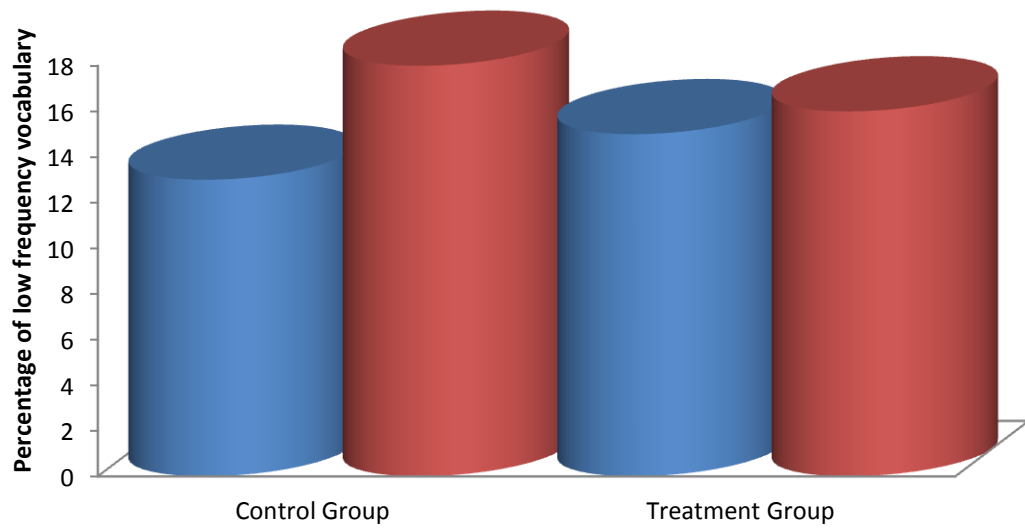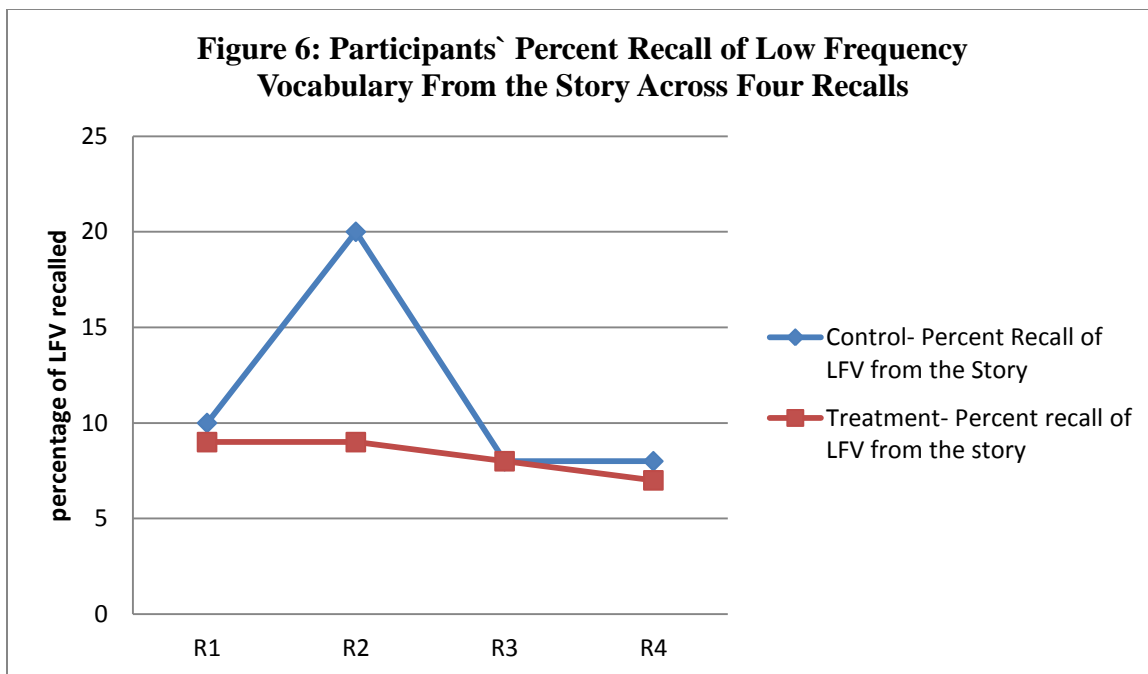
4.4 Functional grammar

Figures 7 and 8 show that both the control and treatment groups make the most use of verbs unmarked for past tense. The control group appears to make greater use of functional grammar in reference to past-tense forms with their use of irregular verbs in the past-tense ranging in frequency from 0.1 to 0.4. In contrast the treatment group's frequency-of-use for this form never exceeds 0.1. These results do not support the hypothesis that text with L1 explanatory notes will increase the participants' functional use of grammar. However; cause and effect cannot be firmly established in consideration of the small sample size and large deviations between participants.

Figure 7: Control Group`s Frequency-of-use of Verbs and Time Adverbials Across Four Recalls

Figure 8: Treatment Group`s Frequency-of-use of Verbs and Time Adverbials Across Four Recalls
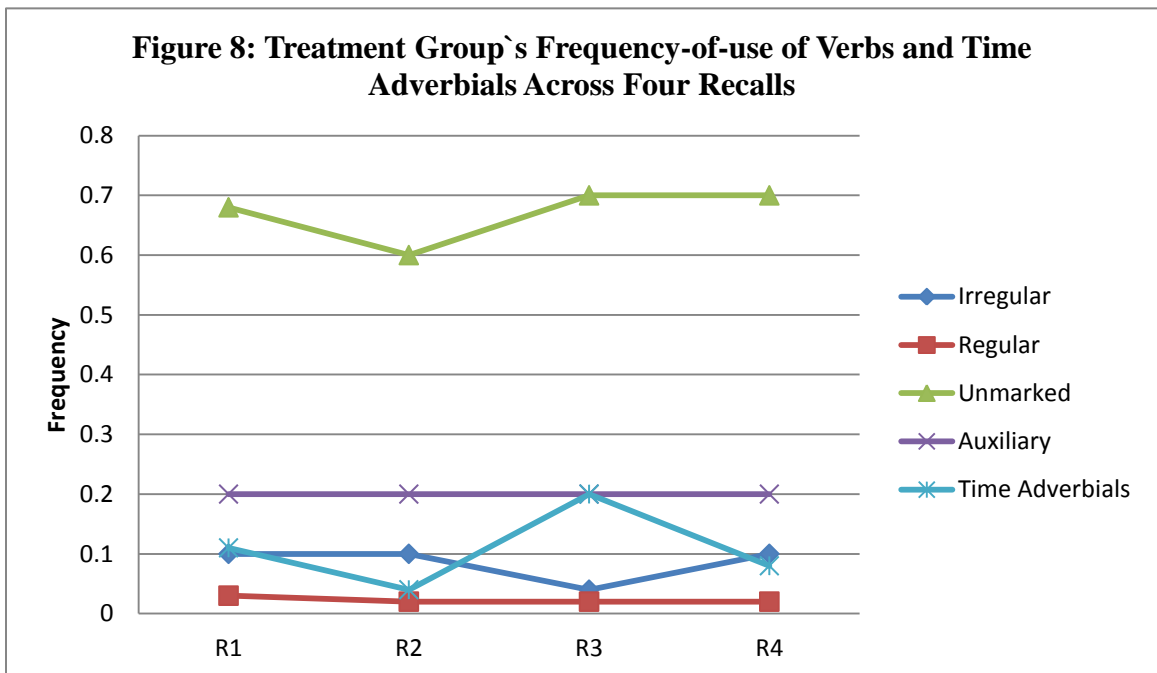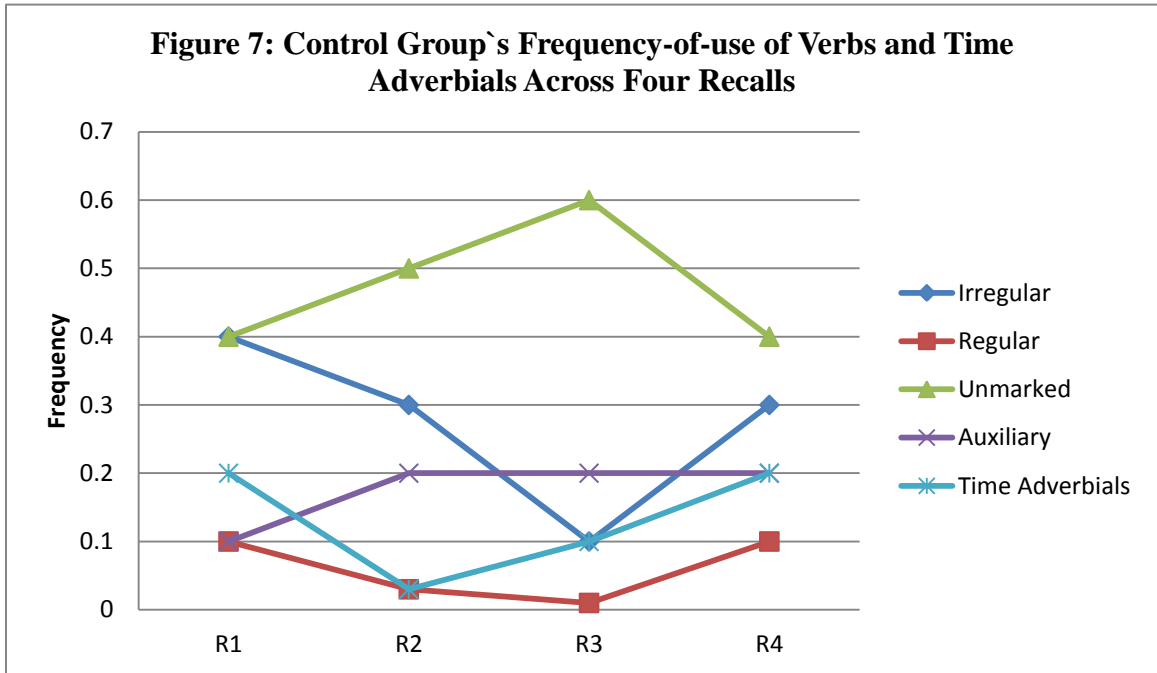
4.5 Participants' Accurate Retention of Content

The results show that the control group overall retained more accurate content than the treatment group (see figure 9). Interestingly both groups' performances declined rapidly during recall 3. A week later (recall 4) the performance of the control group recovered but that of the treatment group did not. These results do not support the hypothesis that text with L1 explanatory notes will increase the participants' accurate retention of content. However; cause and effect cannot be firmly established in consideration of the small sample size and large deviations between participants.

Figure 9: Participants' Percentage of Accurate Retention of Content Across Four Recalls
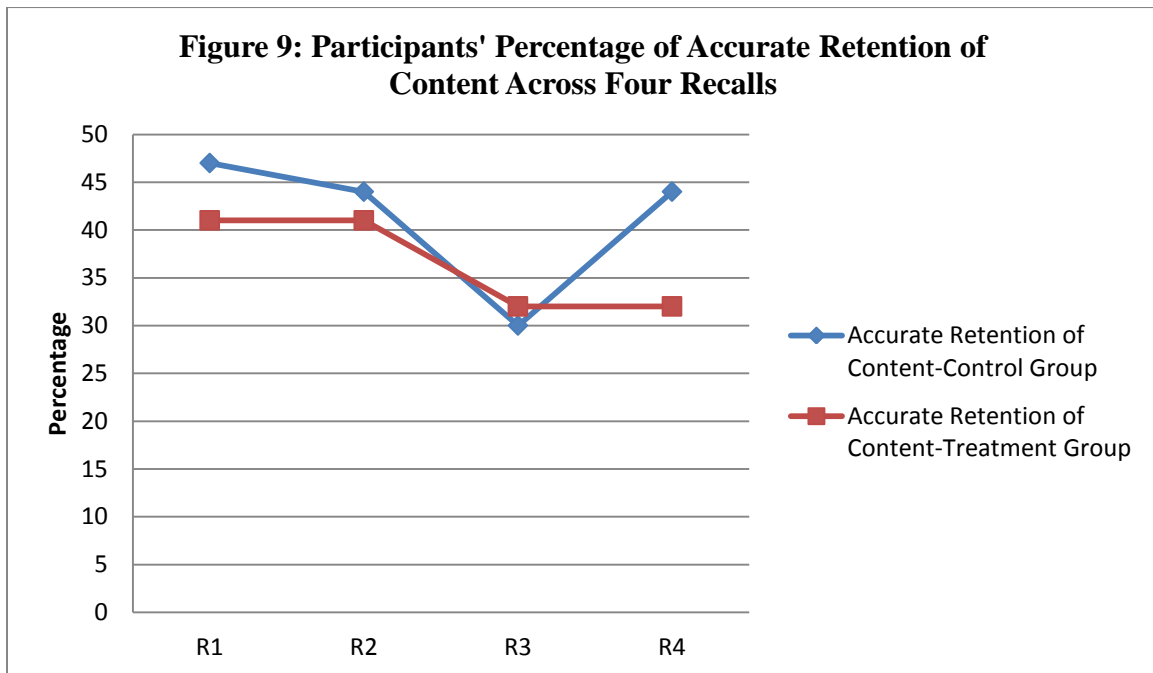
4.6 Participants' Cognitive Efficiency

The results show that both groups' cognitive efficiency ratings are very similar to each other, yet neither group came close to approaching the critical level of cognitive efficiency (The 0.1 line on figure 10). These results suggest that both groups'

performances are inefficient. These results also do not support the hypothesis that text with L1 explanatory notes will increase the participants' cognitive efficiency. However; cause and effect cannot be firmly established in consideration of the small sample size and large deviations between participants.

Figure 10: Participants' Cognitive Efficiency Values Across Four Recalls
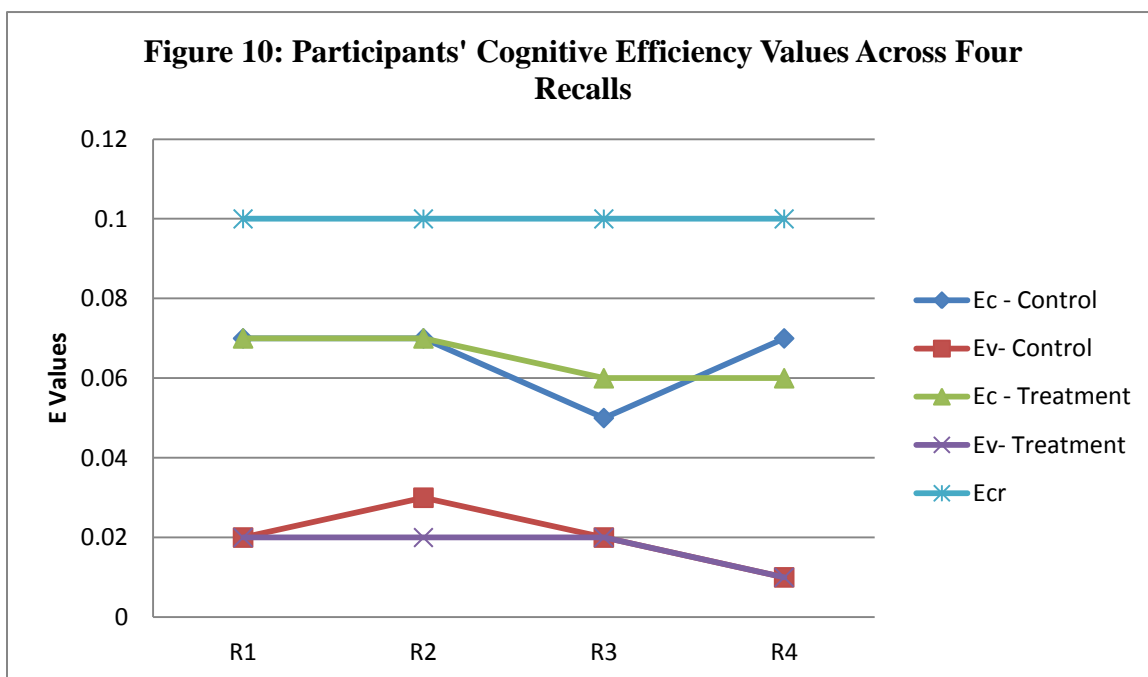
4.7 Best conditions for learning English

In order to implement any new pedagogical tool it must first be accepted by the students for which it was designed to help. This study explores the use of L1 explanatory notes as a scaffold for Korean students learning English. In order to begin to understand the quantitative results of this study or the possibility for any implementation of L1 Explanatory notes, we must first understand what the students themselves see as the best methods or conditions for learning English and whether the implementation of explanatory notes are congruent with them. It should also be noted that since one of the objectives of the interview was to act as a short-term distraction for the participants in the

quantitative portion of this study, saturation of rich data was not obtained and therefore

this data should be viewed as only the starting point for discussions on Korean English

learners' views on the best methods or conditions for learning English. To ameliorate the

limitations of this data, I looked for conditions which were common with at least 3 of the

six participants. While there are certainly qualitative limitations in the methodology used

for the interviews, there are also benefits. A variety of topics were able to emerge from

the interviews since each individual topic was not explored to the point of saturation.

These topics include the use of first languages, studying abroad, Konglish, and comfort

levels. This study is exploratory in nature and therefore the emergence of a variety of

topics is desirable, despite the inherent limitations concerning trustworthiness.

Through analysis of the transcripts emerged three main conditions for Korean's to

learn English: 1) The learners must be comfortable 2) The learners must have self-

actualization and 3) The learners must increase their interaction with the target language.

Each of these conditions is introduced below along with excerpts from the participants'

transcripts that are representative of these views. How these results are viewed through a

critical lens is discussed in Chapter 5. The issue of whether L1 explanatory notes are

viewed by the participants as being a useful pedagogical tool is explored separately at the

end of this section.

Comfort

The participants indicated that in order to learn and practice English well they

have to feel comfortable. The participants discussed various ways in which comfort helps

them to learn English, ranging from reading fun and interesting books to studying with

those who are friendly. The most interesting though is that each of Leila, Erin, and

Helena is more comfortable speaking English to foreigners as opposed to Koreans. The

reason for this comfort has little to do with the expertise of the foreigner in speaking

English but with the foreigner's inability to speak Korean. Therefore speaking with

foreigners or having foreign teachers may be one way for increasing comfort in learning

English for Korean students.

> Because I felt, believe more nervous with, talk with Korean, another
> Korean and who I know, who I know. So I just really nervous.
> […]Sometimes I feel that something like, um, for example, my cousin,
> and live in America. She, she can't speak Korean, so, so I can, I can speak
> English with her. Just not nervous because she doesn't know Korean but, I
> don't know why, why I feel nervous talk with Korean. Just, I don't know.

> <div align="right">(Leila Interview, May 29th, 2011)</div>

> Uh, foreigner is a better person who can in English, uh, Korean who speak
> English because I think, mmm, Korean, uh, Korean knows the Korean but
> foreigners, uh, … When I talk, uh, English, mmm, uh, in front of
> foreigner, I, I speak more than words than Korean people. […] Mmm,
> mmm, oh I can't think. Ah, how do I explain the…? I mean, eh, foreigner
> is, foreigner doesn't know the, uh, uh, foreigner don't, do not, doesn't
> know Korean but Korean know, uh, the Korean. So when I, uh, speak
> front, uh, when I went to speak well, uh, I, I'm not shy more than, I'm not,
> I'm not shy.

> <div align="right">(Erin Interview, May 29th, 2011)</div>

> Also my English not too helpful for me because, um, yeah, I, I'm not
> comfortable to, I'm not comfortable, uh, talking to Koreans, Korean, I
> will meet the Korean on English, speaking English. […] Um, I don't
> know, um, just my inside. Uh, he, uh, they, they, the peoples Korean and
> then I kind of shy cause my pronunciation is not good for, uh, not very
> well so I'm just, I feel very small. But Korean it's ok because, uh, foreign
> people, they don't, they cannot say Korean word. It's same. Yeah, so I
> feel very comfortable that time and just, mmm, this, uh, that people is
> don't, cannot say, cannot, uh, speak Korean and they're not family. Yeah,
> and then that people's Korean pronunciation, mmm, not too good
> [laughs]and then who cares? So… […] I know but who's speaking
> English very well but I, I feel heavy. I'm just thinking, uh, I'm, I do speak
> Korean so teacher. But foreigner, they don't speak Korean. I'm just, ok,

he don't know. It, the teacher is cannot know Korean. Just I'm just practice, I have to study more English. So this, that good for me.

(Helena Interview, May 29th, 2011)

Self-Actualization

The condition of self-actualization emerged not from what a majority of the participants said but from what they did not say. O'Donnell was the only participant who made any mention of how a teacher helped her with learning English and even this showed the minimal responsibility the teacher had in helping EAL learners. In addition, Helena viewed reading as a solitary activity in which others could not help much.

I assumed she thought I, my face, facial expression, like, ooh, what, what, what I'm talking about, what she's talking about. So she had just asked me before I asking about what she just taught me […] Yeah, like, she, she, um, wrote about on the board, uh, she wrote like, uh, five to ten vocabularies on the board and then ask me, what does this mean? What does this mean? But I didn't know that. I didn't answer her. So she explain me, when this word with the, in a sentence, or something like that, so that was very helpful.

(O'Donnell Interview, June 11th, 2011)

Ah, reading. Yeah, reading is very important. Yeah, I know. Reading is, uh, reading is just by myself, just study. Someone, someone help but is, is not good, um, helpful. Because reading is just by myself is just, uh, practice and, mmm, just alone study. I think reading is, yeah.

(Helena Interview, June 3rd, 2011)

It appears then that the participants place the bulk of the responsibility for their English learning upon themselves and place little expectations on institutions or teachers in helping them with this process. Therefore Korean learners may have to be focused, persistent, and seek help on their own in order to be successful in learning English.

Interaction with Target Language

Overall, the participants indicated the importance of having to increase their interaction with the target language, especially with speaking. The majority of the participants indicated that speaking English is harder for them than reading English and that part of the problem is the lack of opportunities to engage in conversations.

> I think today's high school has more English time to speaking kor…, uh, uh, conversation time. But when I was high, um, when I was high school student, uh, don't have chance, uh, speaking English class so, so today is more have time than … [laughs]

> (Vivian Interview, May 21st, 2011)

> Uh, [Korean: 많이 안 해 봤다라는 것을 어떻게 해야 하나. Translation: I don't know how to say that I didn't practice a lot.]. Uh, mine study is only, only reading, only writing, not speaking. I'll, I speak, just speak, uh, that's it.

> (Carpenter Interview, November 5th, 2011)

> When I read the, uh, article or book, I'm usually understand the meaning but when I speak the, speaking English it's more difficult to the words. So…

> (Erin Interview, May 29th, 2011)

> Ah, but when, when you asked about the learning English in part of, ah, speaking but I say that, that, so, because, uh, because we are, we are living in Korea surrounded by the Korean. Then it's really hard to get the chance to talk English. So, um, people in the class at hagwon is good, not bad, um, cause I'm a teacher at the hagwon as well, but for the speaking part, people is really hard to, uh, uh, make their improvement so I just said that because, uh, as many, as much as they can they have to get the chance to speak, uh, with, with a friend or real, uh, found, finding but if they just get sitting a chair or sitting in the chair and then at the classroom, like just listening without speaking, it's not easy to, yeah, reveal improvement.

> (O'Donnell Interview, June 11th, 2011)

Overall, the Participants felt that the best way to increase students' interaction with the target language, especially through speaking, was by increasing their opportunities to talk with foreigners. The participants described various ways this could

be accomplished, such as hiring more foreign teachers, studying or travelling abroad, or

finding an English speaking friend.

> Mmm, mmm, And some more foreigner, more foreigner, uh, [Korean: 좀
> 더 많이, 좀 더 많이. Translation: Little more, little more.]. Some more,
> more foreigners Korean education system hire and they, they're, they
> taking, teaching Korean and more available.

> (Carpenter Interview, November 12th, 2011)

> Mmm, I think, um, I think change the way to, to teach that program a, a
> talking and… I think, um, reading, reading is important but first we have
> to listen about English. So, I want, uh, a lot of chance about listening
> Engli… listening to English. […] foreign teachers, it's better because he
> [her son] doesn't have a chance meet, ah, foreign. So, yeah, foreign
> teachers better for him.

> (Leila Interview, May 29th, 2011)

> Uh, more foreigner and then they go to, uh, trip is, uh, they, they have,
> they have a lot of money just take a trip. So they have a lot of experience
> and then they know themself just, mmm, I need, I need to learn English so
> it's easy, is good for them.

> (Helena Interview, May 29th, 2011)

> Uh, a comment, uh, just, um, make a, a lot of experience. A lot of chance
> to practice with, from forei…foreign, foreigner.

> (Helena Interview, June 3rd, 2011)

L1 Explanatory Notes

This study also explores the use of L1 explanatory notes as a scaffold for English

learners. The participants from the control and treatment groups had both positive and

negative views about their implementation. The participants' transcripts were compared

and from this analysis emerged a picture for how L1 explanatory notes would be received

by Korean English learners. A dichotomy emerged from the data on the use of L1

explanatory notes; on one side of the scale being clarity of text and on the other side the

reduction of interaction with the target language. Excerpts from the transcripts that are

representative of each view are shown below. A discussion on the implications of these

results through a critical lens (Freire, 1970) can be found in chapter 5.

The participants believe that L1 explanatory notes help English learners to

understand the meaning of words in a text but Vivian cautions that they may only be

good for low level learners while Helena and Carpenter warn that they should be used

only sparingly so that students don't become dependent on them.

> That vocabulary is very confuse, not sure. But just because they have
> Korean word, mmm, I'm sure. So they studies more easy to get the high,
> high ma…, mark. Yeah.
>
> (Helena Interview, May 29th, 2011)

> Yeah, then, then if the article is really hard if, or the words, the
> vocabulary is really hard, the Korean words will be better, yep, to say any
> words, uh, saying to my, uh, like, uh, classmates. Yeah, I think so.
>
> (O'Donnell Interview, June 11th, 2011)

> Uh, if I was, if they're is have a, a low, low level, the level, the is helpful
> the Korean words. But I think if they're have is ad… advance level, they
> have, even if some them were, don't understand the words but don't need
> the Korean word. I think.
>
> (Vivian Interview, May 29th, 2011)

> Um, a little bit Korean word, uh, a little bit Korean word, no dictionary.
> All story's word, no dictionary. Uh, one, two, three, four, five, mmm, they
> go on, they go and, and, so, mmm, Korean word a little bit, a little Korean
> words first time, one maybe. Ok, uh, a little Korean words very effect. I'm
> think.
>
> (Carpenter Interview, November 12th, 2011)

> Because there's a, I'm just, uh [Korean: 기대다. Translation: Rely on.],
> little times it's ok and then, uh, continue is not, a little bit problem
> because I'm just, mmm, where is Korean vocabulary? It's [Korean:
> 습관이 된다. Translation: It can become a habit.], I can, I don't
> remember that word, mmm…

(Helena Interview, May 29th, 2011)

The concern that the participants have with the implementation of explanatory

notes revolves around learners' reduction of exposure to and interaction with the target

language. This concern may be further clarified through O'Donnell's explanation of how

it may hinder long-term gains. This perspective may also explain some of the quantitative

results of this study as both Vivian and Helena mentioned that they tried to ignore the

Korean notes, although they did admit to looking at some of the words.

> Uh, it's not helpful. I'm just focus what it means. It's not help for me, me.
> You know what, uh, this is, the words are, I'm, still, still words I don't
> know but, uh, most words I understand.

(Vivian Interview, May 21st, 2011)

> Um, that is not easy to answer cause, um, like I said before, uh, there were
> few, not few, a lot of, uh, words that I didn't know the meaning of words
> which is very important to remember to repeat after interview. So if, even
> if there is a Korean word that help me to memorize or, yeah, keep, uh,
> understanding, but if I have to say that again without paper, then I don't
> know the English word that isn't as well. You understand what I am
> saying? Yeah.

(O'Donnell Interview, June 11th, 2011)

> Um, I know the, the Korean, if there's, if there, uh, Korean words to help
> me to understanding, understand, then, eh, that will be help me for short
> time. But, uh, we have to, I have to, um, see the long time. So then it's not
> very, not going to help me for long time cause, uh, how can I explain? Uh,
> as time goes by, uh, learning English without Korean, first of, first time
> will be very hard but next time will be helpful without Korean and then
> the day, next time and, and step by step I can, um, take the English and,
> uh, article without Korean easily. So that is, that I been doing to my kids
> and then, my students, my kids, and myself too. So it took, it takes, it will
> takes longer first time but as time goes by, it takes shorter. Yeah.

(O'Donnell Interview, June 11th, 2011)

Yeah, yeah, yeah. I wa…, I'm just trying, trying to, uh, not to read Korean word because I know that, uh, vocabulary so, mmm, I'm trying to read just, I wanna see the English.

(Helena Interview, May 29th, 2011)

4.8 Culturally Important Aspects

Assuming that the details from the story that are recalled by both the control and treatment group represents the most important aspects of the story to be remembered, one may argue that Koreans place importance on the global setting of a story and on downtrodden characters in need of help. Similarly, assuming that the details that are not recalled by both the control and treatment group represents the least important aspects of the story to be remembered, one may argue that Koreans do not place importance on criticizing members of authority nor do they sympathize with the ills of the wealthy. It also appears that the control group was able to recall and discuss more specific aspects of the article relating to the main character while the treatment group talked more in generalities relating to the theme of the article.

The implications of these suppositions are discussed in more detail in Chapter 5. See below the composite recalls and their calculations for both the control and treatment group.

Control Group

Using the data generated from each participant in the control group for accurate retention of content a composite recall is created by first averaging the participants' scores for each of the 11 selected details from the story. Each selected detail with an average score of 0.5 or above is included in the composite. The participants' transcripts

were reviewed for each of these details and the wording for the composite was chosen as

being representative of the participants' speech. Below are the 11 selected details of the

story with the control group's average score for each one, followed by the control group's

composite recall.

1. Dorothy traveled to Africa. (0.8)
2. The town was dirty. (0.2)
3. Dorothy got food poisoning. (0.7)
4. Dorothy's friend got malaria. (0.3)
5. Dorothy took her friend to the private hospital. (0.6)
6. The next day they both took a plane back to America. (0.5)
7. The experience caused Dorothy to reflect about health care in poor countries. (0.7)
8. Dorothy argues that it is impossible to fight diseases caused by infections without money for food and clean water to drink. (0.6)
9. Dorothy argues that doctors are more concerned about the curative effects of medicine than why people become ill. (0.1)
10. In the rich world many diseases are caused by affluence, such as heart disease. (0.04)
11. Other diseases in the rich world are caused by hazards, such as radio-active materials and chemicals. (0.1)

She travel in Africa and got ill, uh, food poisoness. She took to hospital, which is payment, with her friend. And then after, the day after she came back home by aeroplane and she felt about, um, poor country of health. She said W.H.O. have to pay for poor country, not doctors and rich people, to help them their food.

(Composite Recall for the control group)

Treatment Group

Using the data generated from each participant in the treatment group for accurate

retention of content a composite recall is created by first averaging the participants'

scores for each of the 11 selected details from the story. Each selected detail with an

average score of 0.5 or above is included in the composite. The participants' transcripts

were reviewed for each of these details and the wording for the composite was chosen as

being representative of the participants' speech. Below are the 11 selected details of the story with the treatment group's average score for each one, followed by the treatment group's composite recall.

1. Dorothy traveled to Africa. (0.7)
2. The town was dirty. (0.7)
3. Dorothy got food poisoning. (0.2)
4. Dorothy's friend got malaria. (0.3)
5. Dorothy took her friend to the private hospital. (0.3)
6. The next day they both took a plane back to America. (0.3)
7. The experience caused Dorothy to reflect about health care in poor countries. (0.3)
8. Dorothy argues that it is impossible to fight diseases caused by infections without money for food and clean water to drink. (0.5)
9. Dorothy argues that doctors are more concerned about the curative effects of medicine than why people become ill. (0.3)
10. In the rich world many diseases are caused by affluence, such as heart disease. (0.3)
11. Other diseases in the rich world are caused by radio-active materials and chemicals. (0.08)

One woman went to the Africa with she's friend. Very, uh, poor country is health is bad because their around is very dirty, uh, it has the bad smell and dirty. Poor people eat is very small. Ah, poor people is very easy to get a ill because they don't have, um, much money. He think the, ah, international health centre send them many money.

(Composite recall for the treatment group)

4.9 Data and Calculations

This section explains in detail how each of the calculations was made using Leila's data as a sample. As this section is only meant to illustrate how the calculations were made, only the calculations for the first recall are included. Also note that all mathematical calculations are rounded off with consideration to significant figures and therefore answers may appear less or greater than expected. Discussion on the implications of these results can be found in chapter 5.

Leila's Reading Fluency

The participants' reading fluency provides the foundation for all of the data generated in this study. Each participant in the control and treatment groups was given a maximum reading time of 20 minutes. This time limit serves to reduce participants' memorization of the text as well as to make the task more authentic as to what may occur in a classroom setting. Leila took 9.78 minutes to read the story (48.9% of the total allotted reading time) and therefore her reading fluency is determined to be 38.2 words per minute.

Reading Fluency = 374 words / 9.78 minutes = 38.2 words per minute

Leila's reading fluency is also adjusted to reflect only the number of different words read per minute. The story contains 207 different words, with different forms of the same word, such as disease and diseases, being considered different. Therefore Leila's adjusted reading fluency is determined to be 21.2 words per minute.

Adjusted Reading Fluency = 207 words / 9.78 minutes = 21.2 words per minute

Leila's Oral Fluency

Figure 11: Leila's Oral Fluency Across Four Recalls
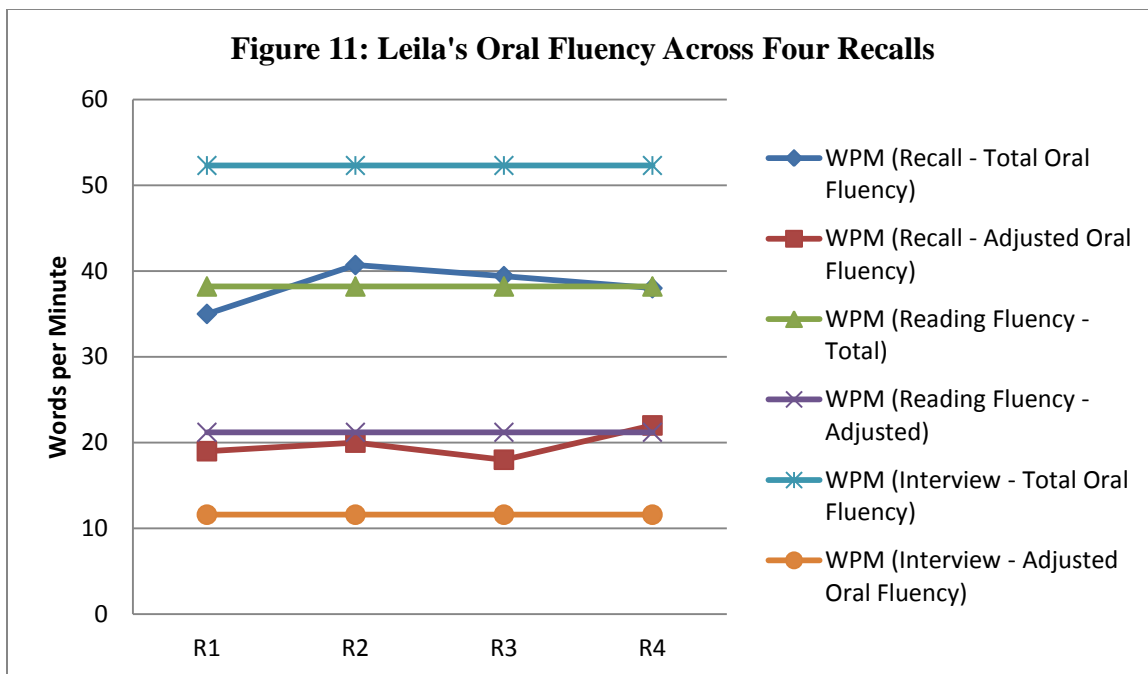
Recall 1

Leila's first recall of the story took 2.30 minutes to complete (23.5% of her reading time) and contains 81 words (21% of the number of words in the story) after excluding fillers, such as "uh". Therefore her oral fluency for the first recall is determined to be 35 words per minute (wpm). This rate is 3.2 wpm slower than Leila's reading fluency and 17 wpm slower than her interview oral fluency (see figure 11).

Oral Fluency = 81 words / 2.30 minutes = 35 words per minute

Leila's first recall also contains 44 different words, with different forms of the same word being considered as different words, such as "country" and "countries". Therefore adjusting oral fluency to account for only different words used, Leila's adjusted oral fluency for the first recall is determined to be 19 wpm. This rate is 2 wpm

slower than Leila's adjusted reading fluency and 7 wpm faster than her interview

adjusted oral fluency (see figure 11).

Oral Fluency (Adjusted) = 44 words / 2.30 minutes = 19 words per minute

Leila's Use of Low Frequency Vocabulary

For figure 12 in this section, low frequency vocabulary (LFV) from the story is

used as a means of comparison. Both the total and adjusted values are calculated in the

same manner as those for each recall and interview. Out of the 374 words used in the

story, 43 of them are low frequency ones according to Thorndike & Lorge (1944). This

translates into 11% of the story being composed of low frequency words.

Frequency of low frequency words used = (43 low frequency words/374 total words) x

(100) = 11%

The story uses 207 different words with 42 of them being low frequency ones

according to Thorndike & Lorge (1944), therefore adjusting LFV use to account for only

the number of different low frequency words used per number of different words used in

the story results in a new value of 20%.

Frequency of low frequency words used = (42 low frequency words/207 words) x (100) =

20%

Note that all calculations in this section take into consideration significant figures

and therefore final values may appear less or greater than one may expect.

Figure 12: Leila's Use of Low Frequency Vocabulary Across Four Recalls
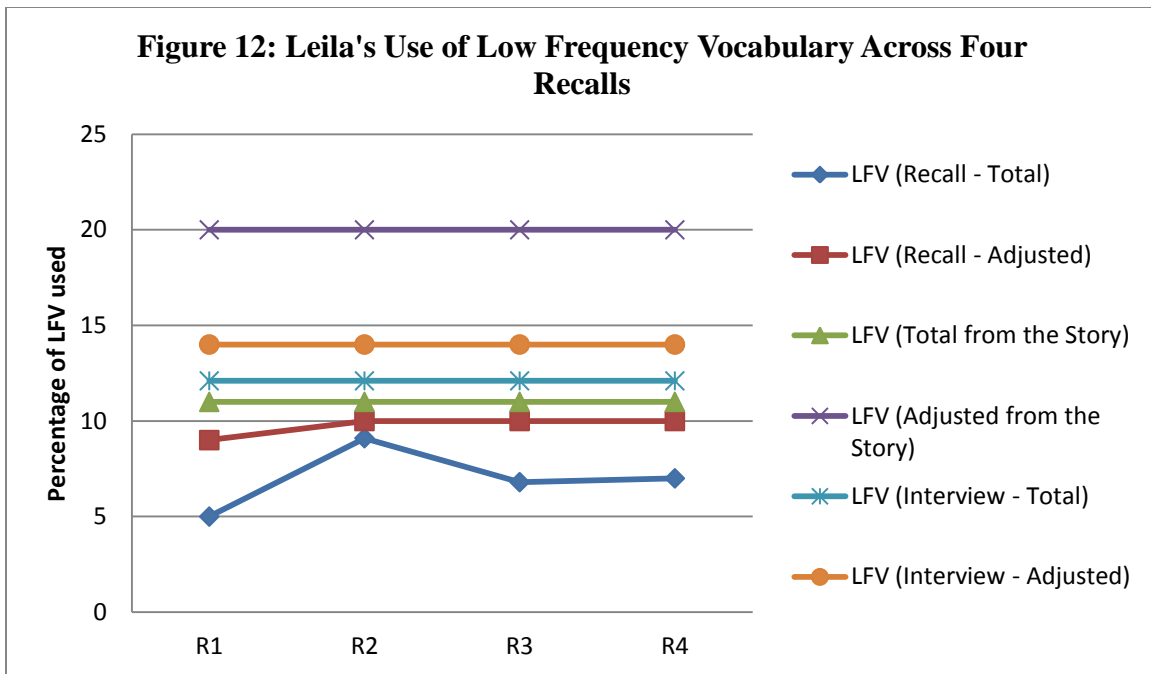
It should also be noted that Leila recalled the acronym "W.H.O.", which can be considered a low frequency word by virtue of its absence in the frequency counts of Thorndike and Lorge (1944). However; since explanatory notes were not provided for this acronym in the treatment group, it is not included in the analysis of the recall of specific low frequency vocabulary from the story.

Figure 13: Leila's Percent Recall of LFV from the Story Across Four Recalls

Recall 1

Out of the 81 words used by Leila in her first recall of the story, 4 of them were low frequency ones according to Thorndike & Lorge (1944). None of these low frequency words were used multiple times (see Tables 1 & 2).This translates into 5% of Leila's first recall being composed of low frequency words.

Frequency of low frequency words used = (4 low frequency words/81 total words) x
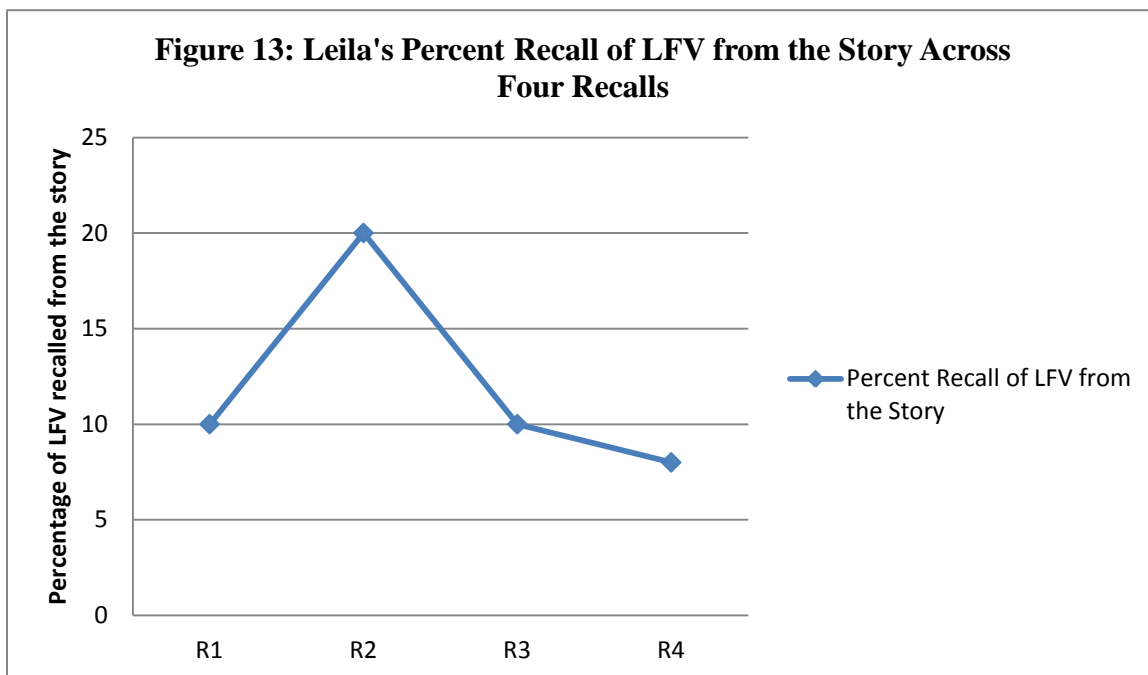
(100) = 5%

Leila's first recall uses 44 different words with 4 of them being low frequency ones according to Thorndike & Lorge (1944), therefore adjusting LFV use to account for only the number of different low frequency words used per number of different words used in the first recall results in a new value of 9%.

Frequency of low frequency words used = (4 low frequency words/44 words) x (100) =

9%

The story used in this study contains 39 low frequency words (excluding Dorothy, Thompson, and W.H.O.) according to Thorndike and Lorge (1944). Of these 39 words, 4 were recalled by Leila during her first recall (Africa, ill (illness), Malaria, and Program (programmes)). Each low frequency word from the story recalled is given a value of 1 point. For the purpose of scoring, each word is counted only once, therefore the maximum score is 39/39. Therefore Leila's use of the words listed above result in a total score of 4/39 (10%).

Recall of low frequency words from the story = (4/39) x (100) = 10%

Leila's Functionality of Grammar

Since recalling of the story lends itself to the use of past-tense vocabulary, verb morphology and time adverbials are analyzed to give insight into the functionality of the participants' interlanguage across the 4 recalls.

Figure 14: Leila's Frequency-of-use of Verbs and Time Adverbials Across Four Recalls
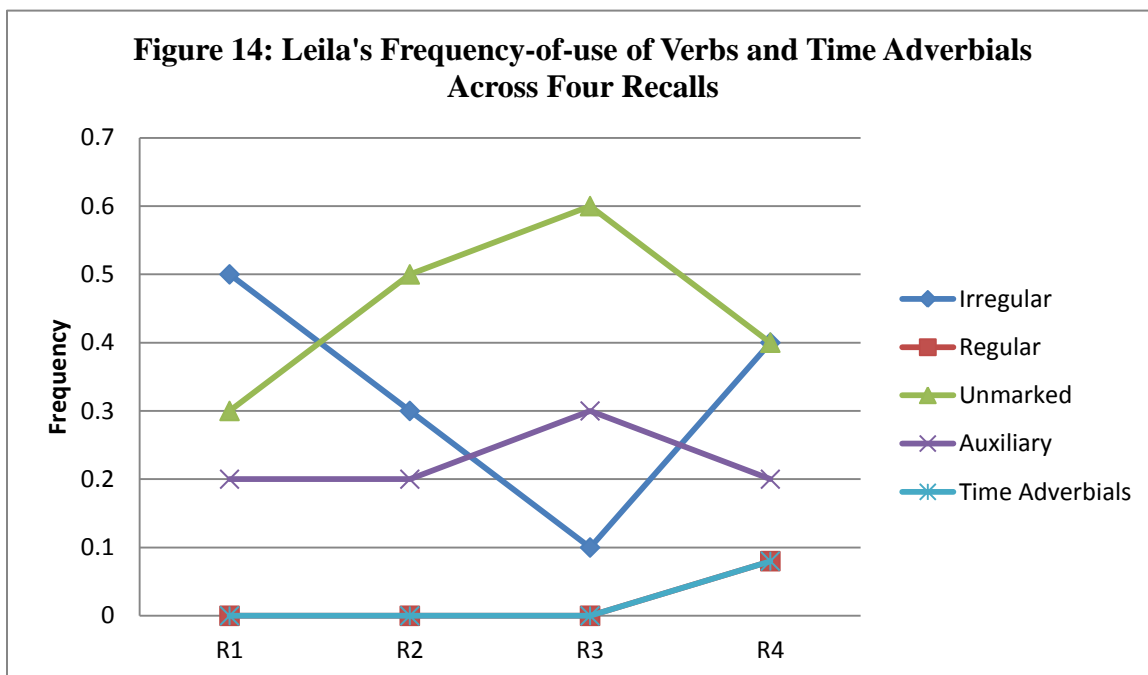
Recall 1

Leila's first recall shows that she used 12 verbs. These verbs are divided into 10 lexical verbs (felt, got, knew, is, pay, realize, remember, told, took, and went) and 2 auxiliary verbs (can't and have to). The lexical verbs are then classified as to their past-tense markings (irregular, regular, or unmarked forms). The frequency-of-use for each of these verb forms are calculated by dividing the number of verbs expressing each form by the total number of verbs used in the first recall. Note that these results are calculated with respect to significant figures.

$$Irregular = (6/12) = 0.5$$

$$Regular = (0/12) = 0$$

$$Unmarked = (4/12) = 0.3$$

$$\text{Auxiliary} = (2/12) = 0.2$$

Results of this analysis show that the verb form with the highest frequency-of-use in recall 1 is lexical irregular verb in the past-tense followed by lexical verbs unmarked in the past-tense.

The frequency-of-use of time adverbials is calculated by dividing the number of time adverbials used by the total number of verbs used in the recall. Leila's first recall contains 0 time adverbials and therefore the frequency-of-use of time adverbials is 0/12 (0).

$$\text{Frequency-of-use for time adverbials} = (0/12) = 0$$

Leila's Accurate Retention of Content

Using 11 details selected from the article, each recall is analyzed for accurate retention of content. Below are the 11 selected details from the story:

1. Dorothy traveled to Africa.
2. The town was dirty.
3. Dorothy got food poisoning.
4. Dorothy's friend got malaria.
5. Dorothy took her friend to the private hospital.
6. The next day they both took a plane back to America.
7. The experience caused Dorothy to reflect about health care in poor countries.
8. Dorothy argues that it is impossible to fight diseases caused by infections without money for food and clean water to drink.
9. Dorothy argues that doctors are more concerned about the curative effects of medicine than why people become ill.
10. In the rich world many diseases are caused by affluence, such as heart disease.

11. Other diseases in the rich world are caused by hazards, such as radio-
active materials and chemicals.

Figure 15: Leila's Percentage of Accurate Retention of Content Across Four Recalls
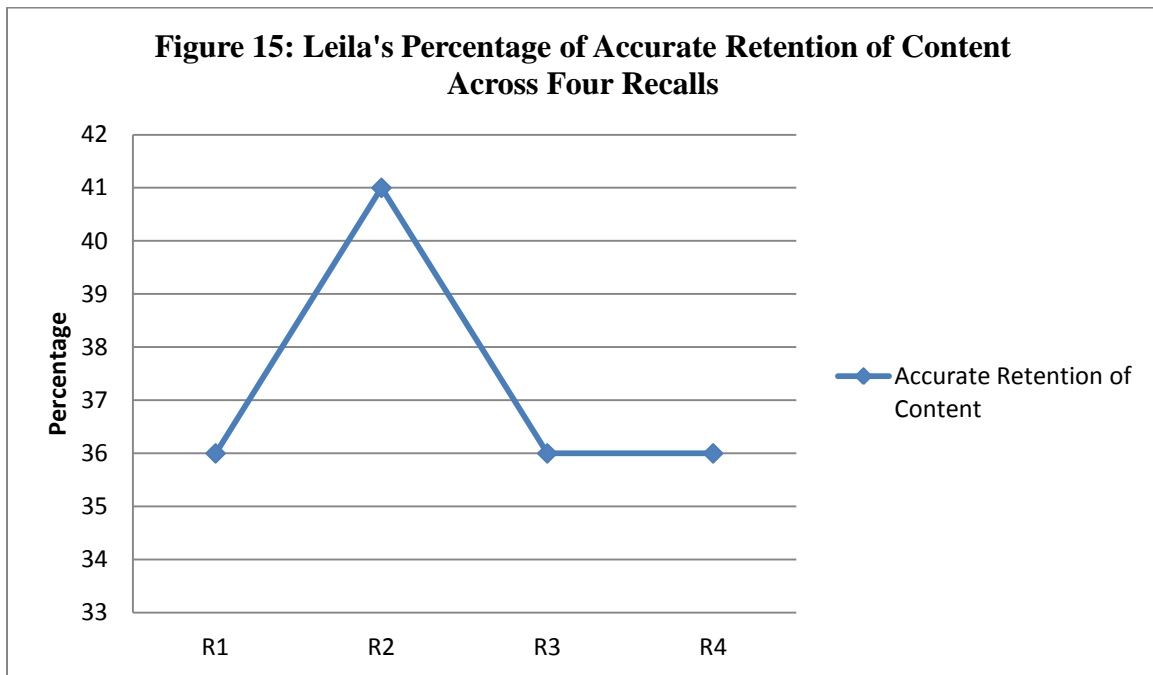
Recall 1

Using the 11 selected details as indicators of accurate retention of content, Leila's

score for accurate retention of content is determined to be 4.0/11 (36%). Below are

excerpts from Leila's first recall to justify my scoring, with my comments in brackets.

1. "… he went to Africa with her, um …" [scored as 1.0].
2. [Scored as 0 since there was no mention of the cleanliness of the town.]
3. "…he went to Africa with her, um, she got ill, malaria, uh,…" [Scored
as 0.5 since this excerpt seems to indicate the illness was malaria when it
should have been food poisoning].
4. "… he went to Africa with her, um, she got ill, malaria, uh,…" [Scored
as 0.5 as this excerpt seems to suggest that Dorothy was with someone.
Malaria was also mentioned, but it does not indicate that it was the friend
who had it].

5. "She took to hospital" [Scored as 0.5 since the excerpt does not mention the friend as the one needing to go to the hospital or the fact that the hospital was a private one].

6. [Scored as 0 since there is no mention of Dorothy or her friend returning to America].

7. "She realize about health in poor country" [Scored as 1.0 even though there is no mention that it was the experience that prompted this realization, however it is implicitly implied].

8. "She told, um, about, uh, rich world have to pay, have to pay, pay, have to [under her breath] uh, uh, for poor country. Not doctors and about rich people"[Scored as 0.5 since there is mention of the need for money, but not that it is needed for food and clean water to prevent diseases].

9. [Scored as 0 because there is no mention of doctors being more concerned about the curative effects of medicine than why people become ill].

10. [Scored as 0 because there is no mention that in the rich world many diseases are caused by affluence].

11. [Scored as 0 because there is no mention that other diseases in the rich world are caused by hazards].

Leila's Cognitive Efficiency

After the reading of the text, Leila reported the difficulty of the reading to be 7 on a nine point Likert scale. This value is subsequently used to calculate Leila's cognitive efficiency values for both retention of content and vocabulary recall.

Figure 16: Leila's Cognitive Efficiency Values Across Four Recalls
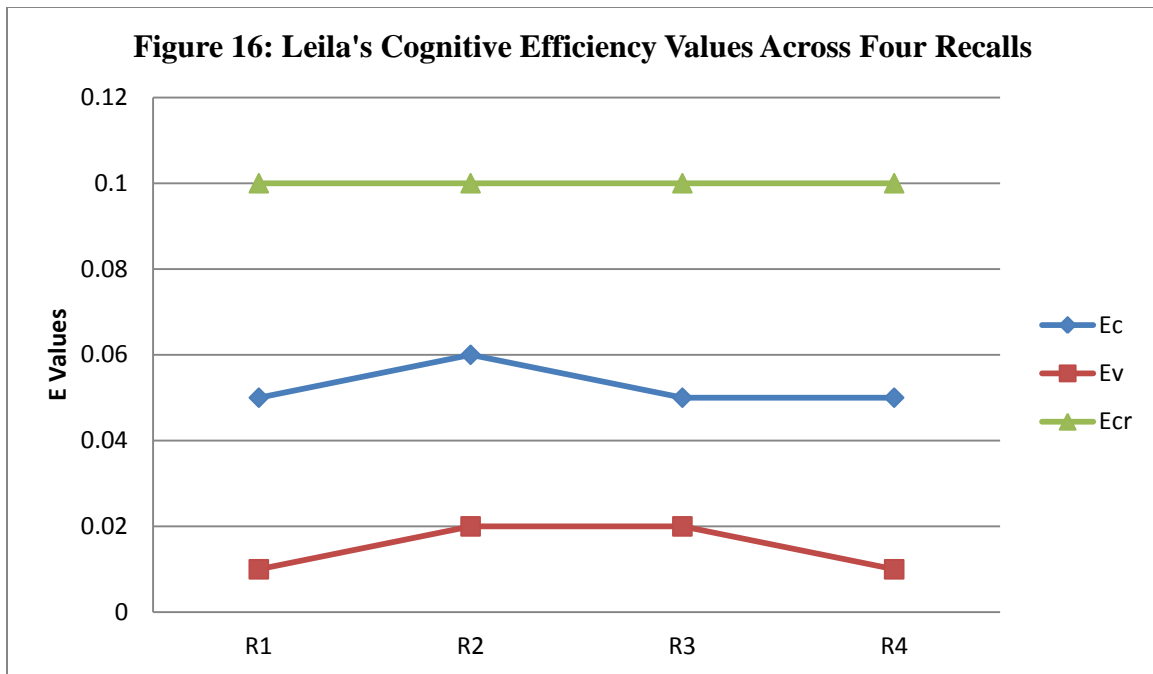
Recall 1

Using the cognitive efficiency formula (E = P /R) developed by Kalyuga and Sweller (2005), Leila's cognitive efficiency of her first recall was calculated to be 0.05 for retention of content and 0.01 for oral recall of the low frequency words used in the article.

$$E \text{ (retention of content)} = P/R = 4/11/7 = 0.05$$

$$E \text{ (recall of low frequency words)} = P/R = 4/39/7 = 0.01$$

The critical level of cognitive efficiency (Ecr = Pmax / Rmax; see Kalyuga & Sweller, 2005) for retention of content and recall of low frequency vocabulary is 0.1 (11/11/9 = 0.1 and 39/39/9 = 0.1). Since both calculated E values (0.05 and 0.01) are less than Ecr, Leila's cognitive performance can be considered inefficient.

4.10 Results Summary Statement

The findings of this paper seem to support the idea that the use of first languages in second language education is detrimental to students' successful acquisition of the target language, thus supporting the monolingual principle (Howatt, 1984). However; a closer look at the results with consideration to the inherent limitations of this study and a situated context yields a conclusion which goes beyond simply stating a detrimental effect of first languages in second language education; suggesting subtle benefits of the L1 which may warrant further research. The following chapter will thus discuss the results of this study and their implications within local, institutional, and global contexts.

Chapter 5

Discussion

5.0 Introduction to the Discussion of the Results

This thesis began by viewing the sociocultural backdrop of English learners through the constructs of Kumaravadivelu's (2003) parameters of particularity, practicality, and possibility. The discussion of the results of this study is therefore also viewed through this lens. The section on the parameter of particularity discusses the bulk of the results as they are generated by the participants themselves. The section on the parameter of practicality primarily discusses the implications of the results of this study in terms of how educators may respond to them. Also included in this discussion are the limitations of this study which may affect how one views the results. The final section on the parameter of possibility shall discuss the results as a whole with respect to a critical standpoint. In this way we start at the individual level and work outwards to a global one, thus gaining a more complete picture of the implications of this study's findings (see figure 17).

Figure 17: The relationship between the parameters of particularity, practicality, and possibility as a framework for discussion.
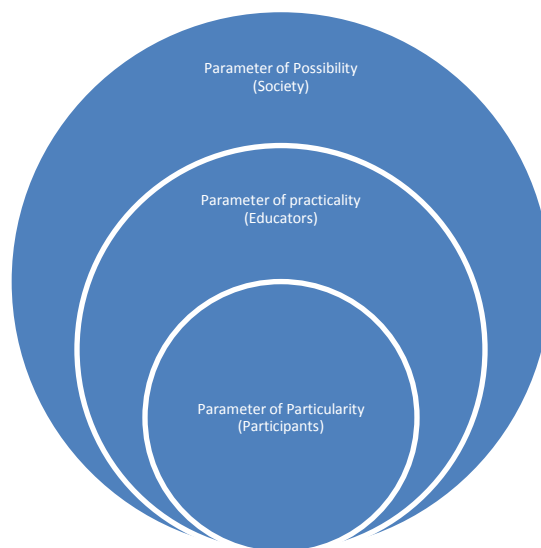
5.1.0 Parameter of Particularity: The Importance of the Target Language and the Judicial Use of the First Language

Educational studies, if they are to act as a source of input for the development of effective curriculums and teaching practices, must include a study of the learners themselves. "A study of the learners themselves would seek to identify needed changes in behavior patterns of the students" (Tyler, 1949, p. 6). This study therefore sought to change the behavior patterns of the participants' discourse relating to a reading task. It was believed that the incorporation of first language (L1) explanatory notes into the text would help free up participants' cognitive resources, thus allowing them to have greater oral performances in the areas of fluency, use of low frequency vocabulary, use of past-tense grammatical forms, accurate retention of content, recall of low frequency vocabulary from the text, and cognitive efficiency. These expected positive outcomes, unfortunately, did not come to pass. Instead it appears that, overall, the absence of L1

explanatory notes favored the control group. In an attempt to understand these results at a slightly deeper level one must start to understand the standpoint of the participants in regards to learning English in general and implementing L1 explanatory notes specifically.

The participants in this study indicated, either explicitly or implicitly, the importance of the individual in learning English. In order to acquire a second language, English in this case, the participants must take control of their own learning through practice and perseverance and therefore the source of L2 input they choose becomes critical for their individual success. The L2 source with the most coverage of the L2, while also psychologically comfortable, seems to be the most desirable. This idea that the L2 source must also be comfortable for the learner is consistent with the "Affective Filter Hypothesis" (Dulay, Burt, & Krashen, 1982) which posits that learners who are comfortable have their filters set low. This lowering of the affective filter serves to give learners "unfettered access to comprehensible input" (VanPatten & Williams, 2007, p. 28). Therefore the level of comfort a learner has with the L2 source serves to either adhere or dissociate the self from the input (see figure 18).

The participants' reluctance to choose L1 explanatory notes for their own learning thus becomes clear after considering that the participants' greater concern for a chosen source of input is the quality of its L2 exposure. An understanding of this mindset may explain the treatment groups' lower performance in this study as the participants may have been rebelling against using the L1 explanatory notes. In discussing the implementation of L1 explanatory notes there was one main argument for and against its use. It appears that the participants had to choose between greater clarity of text or

increased interaction with the L2 (See figure 19). Faced with this perceived decision and in light of the discussion above it becomes clear why the participants would tip the scale in favor of interaction with the L2 and reject the implementation of L1 explanatory notes for their own learning. In fact Vivian and Helena readily admitted that they tried to ignore some of the Korean words. This discomfort may have dissociated the treatment group participants from the input resulting in decreased performance. However, it is also possible that the participants could not fully ignore the L1 explanatory notes and that there are benefits left to be discovered as will be discussed later. Regardless of any benefits or disadvantages of L1 explanatory notes, the results of this study must be seen in light of the participants' preference for increased exposure to the L2 in a psychologically comfortable setting. Any use of the L1 must then be judicial in nature. The quantitative results of this study are thus tempered by this insight.

Figure 18: The hierarchy of second language learning as perceived by the participants.

Self

Source of Input
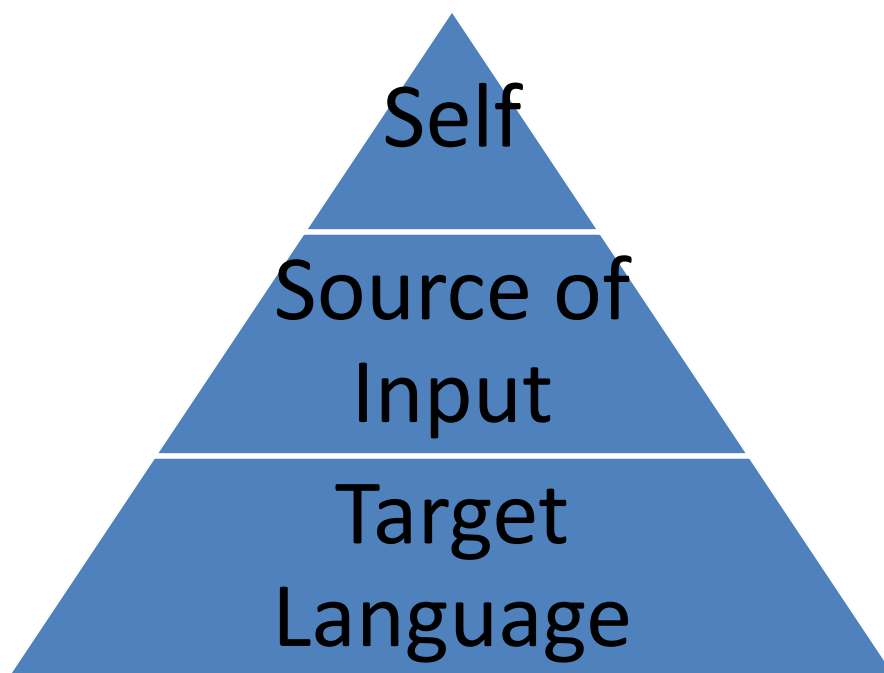
Target Language

Figure 19: The balancing of increasing interaction with the L2 and providing clarity of the text.
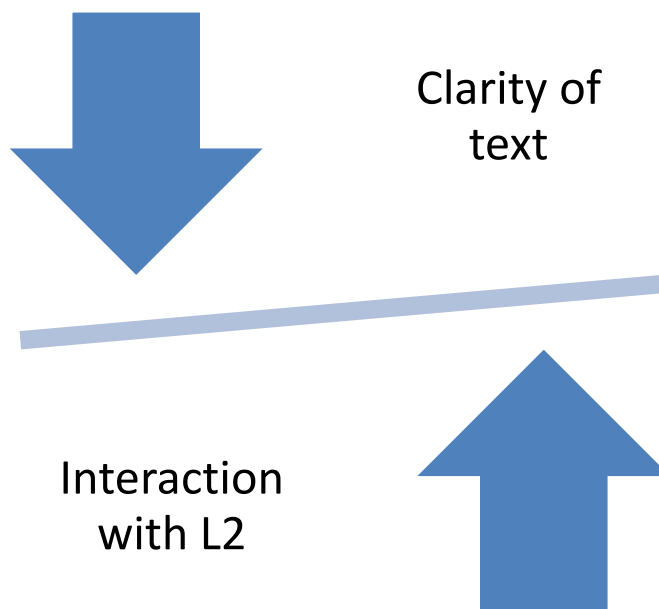
5.1.1 Reading Fluency: Decreasing Exposure to the Target Language through Understanding

The only category where the treatment group outperformed the control group is in reading fluency (see section 4.1, figure 1) by 7 total words per minute (wpm) and 3.8 different wpm. These rates may also be underestimates as the participants in the treatment group may have also read some of the Korean words made available which were not included in the calculations of reading fluency. In addition, this increase is even more meaningful in light of the fact that the control group reported knowing 14% more of the article's low frequency vocabulary through the vocabulary checklist test used during participant selection. The control group also outperformed the treatment group on Nation's (1990) vocabulary levels test scoring just under 12 out of 18 on the 5,000 word level compared to the treatment group's score of just over 9 out of 18. In short, while the

treatment group participants were less knowledgeable than the control group participants and they had more words (L1 and L2) to process, they were able to complete the reading task on average faster.

It may be that the treatment group participants felt greater confidence in their understanding of the text with the presence of L1 explanatory notes. This supposition is supported by a comparison of the two groups with respect to their reported ratings of how difficult the reading was to understand using a Likert scale with 1 being extremely easy and 9 being extremely difficult. The control group reported an average score of 6 while the treatment group reported an average score of 5 with Helena reporting the difficulty of understanding the text as 4 on the 9-point likert scale. She was the only participant to rate the reading as being on the easy side of the scale despite performing quite poorly on the accurate retention of content. This confidence may then have caused the treatment group participants to focus less on the details of the article and thus perform worse on the other testing categories.

Gass and Mackay (2007) describe input as the "*sine qua non* of acquisition" (p. 177). They go on to argue that "input is an essential component for learning in that it provides the crucial evidence from which learners can form linguistic hypotheses" (p. 177). The input for this study was the reading task and each participant had only a maximum of 20 minutes to complete this task. Therefore each participant had the ability to modify the amount of input he or she was exposed to. The fact that the treatment group had a greater reading fluency on average than the control group suggests that they chose to reduce their input, thus believing further exposure to input was unnecessary.

Conversely, the control group, having no scaffolds, had to solely rely on their inferencing skills to make meaning of the text.

Inferencing is a skill that must be mastered for effective use. Let's revisit Schmitt's (2000, p. 153) six factors that affect learners' inferencing from context:

1. The context must be rich enough to offer adequate clues to guess a word's meaning.
2. Readers are better able to use local clues in proximity to an unknown word than more global clues that are located further away.
3. Learners may mistake an unknown word for one they already know with a similar orthographic or phonological form.
4. Cognates can help guessing from context if they are used prudently.
5. Background knowledge about the topic and the culture being discussed aids inferencing.
6. Learners need to be skilled in guessing.

All of the participants for this study are adult English learners with mastery of their L1 and various life experiences. It is therefore reasonable to assume that they have well established inferencing skills related to the six factors above. Therefore the increased interaction with the L2 input in conjunction with their greater use of inferencing may explain the control group's better performance in all other categories. The results of this study may therefore strengthen Nation's (1990) assertion that inferencing is "undoubtedly the most important vocabulary learning strategy" (p. 130) and by extension the most important content learning strategy.

The first part of hypothesis 1 for this study is therefore supported; L1 explanatory notes seem to increase the reading fluency of EAL learners. However, this benefit of explanatory notes may not translate into greater acquisition of the target language or content due to participants' less interaction with the target language. This decrease in interaction with the target language is in fact one of the concerns that the participants of

this study had with the implementation of L1 explanatory notes and it would seem that these concerns are valid. However, the task of recalling the article was a solitary one. The Researcher did not act as an interlocutor where the participants could try out ideas and where the Researcher could tease out information. It is possible that the participants knew more than what they said but the lack of interaction with an interlocutor did not allow for the negotiation of communication problems. Future studies therefore may have to take into account the Interaction Hypothesis (Long, 1981; 1996) which claims that "oral interaction in which communication problems are negotiated between participants promotes L2 comprehension and production, ultimately facilitating language development" (Kumaravadivelu, 2003, p. 106). This limitation of the study therefore has implications for the results of this research as well as for classroom teachers. This limitation is taken into consideration throughout this discussion.

5.1.2 Oral Fluency: Speaking More Says Little

Having been exposed to the input provided by the reading task each participant recalled the story three times, separated by short interviews about learning English. A fourth recall occurred one week later. It was hypothesized that the treatment group would have higher levels of oral fluency during the recalls due to a greater understanding of the text provided by the L1 explanatory notes. To ensure the validity of comparing the oral fluency of these two groups the interview is used as an internal control. Since the interview is unrelated to the text, the presence or absence of L1 explanatory notes would have no effect on the participants' oral fluency during the interview. In order to eliminate the effect that repeating the same word over and over again has on oral fluency rates, these rates are adjusted to account only for different words used per minute. Both groups

are virtually equal in their adjusted oral fluency rates during the interview (see section 4.2, figure 3) with the control group holding a slim 0.5 words per minute advantage. This translates into the control group having used 39 more different words in 0.05 less minutes than the treatment group. Comparisons between these two groups may therefore be considered valid given that both groups spoke for virtually the same time period, with time being the determining factor for fluency rates as will be discussed below.

While the control group outperformed the treatment group in their adjusted oral fluency during the recalls, the pattern of each group virtually mirrored each other. It appears that adjusted oral fluency rates are stable across the first two recalls and then sharply rises in the third before decreasing again a week later (see section 4.2, figure 2). The possible reason for the spike during recall 3 may have to do with cognitive overload of the participants' working memory. Both groups performed the worst on accurate retention of content during recall 3 (see section 4.5, figure 9) which consequently results in their lowest average time and use of vocabulary. It may stand to reason that after doing two recalls and two interviews in English the participants' working memory became overloaded. Unable to recall the content, each group used fewer words (both total and adjusted) during a shorter time period with the end result being a higher oral fluency rate.

I determined oral fluency through the following formula:

Oral fluency = # of words spoken / Time (minutes)

Mathematically there is a direct relationship between the numerator and oral fluency and an inverse relationship between the denominator and oral fluency. In

addition, the denominator has the stronger influence. It appears then that the determining factor for oral fluency rates is time; as time increases, fluency decreases and vice versa.

The reason for the lower performance by the treatment group in oral fluency across all four recalls is also primarily due to the time they took for each recall. The treatment group generally used more words than the control group which in turn took more time. Since time affects oral fluency to a greater extent than the number of words used, the rates decreased below that of the control group. Considering that the spike in oral fluency in recall 3 corresponds to decreased accurate retention of content, one may presume that the lower oral fluency rates of the treatment group corresponds to greater accurate retention of content, but this is not the case. The implication of these finding is that oral fluency is not synonymous with understanding or ability levels and therefore little can be known about a learner's English skills based solely on oral fluency rates.

It is interesting to note, however, that while the adjusted oral fluency rates across the 4 recalls were higher for the control group, the treatment group actually used more words in recalls 1, 3 and 4. The greatest difference was seen in recall 1 where the treatment group used 32 more different words than the control group. Considering that the control group used 39 more different words during the interview (internal control) this difference is of interest. It may therefore stand to reason that L1 explanatory notes helped the treatment group participants to have greater recall of general vocabulary, despite whether the participants accurately recalled the story. This difference is less pronounced in later recalls which was expected. I earlier argued that the first hypothesis was expected to be supported more during the first and second recalls of the text. This phenomenon can be explained by the observation that "in a chain of reproductions

obtained from a single individual, the general form, or outline, is remarkably persistent, once the first version has been given" (Bartlett, 1932, p. 93). In other words, the first reproduction, or recall, is highly dependent upon the text while successive recalls are built upon previous recalls, with the gaps filled in and organized by each participant's prior knowledge. One may therefore theorize that as more time elapses from a reading task the more one's text-dependent speech resembles their text-independent speech. While this phenomenon was not observed with the adjusted oral fluency rates, it is indeed observed in the first recall when one considers only the number of different words used, thus a reconsideration of hypothesis 1 is needed by substituting oral fluency with recall of general vocabulary.

The L1 explanatory notes may help learners recall general vocabulary by providing at least a perceived understanding of the reading task. The Cognitive Load Theory (Sweller, 2010) posits that extraneous cognitive load results from less than optimal instructional procedures which inhibit learning. It is possible that the text with no L1 explanatory notes constitutes a form of extraneous cognitive load. Faced with a text that is at least minimally incomprehensible and devoid of any scaffolds, including not being able to negotiate with the Researcher, the control group participants' working memory may have been stressed and therefore recall of general vocabulary may have been inhibited. In contrast, the treatment group participants' working memory may not have been stressed as much due to the presence of the L1 explanatory notes. Consequently they were better able to access and retrieve their general vocabulary even though they did not as accurately retain what the article was about.

It may therefore be argued that if the treatment group participants were better able to access and retrieve lexical items from their working memory then the L1 explanatory notes may have helped to move learners, at least initially, from the declarative stage to the procedural and automatic stages of skill acquisition. Skill Acquisition Theory describes the procedural stage as "turning declarative knowledge into procedural knowledge" (DeKeyser, 2007, p.98). The treatment group participants may have been able to practice using their general vocabulary due to less strain on their working memory and therefore L1 explanatory notes may facilitate discussion but not necessarily acquisition of content. Evidence that the treatment group was engaged within the procedural stage of learning at times can be found in the Korean utterances of Helena and Carpenter. Both of these participants knew that the Researcher was not fluent in Korean and therefore these Korean utterances were primarily for their own benefit; a glimpse into their minds attempt to negotiate meaning and recall vocabulary.

> So, um, [Korean: 나 한테 실망하다. Translation: I'm disappointed in myself.] I really disappoint by myself, yeah.
>
> (Helena Interview, May 29th, 2011)

> Uh, [Korean: 많이 안 해 봤다라는 것을 어떻게 해야 하나. Translation: I don't know how to say that I didn't practice a lot.]. Uh, mine study is only, only reading, only writing, not speaking. I'll, I speak, just speak, uh, that's it.
>
> (Carpenter Interview, November 5th, 2011)

Thus when one talks about skill acquisition, the skilled acquired may not be the skill taught.

The importance of this insight should not be overlooked as it is a potentially powerful one in second language acquisition. It may be that the input for L2 acquisition is

largely already present within the learner and that external activities act more as a key for unlocking sections of one's working and long-term memory. The implication is that it is not necessary for one to master the contents of an external task provided that this task stimulates the learner sufficiently enough to practice with existing input stored within one's cognitive structures. It is the process that determines acquisition and not the outcomes tied directly to external tasks. The hypotheses of this study may not have tapped into what the participants were actually practicing and acquiring. More research and different methodologies are needed to flesh out this idea.

5.1.3 Use of Low Frequency Vocabulary: Signs of Formality

It was hypothesized that the use of L1 explanatory notes would increase the participants' use of low frequency vocabulary. The internal control for use of low frequency vocabulary is the interview where the control group's average use of low frequency vocabulary is 18% compared to the treatment group's use of 16% (see section 4.3, figure 5). Note that these values reflect adjusted scores (number of different low frequency vocabulary used out of the total number of different words used).

Similar to the discussion of oral fluency above, the treatment group was expected to use more low frequency vocabulary during their early recalls of the article due to the tighter association between the reading task and text-dependent speech. Therefore as time elapsed it was expected that the participants' text-dependent speech would more closely resemble their text-independent speech. Both the control and treatment groups' discourses during the recalls used less low frequency vocabulary than their interviews but the treatment group, as expected, on average used more low frequency vocabulary during

recall 1 while the control group did better during recalls 2 and 3. Both groups performed the same during recall 4 (see section 4.3, figure 4). It appears then that the L1 explanatory notes may have helped the treatment group access and retrieve low frequency vocabulary from their working and long-term memory when the discourse occurs shortly after the reading task. As more time elapses less of a difference can be seen between the two groups as illustrated by the results of recall 4.

Interestingly, the control group used the most low frequency vocabulary during recall 2, showing a distinct spike from 10% in recall 1 to 15% in recall 2 and back down to 10% for recalls 3 and 4. Just as interesting is the decline of the treatment group from 12% in recall 1 to 10% in recall 2, 8% in recall 3, and back to 10% in recall 4. The greater performance of the treatment group during recall 1 may again be explained through the constructs of the cognitive load theory (Sweller, 2010). Since the treatment group participants' working memory may have been under less stress due to the presence of L1 explanatory notes, they may have been better able to access and retrieve low frequency vocabulary from their working and long-term memory. However; this low frequency vocabulary was not necessarily the same as those used in the article. In fact, a look at the percentage of low frequency vocabulary recalled from the article shows that the control group slightly recalled more of these words (see section 4.3, figure 6) during recall 1. Therefore the treatment group must have been retrieving previously acquired low frequency vocabulary. Conversely, the spike for the control group must have been due to the participants' greater recall of the article's low frequency vocabulary as this spike is also seen in figure 6 (see section 4.3). This phenomenon may be related to what each group was focused on during the reading task and therefore the presence of L1

explanatory notes may direct the learners to concentrate on particular aspects of the article. The question that naturally emerges is whether the participants were concentrating on learning grammar, vocabulary, or content.

In general, the participants from this research felt that learning vocabulary was more important than learning grammar for communication purposes and content was more important than vocabulary. However, Vivian (Interview, May 21st, 2011) states that "Korean people's memory is academical words but to conver… to communication isn't, that isn't no necessary. I think it's useful words is important". If we are to heed this warning then little time should be spent learning low frequency words for oral conversations. The implication of this insight is that unless one is specializing in a subject only receptive knowledge of low frequency vocabulary may be needed and not productive knowledge. This implication is congruent with studies which show that comprehensible speech requires as little as 1200 headwords (West, 1960) and therefore a large working vocabulary is not needed (Nation, 1990). If learners are able to simply attain acquisition of receptive knowledge of these low frequency words then they can make use of their 1200 headwords to discuss the content of the reading.

It may be that the treatment group's working memory was under less stress due to the presence of L1 explanatory notes thus allowing them better access to low frequency vocabulary from their working and long-term memory. However, since the greater words recalled were not from the article it may be that the presence of L1 explanatory notes creates a casual environment where academical words and concepts are not focused on by the learners; specific content is not as important as the general theme. The control group participants in contrast may have felt the need to focus on the specific details of the story,

including the vocabulary used in the story. The cognitive expenditures needed to acquire

the low frequency vocabulary from the article may have inhibited the control group from

accessing previously acquired low frequency vocabulary.

The spike in recall 2 for the control group may be a result of the time needed to

process the acquired vocabulary from the story. In other words there is a delay between

acquisition of declarative knowledge (recall 1) and productive use (recall 2). The decline

in the control group's use of low frequency vocabulary in recall 3 may be related to the

interaction hypothesis (Long, 1981; 1996) in that the control group was unable to

negotiate meaning of the new vocabulary and therefore these words were not retained by

the working memory in later recalls. A possible example of how the lack of interaction

with an interlocutor can hinder vocabulary building can be seen in O'Donnell's second

recall. O'Donnell recalled the word Malaria but was unsure whether it was the friend's

name or the name of an illness. In recall 3 she erroneously used it as the friend's name

and it was left out altogether in recall 4. During the same recall O'Donnell recalled the

word Hazard but could not recall the word's meaning or how it was used in the story.

This word was not recalled again in later recalls.

> Where she got, she got food, food poiseness and there was the word
> malaria. Her friend malaria, or is that name or just name of illness?
> Anyway, mala…, there was malaria.
>
> (O'Donnell Session, June 11th, 2011)

> Hazard, I remember that and, hazard word was there. Ok, sorry. I'm done.
> I'm blank. I don't remember now.
>
> (O'Donnell Session, June 11th, 2011)

The decrease in the treatment group's use of low frequency vocabulary in recalls

2 and 3 may also be related to the interaction hypothesis (Long 1981; 1996) in that the

participants may have begun to notice that their knowledge of the specifics of the story was lacking. They may have started to feel increased stress which acts as an extraneous cognitive load (Sweller, 2010) inhibiting learning. Without being able to negotiate meaning with the Researcher the participants may have begun to feel guilty that they did not study harder during the reading task and this may have in turn limited cognitive functions and decreased performance.

While this reasoning is for the most part speculation and assumptions there is some validity to the argument when one considers the particularities of the participants chosen. If the participants are more outcome oriented than process oriented in their learning then noticing that their outcomes are deficient would naturally weigh upon their minds taking up cognitive resources and reducing performance. The assumption that the participants for this study are indeed outcome oriented is validated by an understanding of the Korean culture where grades are both the gateway to success and the route to family shame. Entrance to university in Korea is very competitive and the university that one attends to a large extent dictates the opportunities one will have for prominent employment (Carter, 2009). Korean students are therefore very much oriented towards outcomes as reflected by grades. In addition, families will sacrifice a lot to ensure that their children are well educated and thus failure may be met with shame.

> [...] housewives voluntarily work as housemaids in order to earn their children's private tutorial fees, parents push preschool-age children to learn English, and teachers are bribed by parents, albeit less and less frequently, to ensure extra advantages [...] Parents who cannot afford to send their children to cram schools are so ashamed of themselves that they feel a sense of guilt (Lim, 2007, p. 83).

Further evidence that the treatment group's decline in the use of low frequency vocabulary may be a result of stress stemming from the guilt of not studying harder is seen in Helena's comment following her third recall when she said, "I want a word repeat [referring to the reading task]. I know that you, you first, you tell me you just one time" (Interview, May 29th, 2011). So while Helena initially reported the difficulty of the reading as 4 out of 9 on a Likert scale, by the third recall she seemed to have lost her confidence in knowledge of the article.

In summary, the presence of the L1 may signal to learners a lower level of formality in the learning environment thus triggering retention of general themes for discussion. However, failure to reinforce a casual learning environment may lead to extraneous cognitive load (Sweller, 2010) and a reduction in performance. Conversely, an English-Only learning environment may signal a high level of formality in the learning environment thus triggering retention of facts for discussion. However, failure to negotiate meaning with an interlocutor may inhibit the acquisition process.

5.1.4 Use of Functional Grammar: Living in the Present Moment

Arguably the most striking difference between the control and treatment groups is seen with their use of functional grammar. The methodology of this study only concerned itself with the use of past-tense vocabulary. Lexical verbs were therefore categorized as being marked for past-tense (irregular and regular morphologies) or unmarked. It was hypothesized that the treatment group would have more cognitive resources available to make greater use of functional grammar. Even the most casual observance of figures 7 and 8 (see section 4.4) shows the failure of this hypothesis. The treatment group's use of

past-tense morphologies never exceeded a frequency-of-use past 0.1 while the control group's use of irregular lexical verbs in the past-tense had a frequency-of-use ranging from a high of 0.4 (recall 1) to a low of 0.1 (recall 3).

At first glance these results seem to discount Carter's (2010b) Inverse Load Theory which posits that as the functional load (Bardovi-Harlig, 2007) of one's utterances decrease the cognitive load (Sweller, 2010) increases (see section 2.7 for a more detailed description of the Inverse Load Theory). It was believed that the treatment group would have sufficient cognitive resources to afford the extra expense needed to use more past-tense morphologies in conjunction with time adverbials. However, the effects of the L1 explanatory notes may have shifted the treatment group's focus and thus the methodology of this research paper may not have been sufficient to capture any effects of the Inverse Load Theory (Carter, 2010b).

If it is true that the presence of the L1 signals lower levels of formality and therefore general themes are retained as opposed to facts (see section 5.1.3) then it would make sense that the participants would be more apt to discuss the theme of the article in the present tense. In contrast, the lack of L1 explanatory notes for the control group may signal higher levels of formality and therefore the actions of the characters in the article become more prominent. Since these actions took place in the past the participants in the control group would naturally use some proportion of past-tense morphology. Further and more comprehensive research is needed before the constructs of Carter's (2010b) Inverse Load Theory can be supported or rejected.

Interestingly, both the control and treatment groups used a greater frequency of irregular past-tense verbs than regular ones. It may be that despite the lower cognitive expense of just adding –ed to the end of a verb to signify past-tense the participants chose to use irregular forms due to their greater semantic richness. Field (2008) found that content words are attended to more by learners than function words despite their higher numbers in a discourse. This attention may be due to function words "low[er] perceptual saliency, including their brevity, and (thanks to the ubiquitous schwa) their relatively indeterminate phonetic identity" (Field, 2008, p. 427). It may be then that EAL learners choose to use irregular past-tense verbs over regular ones despite their higher cognitive costs because it reduces communicative problems in a discourse due to their higher perceptual saliency, relative longevity, and determinate phonetic identity. When one or more interlocutors are engaged in negotiated interactions there will likely be many misunderstandings and the use of irregular verbs may be a means to reduce these problems of communication.

5.1.5 Accurate Retention of Content: A Perceptual Mismatch of Objectives

It was hypothesized that the treatment group participants would display greater accurate retention of content due to greater clarity of the text through L1 explanatory notes. However it was the control group who displayed the greater accurate retention of content. It is possible, as previously discussed, that the presence of the L1 signaled to the treatment group participants an informal educational setting where general themes are emphasized. In this scenario many of the selected facts from the article no longer accurately measures the treatment group's accurate retention of content because the content that the Researcher deemed as important may not have been the same content that

the participants prioritized to remember. There may be a perceptual mismatch between the perceived priorities of the Researcher and that of the participants. While still at a preliminary level, a comparison of the composite recalls from the control and treatment groups illustrate how the control group remembered more of the specific details of the story while the treatment group focused more on general ideas.

> She travel in Africa and got ill, uh, food poisoness. She took to hospital, which is payment, with her friend. And then after, the day after she came back home by aeroplane and she felt about, um, poor country of health. She said W.H.O. have to pay for poor country, not doctors and rich people, to help them their food.

(Composite Recall for the control group)

> One woman went to the Africa with she's friend. Very, uh, poor country is health is bad because their around is very dirty, uh, it has the bad smell and dirty. Poor people eat is very small. Ah, poor people is very easy to get a ill because they don't have, um, much money. He think the, ah, international health centre send them many money.

(Composite recall for the treatment group)

The effects of explanatory notes on reading comprehension was studied by Yeung, Jin, and Sweller (1997) who found that explanatory notes improved the reading comprehension of novice learners but hindered comprehension when they are used with more advanced learners. They conclude that more expert learners' performances are interfered with due to the redundancy effect which "occurs when the learner is required to process nonessential information" (p. 3). It may be then that the chosen participants for this study were too advanced for the use of L1 explanatory notes and therefore their learning was interfered with due to the redundancy of the Korean words; the participants may have already knew the words or were able to infer their meanings from context. Future studies may have to make use of less skilled participants. However, an alternative explanation may be that the treatment group participants knew more than what they could

say. The methodology of this study used a free recall for testing comprehension while the study by Yeung, Jin, and Sweller (1997) used a multiple choice test. The results of this study may have turned out differently had a multiple choice test been utilized.

Assuming that the participants for this study were too advanced for the use of L1 explanatory notes as defined by Yeung, Jin, and Sweller (1997), the comprehensive results of this research may give further insights into the constructs of the Cognitive Load Theory (Sweller, 2010). It is assumed that redundancy of input creates an overload of more expert learners' working memory thus inhibiting learning but what if the working memory was not so much overloaded as redirected. The picture that is emerging from this research is that the treatment group was signaled by the L1 to partake in more informal learning strategies thus allowing them to practice using previously acquired but not yet organized input within the general framework of the article. Successful acquisition of a second language may therefore entail the ability to find the benefits in all learning environments and by doing so to take advantage of learning opportunities as they arise. Learners may therefore have to shift their thinking from an outcome orientation to a process orientation in order to keep their affective filters (Dulay, Burt, & Krashen, 1982) set low. Concern with the lack of outcomes on an external task may therefore shift priorities away from the learning environment altogether thus depriving the learner from additional gains. Cultural norms will naturally affect the ease with which this shift of orientations can be accomplished.

Krashen's Affective Filter (Dulay, Burt, & Krashen, 1982) may play a pivotal role in the mechanism which generated the results of this study and therefore a closer look at this filter is warranted. The main criticism of Krashen's hypothesis is that "we are given

no account of how the Affective Filter works, of how input is filtered out by an unmotivated learner" (Jordan, 2004, pp. 180-181). The results of this study may begin to explain, or at least hypothesize, this mechanism in more detail. The affective filter should be perceived more as a junction than an obstacle. The limitations of the working memory only allow a finite amount of input to be simultaneously processed and therefore the learner must make either conscious or subconscious decisions on processing priorities. A lack of performance on external measures may not so much indicate a student's lack of internal motivation in general as the lower priority placed on processing elements associated with the external learning task at a particular moment in time. Higher priorities may include secondary learning tasks or even personal problems which need to be negotiated within the individual. The labeling of a learner as unmotivated carries with it negative connotations and therefore it may be more appropriate to view the learner as a complex being with multiple priorities constantly in flux. Considering the limitations of the working memory, we may then rename Krashen's Affective Filter Hypothesis as the Fluctuating Priorities Filter Hypothesis where learners faced with a finite processing capacity make conscious or unconscious decisions on elements to be organized within their working and long-term memories at a particular moment in time. This reconceptualization also places learners in a more positive and powerful position which is consistent with this study's participants' perceived view on the importance of self-actualization (see section 5.1.0). The presence or absence of the L1 may consequently signal to the fluctuating priorities filter the elements' priority standing at any given moment.

5.1.6 Cognitive Efficiency: We All Need Someone to Lean On

The cognitive efficiency ratings of the treatment group was hypothesized to be higher than those of the control group however each group's results are very similar to each other (see figure 10, section 4.6). The control group had better performance ratings (P) in recall of content and vocabulary while the treatment group had better mental effort ratings (R). Inputting these values into the cognitive efficiency formula ($E = P / R$) developed by Kalyuga and Sweller (2005) results in similar ratings between the two groups. The true implication of these findings do not fully come to light until there is consideration to the critical level of cognitive efficiency ($Ecr = Pmax / Rmax$; see Kalyuga & Sweller, 2005) as represented by the 0.1 line in figure 10. The critical level of cognitive efficiency represents a threshold where the learner can be expected to attain maximum performance with maximum mental effort expended. Results under this critical level suggest that even with maximum effort exerted by the learners, maximum performance is not likely to occur. It thus appears that despite whether L1 explanatory notes were present or not, these particular learners would not likely have been able to attain maximum performance in the recall of content and vocabulary regardless of whether they maximized their mental efforts. The instructional procedure in conjunction with the intrinsic elements of the article used is therefore not an efficient one to employ with learners represented by the expertise level and cultural background of the participants of this study. Self-actualization is not enough, an interlocutor is required.

Most of the participants in this study terminated their exposure to input (reading task) well before the maximum allotted time expired and therefore the participants from both groups must have thought they understood the article sufficiently enough to be able

to talk about it. Within the criteria developed by the Researcher it appears that the participants overestimated their understanding. However, the results of this section suggest that even if they had used the entire allotted time and expended maximum mental effort they still would not have exceeded the critical level of cognitive efficiency. The implication is that an interlocutor who can facilitate learning is needed and this insight thus relates to both Vygotsky's (1963) Zone of Proximal Development and Krashen's (1985) Input Hypothesis.

Vygotsky's (1963) Zone of Proximal Development is concerned with how a facilitator can help a learner complete a task which he or she could not easily accomplish on his or her own. The Researcher, as part of the methodology of this study, did not serve as a facilitator during the recalls. It is possible that had the Researcher facilitated discussion, the participants may have approached closer to the critical level of cognitive efficiency and thus entered the zone of proximal development where greater learning is possible. In this way the input from the reading task may have been made more comprehensible through facilitation and the participants may have been better able to process more elements due to the now comprehensible input, thus relating to Krashen's (1985) i + 1. However Schnotz and Kurschner (2007) argue that there are both positive and negative facilitations that must be considered. They argue that a positive facilitation means "that due to a reduction of cognitive load, processes that are already possible, but which still require high mental effort, become possible with less effort" (p. 487). Thus to avoid enabling learners, facilitation should be a means to increase cognitive efficiency only by reducing their mental effort (R) as their performance with facilitation is already possible on their own with greater effort expended. Since the participants in this study are

not expected to reach the critical level of cognitive efficiency even with maximum effort expended, facilitation in this case would only serve to help the participants approach the line, not meet or exceed it. The reduction of mental effort may thus help maintain the learners' priority for processing elements related to the learning task and thus ensure greater exposure to input and acquisition of language and content over the long-term. In this way the poor performance of the participants in accurate retention of content in recall 3 may have been ameliorated through facilitation as the high mental effort required without facilitation may have caused the fluctuating priorities filter to reprioritize elements for processing and recall. As a result the participants reduced their own mental efforts but their performances were likewise reduced in recall 3. Further research is needed to flesh out this idea.

5.1.7 A New Hypothesis Emerges: The Formality Hypothesis.

The results of this study have raised more questions than it has answered and thus emerges what I now call the Formality Hypothesis of second language acquisition (see figure 20). This hypothesis posits that the learner is bombarded with an infinite amount of input at any given moment. The limitations of the working memory thus make it essential for the learner to make processing priorities through the Fluctuating Priorities Filter (formerly Krashen's (1985) Affective Filter). The presence or absence of the L1 is hypothesized to signal the perceived level of formality of the learning task. Where there is only the L2 present, the learning task is perceived to be of high formality and the learner will utilize strategies consistent with prioritizing development of CALP and retention of facts (Cummins, 1979). Where the L1 is utilized judicially, the learning task is perceived to be of low formality and the learner will utilize strategies consistent with

prioritizing development of BICS and retention of general themes (Cummins, 1979).

However, this hypothesis may not be universally applied as culture, such as Korea's face

saving one, may be a confounding variable (see section 5.3).

Figure 20: A preliminary model for the Formality Hypothesis.
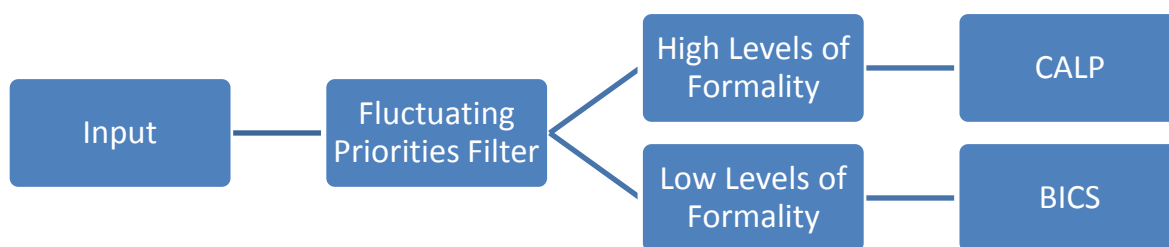
Development of the Formality Hypothesis may give educators more tools to work

with to facilitate movement of EAL students in North America from the periphery of the

learning community to the center and thus ensure their legitimate peripheral participation

in the classroom (Lave & Wenger, 1991) by maintaining their high priority of

engagement. The following section will thus discuss the implications of these findings as

they relate to the teaching profession.

5.2 Parameter of Practicality: The Need for Active Teaching and Innovation

The results of this study may be used by educators to either reinforce their teaching practices or to alter them according to the findings herein. It is crucial, however, to have a firm understanding of the implications of these findings with consideration to the inherent limitations of the study itself. One must also be cognizant of the fact that educational objectives are not universal. "It's certainly true that in the final analysis objectives are matters of choice, and they must therefore be the considered value judgments of those responsible for the school" (Tyler, 1949, p. 4). As a result, educators, armed with their chosen objectives, must decide how these results coincide with their value judgments.

This study sought to find some benefits of the L1 for EAL students learning in English and while most of the hypotheses were not supported, other hypotheses and implications emerged which act as stimulants for discussion. However, the results of this study may not be sufficient enough to change the field of second language education to any measurable effect. It is but a little bit of pressure against the wall of an institution built upon the foundation of history steeped in practices which were designed more for the benefit of "educators" than students; similar to how the QWERTY keyboard layout was developed explicitly to slow down the typist to prevent the jamming of keys (Dixit & Nalebuff, 2008), EAL students progress may be slowed down to compensate for educators lack of knowledge of second language acquisition. In both cases, however, there are certainly indirect benefits for the typist and the student. In the days of manual typewriters, if the focus was more on the typist, the jamming of keys may have caused greater delays than the effects of the QWERTY keyboard. Today, however, this focus is

misguided, yet largely embraced by the masses. Similarly, particularly in the early years of the second language education field, the focus was primarily on the teacher, as a symbol of the dominant culture, not the student. Students therefore indirectly benefitted by being given a means of assimilation into the dominant culture. However, similar to advancements in typewriters, so too has our understanding of identity and second language acquisition (SLA) advanced. Do the old ways provide some benefits? Certainly they do as the findings of this study shows. Are they the most efficient when the focus is properly placed upon the typist or the student during this modern era? Not necessarily so.

The findings of this research at a superficial level seem to support English-Only pedagogies because all but one of my hypotheses failed. If I was more "objective" I may have ended the journey here and conclude that English-Only pedagogies are more effective than those which incorporate the students' L1. However, my subjectivity as a researcher made me look deeper at the data and hypothesize that learners prioritize elements for processing and that the presence or absence of the L1 signals to the learner levels of formality in the learning task. High levels of formality signaled by the L2 in isolation may lead to learners' development of cognitive academic language proficiency (CALP; Cummins, 1979) while low levels of formality signaled by the integration of the L1 in L2 input may lead to learners' development of basic interpersonal communication skills (BICS; Cummins, 1979). What emerges is a greater understanding of the possible mechanisms involved in SLA and more tools for the educator to use.

It is certainly true that in the context of an academic course in North America educators would have educational objectives congruent with the development of CALP (Cummins, 1979) and therefore they may view the findings of this paper as support for

implementing English-Only pedagogies, but by doing so they may miss part of the educational picture. Students are not simple hard drives waiting for the latest download. They are complex beings encompassing both cognitive and sociocultural factors. All too often educators focus on the content to be taught and not on the student as an authentic being. Freire (1970) argues that some teachers believe that "the more completely [they fill] the receptacles [students], the better [teachers they are]" (p. 72). Conversely, "the more meekly the receptacles permit themselves to be filled, the better students they are" (Freire, 1970, p. 72). What results is a learning environment where the content is prioritized over the student.

Where the learner is not the priority in a learning environment he/she may be excluded from full membership in the learning community. Legitimate peripheral participation (Lave & Wenger, 1991) "is never a matter of peaceful transmission and assimilation but a conflictual process of negotiation and transformation" (Morita, 2004, p. 577). Incorporation of the students' L1 may therefore aid this process by showing respect to the students' culture, easing their mental effort through positive facilitation, providing opportunities for development of BICS (Cummins, 1979) through classroom discussions, and creating an open environment where negotiation between the students and teacher are fostered. While the L2 should still be used the majority of the time, especially where development of CALP (Cummins, 1979) is an educational objective, judicial use of the L1 as part of the introduction to a unit or a means to generate discussion incorporating students prior knowledge and experiences may be a means to move students from the periphery of the learning community to the center where full membership resides. This

need for legitimate peripheral participation through competence in BICS is illustrated in a

study by Morita (2004) where a student describes her fear to speak in class.

> Yesterday my classmates asked me to [summarize a group discussion to the whole class]. At first I thought, it's really beyond my ability! ((laughs)) But the situation is like emergency. If I couldn't do it, everybody thinks that I'm a very um ((long pause)) I feel that I have to say something even if I can't…But the result is terrible. ((laughs)) Anyway, it's really good for me because everybody now knows that my English is not so good. It's really important for me because if they know that, they can help me sometimes, probably. (Lisa, Interview 1, September 30, 1999)

> (Morita, 2004, p. 585)

Similarly, the participants in this research study indicated their struggles with

speaking. O'Donnell admitted that the fear to speak in class with native speakers affected

her speech to a measurable effect until she became comfortable with the learning

community. It is therefore critical for educators to develop a variety of means to assist

learners with this process of negotiated participation, including the possible use of the L1

to lower the formality of the learning environment, thus reducing the cognitive load of

the student, whereby basic conversations may be better facilitated.

> **O'Donnell:** But, um, after I, I lived, uh, after I, after I lived, know my, like, student, like, like, some study, uh, classmate, I couldn't feel any, uh, fearful. So, yeah, being in front of the classroom, but first time was really, really different. I couldn't do anything.

> **Researcher:** Was your speaking worse…

> **O'Donnell:** Yeah.

> **Researcher:** …because of being a little bit fearful?

> **O'Donnell:** Yeah. Yeah, I, even I could, uh, even I could say one sentence, different sentence, but I couldn't say, cause my feeling was really, uh, hard for being in front of the people.

> (O'Donnell Interview, June 11th, 2011)

There seems to be a contradiction in my argument because on the one hand I say that the incorporation of the L1 may facilitate EAL students' legitimate peripheral participation (Lave & Wenger, 1991) but on the other hand the results of this study find that the participants would not want access to their L1. It may be that the participants are so conditioned to the perceived best practices of acquiring English through the monolingual principle (Howatt, 1984) that they have come to see their own learning as the teachers from the dominant culture sees it (Freire, 1970). This situation is why I argue that more comprehensive research into the role of the L1 in L2 education is needed. Educators must be more active in helping EAL students and therefore more innovation, including use of the L1, is needed to foster lasting success. This argument is supported by both the control and treatment groups' subpar cognitive efficiency ratings and by studies which show that "given the best of all that we are led to believe would create the ideal situation, [EAL] students are still failing" (Wang, et al., 2008, p. 67) (also see: Adger & Peyton, 1999; Valdes, 1998; Waggoner, 1999; Cheng et al., 2007). Educators must therefore move beyond the viewpoint that EAL students must just work harder to achieve the same success as those from the dominant culture and become true compatriots of minority students.

In considering the implications of this research, educators and researchers may naturally be concerned with the limitations of the methodology used. Some of these limitations have already been discussed above. Here I will discuss two more limitations for consideration; 1) the use of the Thorndike and Lorge's (1944) list of word frequencies and 2) The historical influence of the Researcher on the data.

The use of Thorndike and Lorge's (1944) list of word frequencies to determine low frequency words used in both the reading and in the participants' speech have numerous limitations regarding its validity and reliability. There are three main issues that will be discussed. The first issue concerns the Western bias of the list; secondly the age of the list is also a concern; as is its use to analyze speech.

First of all, the word frequencies were calculated using western texts and therefore they reflect vocabulary used by members of the dominant culture. It is not clear as to whether text written by those whose L1 is not English would generate similar word frequencies. To assume that these counts would be the same is to accept that western culture is the standard by which all English learners must strive for and ultimately succeed in attaining. Unfortunately, there is no comprehensive list similar to Thorndike and Lorge's (1944) list which uses text written by EAL learners, and therefore until one is created, researchers are left with this decidedly western biased list. However, even if text written by EAL learners were used to create a word frequency list, there may still be a western bias if the texts were edited by westerners. In the absence of an EAL inspired list of word frequencies, I had to use what was available and the choice was to use the most comprehensive and recognized list, being that of Thorndike and Lorge (1944).

There is also an argument that the Thorndike and Lorge (1944) list is outdated; an argument that is hard to dispute as 67 years have passed since its publication. Over this period of time it is more than likely that the word frequencies have shifted, including the emergence of new words and their resultant frequencies. Furthermore, new forms of media have arisen in the last 67 years which would no doubt be included in a modern word count. The internet, for example, provides an enormous amount of text that would

likely be used in the creation of any modern list of word frequencies. It can also be argued that the texts used in 1944 by Thorndike and Lorge to create their list represents an educated section of society that likely does not represent society as a whole, whereas the inclusion of text from the internet for a modern list would cut across social and cultural boundaries, thus likely creating much different results. In the absence of a modern list of word frequencies, I had to use what was available and the choice was to use the most comprehensive and recognized list, being that of Thorndike and Lorge (1944).

Lastly, there is the limitation of using the Thorndike and Lorge (1944) list to determine the low frequency words used in speech. It is well recognized that speech and text are substantially different in various ways. Unfortunately, there is no comprehensive list of word frequencies for speech available. Creation of such a list is hampered by the difficulty of compiling the data. One of the contributions of this research is the compilation of word frequencies used by the participants. It may be added to further research in the development of an oral frequency count representative of L2 English speakers.

The other limitation to discuss here is the historical influence of the Researcher on the data. Despite the quantitative appearance of a significant portion of this paper, one must not view the data necessarily as an objective reality. Subjectivity is present in all things and so it is with the data collected for this study. Transcription provides a challenge at the best of times due to the participants' clarity of pronunciation, talking speed, voice volume, and background noises. Throw in participants who are novice / intermediate English speakers and the task becomes that much more challenging.

Judgment calls occasionally had to be made as to what words were being used and the call was made by and large by the Researcher as it is impossible for the participants to recall every word that they uttered without sitting alongside the Researcher and listening to the audio recordings of their sessions; clarifying every instance of mispronunciation, heavy accent, and/or mumbled speech. Our perceptions are situated in our histories and therefore the experiences of the Researcher may, and likely did, affect some explicit and implicit judgment calls. It was frustrating on a number of occasions when on one day I thought I clearly heard one utterance on the audio only to realize on a later day that I heard wrong. However, none of these errors in transcription changed the data or insights in any appreciable ways. This situation further highlights the difficulty of creating oral word counts especially of L2 speakers.

Presuming that this paper sparks interest in further research into the benefits and practical use of L1's in second language education, one must also entertain a second level of thinking as to how to change the prevailing social convention of an English-only pedagogy. The only way to change the equilibrium from a locked-in position to a new one is to "get a critical mass of people to switch, and then the bandwagon effect makes the new equilibrium self-sustaining. In contrast, a little bit of pressure over a long period of time would not have the same effect" (Dixit & Nalebuff, 2008, p. 296). Unfortunately the results of this study may not be enough to obtain this critical mass.

5.3 Parameter of Possibility: Cooperation hidden as Manipulation

Much of my critical stance on issues related to this paper has already been discussed. I have approached this study as a compatriot of EAL students and L2 learners

in general. My critical stance has largely assumed that current practices in L2 education stem from power structures set up for the benefit of the dominant culture. While I still believe this to be largely the case, the findings of this study have revealed that reality is never so one dimensional. From the perch of my dominate culture I arrogantly assumed that my position as an English teacher in South Korea was a direct result of my perceived mastery of Standard English. I thought that the money that was invested in my employment was a form of manipulation (Freire, 1970) where learning from westerners is presented as the only means for successful acquisition. This standpoint caused a sense of guilt to wash over me because I felt like I was perpetuating a myth and by doing so limiting the liberation of my students from the hold that globalized English has upon their lives. While this may still largely be the case, an alternative possibility exists; it is not my mastery of the English language that makes me the most desirable interlocutor but my deficiencies in Korean.

The participants, as expressed by Leila, Erin, and Helena (see section 4.7), seem to experience an extraneous cognitive load (Sweller, 2010) when they are speaking English to an interlocutor who is also fluent in Korean. It appears that making linguistic mistakes in front of those from similar cultural and linguistic groups represents a face-threatening situation for Koreans. Applying this insight to the previous discussions, it may be that when faced with the L1 there is a shifting of priorities for which elements are to be processed by the working memory. The top priority may be to make as few linguistic mistakes as possible in order to save-face. Since BICS is less formal than CALP (Cummins, 1979), the participants may reduce their cognitive load and make less linguistic mistakes by concentrating only on general themes. While the participants knew

that the Researcher was not fluent in Korean, the presence of the L1 in the reading may have been enough of a stimulus to trigger the priority shift. On one hand, this phenomenon may make the use of the L1 detrimental when the goal of instruction is the regurgitation of facts stemming directly from the reading task. On the other hand, teachers' incorporation of the L1 may stimulate basic conversations that may, with facilitation, encourage students' to talk about a text by drawing upon their prior knowledge. The possible benefits of using the L1 to create a focus on general themes and prior knowledge may therefore arise from the learners' attempt to save-face. In this way educators may be able to transform a negative into a positive, which is truly an example of transformative pedagogy. More research is needed to flesh out this idea and explore all of the possible interactions.

The choice for Western interlocutors may therefore not be part of the antidialogical action of manipulation but the dialogical action of cooperation (Freire, 1970). Each group benefits from the relationship in different ways. The Koreans are able to save-face while the Westerners benefit economically as teachers and tutors. However, the dynamics of this relationship are hidden and therefore while the Westerners may consider themselves valuable to the relationship due to their greater linguistic competence in English, their true value may lie in their deficiencies. Since dialogue is stifled due to the hidden dynamics of the relationship, one can argue that this situation is an example of an incomplete form of dialogical action. This research may then help complete the discussion and solidify the cooperation between the dominant and minority cultures through innovative pedagogies informed by research.

If the choice for Western interlocutors by Korean learners of English does indeed stem from their deficiencies in Korean, then there may be some profound implications for second language education. It may be that any interlocutor is suitable provided that he/she does not speak Korean. It may be possible then for an Indian, Chinese, or South American person fluent in English to act as an interlocutor. If we follow this line of thinking to its natural conclusion then we must also challenge the myth of a standard form of English. While the results of this study can help inform the learning of any language, English is a special case since it is marketed as a global language and as such Western nations must waive ownership of it within a global setting. If the goal of learning English is for international communication, then exposure to World Englishes from around the World is to be pursued and encouraged. This exposure should also not only be limited to those whose L1 is not English but also include those who are native speakers of English. If exposure and validation is given to World Englishes within North American schools, minority students may be more open to sharing their version of English with classmates and thus increase negotiated interactions and participation within the learning environment. This situation may then facilitate the judicial use of the L1 in instructional settings in recognition of the new global norm.

The use of L1 explanatory notes may represent the reality of Global English in that it is a mixture of languages as opposed to some standard or pure form. However; the participants of this study indicated their desire to immerse themselves in English in order to gain acquisition, thus contributing in part to their reluctance to embrace L1 explanatory notes. This mindset that engaging in Code-Switching and Code-Mixing signals a lack of language competency (Buettner, 2011) is common in both the literature and in the

classroom. For example, Gumperz (1982) found that bilingual individuals blame their mixed speech on a lack of attention. By extension, the use of the L1 may be viewed as reducing one's attention on the target language. I view this negative perception of Code-Switching and Code-Mixing as a form of cultural invasion (Freire, 1970), where the influence of one's culture on language is seen as contributing to an inferior form of English. The reality is that Code-Mixing and Code-Switching is the norm in countries such as South Korea. People in South Korea commonly use English expressions in their Korean speech. Coincidentally, as I wrote the previous sentence while sitting in a coffee shop in Korea, a young woman at the next table could be heard saying "I have Chon Won" [Translation: I have one dollar] to another Korean person. Advertisements also commonly use mixed speech by utilizing both Korean and English scripts. Further research is needed to explore the meanings behind the choices people make in mixed speech but their mere presence should be validated as an authentic form of communication. Unfortunately, many Koreans see mixed speech as being wrong, even when English words are used in a version of English commonly called Konglish, as can be seen in the excerpts from O'Donnell and Helena.

> **Researcher:** Do you think Korea should develop their own terminology or do you think that's a wrong thing for Korea to do? Should Korea just have the same English as another Western country or is it ok for Korea to develop their own special style?
>
> **O'Donnell:** No, no, no, it's not helpful to learn English. If we have all Korean style English, like eye shopping, it's not, it's never gonna work, too convenient. Like within society it was other culture people, when they are coming here they never get into it, the words that we make by ourself, like eye shopping, window shopping, something like that. So we, I think we need to change to, uh, correct expression.
>
> **Researcher:** Which one would be the correct one, would the Canadian be correct, or would the British be correct, or would the Australian be

correct, or would the U.S.A. one be correct? So which one would be the correct English?

O'Donnell: Do you have answer?

Researcher: I still have my thoughts but…

O'Donnell: Yeah, yeah. I think there is no, that answer would be. Cause everyone has their own style of English. So I mean, what I mean about Korean English is pron… pron... wrong. Like cell phone, without say cell phone, hand, hand phone, or notebook for the laptop, like that, that is wrong English. But if we have to, uh, learn from them, um, English, like, em… universe country, I think British and then Canada and then U.S.A. English is most, uh, popular in here so we can just follow three countries. Australia, maybe. I can't choose just one.

(O'Donnell Interview, June 11th, 2011)

Researcher: So you are listening to me in English right now…

Helena: Yeah.

Researcher: …and you're speaking to me in English right now…

Helena: Not, not English, just Kor… Konglish [laughs].

(Helena Interview, May, 29th, 2011)

The perceived reality of a standard global language, English in this case, is more than a myth, it's unattainable. We are all a product of our environment and therefore the interaction of geography, culture, and language affects how we view the world and express ourselves. If we are to rise above social power structures and use global English as a liberating force, then we must embrace the richness that comes with a variety of World Englishes. We must also be able to negotiate meaning with people from around the world so studies of World Englishes should also be a part of curriculums even in Westerns nations. Unfortunately, the results of this study may not move this cause forward.

5.4 Discussion Summary Statement

This study fails to show the benefits of using the L1 in SLA as most of the hypotheses were not supported. In addition, the participants themselves do not embrace the idea of incorporating their L1 in their English learning. However; a closer look at the data seems to suggest a reason for the perceived detrimental effect of the L1 in SLA and a means to use this effect in a positive way by shifting instructional goals. This shift, unfortunately, will be difficult to attain with the current world view of second language education, especially in the case of English.

Chapter 6

Conclusion

This thesis began with my struggles to begin the research process due to the limitations imposed by the various discourses on methodologies. I overcame this obstacle by changing my state of mind by thinking more as a producer of research than a consumer of it (Mooney, 1975). I began to think less along the boundaries of the quantitative-qualitative divide and more into what I described as post-methodologies which is a natural extension of Kumaravadivelu's (2003) post-methods. This mental shift is a subtle one and the end result may not be differentiated much from any other traditional study but it provided me a state of freedom where instead of struggling to start the research process I am now struggling to end it.

The fruits of my perspective of the research process can be seen in how I handled the methodological problems of this study. If I had restricted myself to the confines of quantitative studies I would have had to recruit much more subjects, limit my hypotheses, sterilize my findings, and in the end come away with little comprehensive insight. Conversely, if I would have restricted myself to the confines of qualitative studies I would have had to engage in deeper discussions with the participants which would have taken away from the interview's role as a distraction as part of the methodology of this study. Alternatively I would have had to largely discount the value of the data from the interviews as it was not completed to the standards of truthfulness required by qualitative discourse on research methodologies. The limitations of this study in terms of statistical significance and saturation of rich data do not take away from the practical significance

of this study if one views my findings not as the final word written in stone, forever to be revered, but rather as a topic for discussion which may spark additional research and add to the understanding and implications of the findings of this research as a whole.

This research therefore goes beyond a sterile investigation into the effects of L1 explanatory notes on L2 oral production and invites a discussion about the research process itself and by extension examines the role that the researcher plays in a study. I have come to believe that all research is subjective to a degree and that objectivity is largely a myth. Attainment of true objectivity is only possible when one holds no emotional connection to the outcome and therefore to be objective is to lack passion. Is subjectivity a problem in educational studies? If passion for a topic is problematic then hope for the future of educational studies is all but extinguished. The only route for transformational research is through the establishment of voice and therefore a study must act as a call to arms; a reason to take notice, reflect, and then to take action. In short, a study must be framed by praxis and thus "[root] itself in the dynamic present and [become] revolutionary" (Freire, 1970, p. 84). Failure to establish a voice within the research process is at best to produce research for research sake and at worst manipulation through hiding one's voice behind the mask of objectivity in order to present a false picture of reality in the most narrow sense such as to maintain the status quo of an established hierarchy. Subjectivity then is not synonymous with falsification but rather a discussion in the fullest sense of the word about the findings and implications of a study. I have, as honestly as possible, tried to make transparent all aspects of my research process. My subjective quest to find the benefits of the L1 did not lead me to falsify any of the results, rather my subjectivity drove me to look deeper into the results

and thus find greater meaning where a more objective researcher may have stopped at the simplistic conclusion that the L1 interferes with L2 acquisition and therefore lend support to status quo pedagogies immersed within problematic English-Only policies. Therefore subjectivity is a foundation for fruitful discussion which through praxis may lead to transformational pedagogies. As such, the title of this chapter may be inappropriately titled "conclusions" and should instead be aptly titled "beginnings".

The findings of this study have provided us with a foundation to begin discussing some aspects of the role of the L1 in second language acquisition. An encompassing narrative which captures the essence of the findings is provided by B.O. Smith who suggested that "while there may be a lot of teaching taking place in a classroom, there may be no learning at all taking place"(Rosenstock, 2009). In other words there may be a mismatch between what the teachers think students are learning and what they are actually learning. Educators must therefore intimately know the effects of particular scaffolds and ensure that their goals of instruction are congruent with these effects. This insight is also in line with the constructs of the cognitive load theory, in particular extraneous cognitive load resulting from less than optimal instructional procedures (Sweller, 2010). Where the goal of instruction is academic in nature, L1 explanatory notes may not be the most effective scaffold to utilize. However, if the goal is to provide learners with some confidence to engage in basic discussions about a text, L1 explanatory notes may be appropriate in facilitating the development of oral skills through the movement of learners from the declarative stage to the procedural and automatic stages of skill acquisition (DeKeyser, 2007).

It is hoped that my findings and emergent formality hypothesis is comprehensible enough to spark further research that will help explain the dynamics of the L1 in L2 education for the benefit of EAL students. While cause and effect cannot be established and my Formality Hypothesis is preliminary at best, I believe this research makes a contribution to the discussion. Regardless if anyone agrees with my conclusions or not, if they come to the table for authentic and honest dialogue about the role of the L1 in SLA, then this thesis has served its purpose.

This thesis has become like a rushing river and despite the cries of those around me to come to shore I could not help but ride the wave and see what came around the bend. Has it been a perfect trip? For anyone who has traveled knows, all trips have setbacks and unexpected disappointments. These experiences just serve to make the next exploration better organized and executed. If I knew what I know now before I started this research process I am sure this research would have been more meaningful and insightful but this is just the process of growth that we must all endure. I hope that years from now I will continue to say, "if I knew then what I know now", because the moment we stop saying this is the moment we stop growing and learning and in the end this is academic death. In conclusion, while some critics of my research may say that this thesis is fit for fertilizer, I shall take it as a complement because from it will sprout forth academic life and success.

References

Abello-Contesse, C. (2009). Age and the Critical Period Hypothesis. *ELT Journal, 63* (2), 170-172.

Adger, C. T., & Peyton, J. K. (1999). Enhancing the education of immigrant students in secondary school: Structural challenges and directions. In C.J. Faltis & P.M. Wolfe (Eds.), *So much to say: Adolescents, bilingualism, and ESL in the secondary school* (pp. 205-224). New York: Teachers College Press.

Alegria De La Colina, A., & Del Pilar Garcia Mayo, M. (2009). Oral interaction in task-based EFL learning: The use of the L1 as a cognitive tool. *International Review of Applied Linguistics in Language Teaching, 47*, 325-345.

Anderson, J. R. (1982). Acquisition of a cognitive skill. *Psychological Review, 89*, 369-406.

Anderson, J. R. (1987). Skill acquisition: Compilation of weak-method problem solutions. *Psychological Review, 94*, 192-210.

Anderson, J. R. (1992). Automaticity and the ACT* theory. *American Journal of Psychology, 105*, 165-180.

Anderson, J. R. (1993). *Rules of the mind*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Anderson, J. R., Bothell, D., Byrne, M. D., Douglass, S., Lebiere, C., & Qin, Y. (2004). An integrated theory of the mind. *Psychological Review, 111*, 1036-1060.

Aoyama, K.; Guion, S. G.; Flege, J.E.; Yamada, T. & Akahane-Yamada, R. (2008). The first years in an L2-speaking environment: A comparison of Japanese speaking children and adults learning American English. *International Review of Applied Linguistics in Language Teaching, 46,* 61-90.

Axelrod, P. (1997). *The promise of schooling: Education in Canada, 1800-1914.* Toronto, ON: University of Toronto Press.

Bachman, L. (1990). *Fundamental considerations in language testing.* Oxford: OUP.

Bakhtin, M. M. (1981). *The dialogic imagination: Four essays by M. M. Bakhtin* (M. Holquist, Ed.; C. Emerson & M. Holquist, Trans.) Austin, TX: University of Texas Press.

Bakhtin, M. M. (2004). Dialogic origin and dialogic pedagogy of grammar: Stylistics of teaching Russian language in secondary school. *Journal of Russian and East European Psychology, 42* (6), 12-49.

Bardovi-Harlig, K. (1992). The use of adverbials and natural order in the development of temporal expression. *International Review of Applied Linguistics in Language Teaching, 30 (4),* 299-320.

Bardovi-Harlig, K. (1994). Reverse-order reports and the acquisition of tense: Beyond the principle of chronological order. *Language Learning, 44,* 243-282.

Bardovi-Harlig, K. (2007). One functional approach to second language acquisition: The concept-oriented approach. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 57-75).Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Bartlett, F. C. (1932). *Remembering*: *A study in experimental and social psychology.* London: Cambridge University Press.

Bhabha, H. K. (1991). *The location of culture.* London: Routledge.

Bloom, B. (Ed.). (1956). *Taxonomy of educational objectives. Handbook 1: Cognitive domain.* New York:McKay.

Bobis, J., Sweller, J., & Cooper, M. (1993). Cognitive load effects in a primary school geometry task. *Learning and Instruction, 3*, 1-21.

Bogdan, R. C., & Knopp Biklen, S. (2007). *Qualitative research for education: An introduction to theories and methods* (5th Ed.). Boston, MA: Pearson Education, Inc.

Brock, C. H.; Moore, D. K.; & Parks, L. (2007).Exploring pre-service teachers' literacy practices with children from diverse backgrounds: Implications for teacher educators. *Teaching and Teacher Education*, *23*, 898-915.

Buettner, E. (2010). Language learners' identity construction and negotiation. *TEAL Manitoba Journal, 26* (1), 11-16.

Buettner, E. (2011). Immigrant students' challenges and difficulties: Language and cultural barriers, social identity shifting, and the mainstream language and culture. *TEAL Manitoba Journal, 27* (2), 4-9.

Canagarajah, A. S. (2006). TESOL at forty: What are the issues? *TESOL Quarterly, 40* (1), 9-34.

Carter, K. (2009). Insights into the Korean mind facilitates instruction: A teacher's reflection on intercultural miscommunication. *TEAL Manitoba* Journal, *25* (2), 4-8.

Carter, K. (2010a). Secondary teachers' perceptions of using science textbooks with EAL students: A critical evaluation of educational objectives. Unpublished manuscript, University of Manitoba, Winnipeg.

Carter, K. (2010b, March). Inverse Load Theory: A merging of the cognitive and functional perspectives of SLA. In W. Serebin (Chair), *Theories of learning.* Graduate Student Symposium at the University of Manitoba, Winnipeg, Manitoba.

Carter, K. (2010c). Revisiting pedagogy of the oppressed in the context of globalized English. *TEAL Manitoba Journal, 26* (1), 24-26.

Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction, 8*, 293-332.

Chandler, P., & Sweller, J. (1996). Cognitive load while learning to use a computer program. *Applied Cognitive Psychology, 10*, 1-20.

Cheng, L.; Klinger, D. A.; & Zheng, Y. (2007). The challenges of the Ontario secondary school literacy test for second language students. *Language Testing, 24* (2), 185-208.

Chiu, C. (2009). ESL learners' semantic awareness of English words. *Language Awareness, 18* (3-4), 294-309.

Cho, J. (2007). English is the golden tongue for S. Koreans: Parents pay a fortune so children can learn. *Washington Post,* July 2.

Chomsky, N. (1986). *Knowledge of language: Its nature, origin, and use.* New York: Praeger.

Cohen, J. D., Dunbar, K., & McClelland, J. L. (1990). On the control of automatic processes: A parallel distributed processing account of the Stroop effect. *Psychological Review, 97*, 332-361.

Cook, V. (2001). Using the first language in the classroom. *The Canadian Modern Language Review, 57*, 402-423.

Coolidge, F. L., & Wynn, T. (2009). *The rise of Homo sapiens: the evolution of modern thinking* .West Sussex, United Kingdom: Wiley-Blackwell.

Citizenship and Immigration Canada. (2010). Investors, entrepreneurs, and self-employed persons. http://www.cic.gc.ca/english/immigrate/business/index.asp, retrieved July 18, 2010.

Collier, V. P. (1987). Age and rate of acquisition of second language for academic purposes. *TESOL Quarterly*, *21*, 617-641.

Counts, G. S. (1927). *The Social Composition of Boards of Boards of Education.* New York: Arno Press.

Counts, G. S. (1930). *The American road to culture; a social interpretation of education in the United States.* New York: Arno Press.

Counts, G. S. (1932). *Dare the school build a new social order?* New York: Arno Press.

Counts, G. S. (1945). *Education and the promise of America.* New York: The Macmillan Company.

Cummins, J. (1979). Cognitive / academic language proficiency, linguistic interdependence, the optimum age question and some other matters. *Working Papers on Bilingualism,* 19, 121-129.

Cummins, J. (1981). Age on arrival and immigrant second language learning in Canada: A reassessment. *Applied Linguistics, 2*, 132-149.

Cummins, J. (2007). Rethinking monolingual instructional strategies in multilingual classrooms. *The Canadian Journal of Applied Linguistics*, *10* (2), 221-240.

Cummins, J. (2009). Multilingualism in the English-language classroom: Pedagogical considerations. *TESOL Quarterly, 43* (2), 317-321.

Darwin, C. (1859). *On the origins of species by means of natural selection, or the preservation of favoured races in the struggle for life.* London: John Murray.

Davis, W. (2009). *The wayfinders: Why ancient wisdom matters in the modern world.* Toronto, ON: House of Anansi Press Inc.

DeKeyser, R. (2007). Skill acquisition theory. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 97-114). Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Deleeuw, K. E. & Mayer, R. E. (2008). A comparison of three measures of cognitive load: Evidence of separable measures of Intrinsic, Extraneous, and Germane Load. *Journal of Educational Psychology, 100* (1), 223-234.

De Villiers, J., Roeper, T., & Vainikka, A. (1990). The acquisition of long-distance rules. In L. Frazier & J. de Villiers (Eds.), *Language processing and language acquisition* (pp. 257-297). Dordrecht: Kluwer.

Dewey, J. (1938). *Experience & Education.* New York: Simon & Schuster.

Diao, Y. & Sweller, J. (2007). Redundancy in foreign reading comprehension instruction: Concurrent written and spoken presentations. *Language and Learning, 17*, 78-88.

Dixit, A. K. & Nalebuff, B. J. (2008). *The art of strategy.* New York: W.W. Norton & Company.

Dubuc, B. (2010). History module: The growth of new neurons in the adult human brain. http://thebrain.mcgill.ca/flash/capsules/histoire_bleu05.html, retrieved September 6, 2010.

Dulay, H., Burt, M., & Krashen, S. (1982). *Language Two.* New York: OUP.

Dugdale, G. (2008). Global illiteracy is falling, but many will miss 2015 target. *Education Journal, 113*, 24-24.

Eagleton, T. (1996). *Literacy Theory: An Introduction.* St. Paul: University of Minnesota Press.

Elliott, S. N., Kratochwill, T. R., Cook, J. L., & Travers, J. F. (2000). *Educational psychology: Effective teaching, effective learning (3rd edition).* Boston: McGraw-Hill Higher Education.

Ellis, R. (1994). *The study of second language acquisition.* Oxford: Oxford University Press.

Ellwood, C., & Nakane, I. (2009). Privileging of speech in EAP and mainstream university classrooms: A critical evaluation of participation. *TESOL Quarterly, 43* (2), 203-230.

Ericsson, K. A., Krampe, R. T., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*, 363-406.

Field, J. (2008). Bricks or Mortar: Which parts of the input does a second language listener rely on? *TESOL Quarterly, 42* (3), 411-432.

Freire, P. (1970). *Pedagogy of the Oppressed.* New York: Continuum.

Fritzberg, G. J. (2000). Equal educational opportunity versus 'excellence': Keeping the pressure on Goliath. *Educational Foundations, 14*, 51-71.

Gass, S.M., & Mackey, A. (2007). Input, Interaction, and output in second language acquisition. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 175-199).Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Garcia-Caballero, A., Garcia-Lado, I., Gonzalez-Hermida, J., Area, R., Recimil, M. J., Juncos Rabadan, O., Lamas, S., Ozaita, G., & Jorge, F. J. (2007). Paradoxical recovery in a bilingual patient with aphasia after right capsuloputaminal infarction. *Journal of Neurology, Neurosurgery, and psychiatry, 78*, 89-91.

Gleitman, H., Fridlund, A.J., & Reisberg, D. (1999). *Psychology 5th ed.* New York: W.W. Norton & Company.

Goldschneider, J.M., & Dekeyser, R. (2001). Explaining the "natural order of L2 morpheme acquisition" in English: A meta-analysis of multiple determinants. *Language Learning, 51*, 1-50.

Gordon, E. W. (1999). *Education and justice: A view from the back of the bus.* New York: Teachers College Press.

Gregg, K. R. (2000). A theory for every occasion: Postmodernism and SLA. *Second Language Research, 16* (4), 34-59.

Gumperz, J. J. (1982). Conversational code-switching. *Discourse Strategies, 4*, 233-274.

Gunderson, L. (2007). *English-only instruction and immigrant students in secondary school: A critical examination.* Mahwa, NJ: Erlbaum.

Gunderson, L. (2008). The state of the art of secondary ESL teaching and learning. *Journal of Adolescent & Adult Literacy, 52* (3), 184-188.

Halliday, M. (1973). *Explorations in the functions of language.* London: Arnold.

Halliday, M. (1985). *An introduction to functional grammar.* London: Arnold.

Howard, G. (1999). *We can't teach what we don't know: White teachers, multicultural schools.* New York: Teachers College Press.

Howatt, A. (1984). *A history of English language teaching.* Oxford: Oxford University Press.

Jordan, G. (2004). Theory construction in second language acquisition. Philadelphia, PA: John Benjamins.

Judd, C.H. (1908). The relation of special training to general intelligence. *Educational Review, 36*, 28-42.

Kalyuga, S., Ayres, P., Chandler, P., & Sweller, J. (2003). The expertise reversal effect. *Educational Psychologist, 38*, 23-31.

Kalyuga, S., Chandler, P., & Sweller, J. (1998). Levels of expertise and instructional design. *Human Factors, 40*, 1-17.

Kalyuga, S. & Sweller, J. (2004). Measuring Knowledge to optimize cognitive load factors during instruction. *Journal of Educational Psychology, 96*(3), 558-568.

Kalyuga, S. & Sweller, J. (2005). Rapid dynamic assessment of expertise to improve the efficiency of adaptive E-learning. *ETR&D, 53*(3), 83-93.

Kawaguchi, S. (2005). Argument structure and syntactic development in Japanese as a second language. In M. Pienemann (Ed.), *Cross-linguistic aspects of Processability Theory* (pp. 253-298) New York: Benjamins.

Klesmer, H. (1994). Assessment and teacher perceptions of ESL student achievement. *English Quarterly, 26* (3), 5-7.

Klohr, P. R. (1980). The curriculum theory field – Gritty and ragged. *Curriculum Perspectives, 1* (1), 1-7.

Krashen, S. D. (1985). *The input hypothesis: Issues and implications.* London: Longman.

Kumaravadivelu, B. (2003). *Beyond methods: Macrostrategies for language teaching*. New Haven: Yale University Press.

Lantolf, J.P.(1996). SLA building: Letting all the flowers bloom. *Language Learning, 46* (4), 713-749.

Lau v. Nichols, 414 U.S. 563 (1974).

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.

Lenneberg, E. H. (1967). *Biological Foundations of Language.* New York: John Wiley & Sons, Inc.

Lim, H. (2007). A religious analysis of education fever in modern Korea. *Korea* Journal, Summer, 71-98.

Li, Y. (2004). Learning to live and study in Canada: Stories of four EFL learners from China. *TESL Canada Journal, 22* (2), 25-43.

Logan, G. D. (1988). Toward an instance theory of automatization. *Psychological Review, 95*, 492-527.

Logan, G, D. (1992). Shapes of reaction-time distributions and shapes of learning curves: A test of the instance theory of automaticity. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 18*, 883-914.

Long, M. (1981). "Input, interaction and second language acquisition," in H. Winitz (ed.). *Native Language and Foreign Language Acquisition* (pp. 259-78). New York, Annals of the New York Academy of Sciences, Series No. 379.

MacKay, D. G. (1982). The problem of flexibility, fluency, and speed-accuracy trade-off in skilled behavior. *Psychological Review, 89*, 483-505.

Mayer, R. E.; Heiser, J. & Lonn, S. (2001). Cognitive restraints on multimedia learning: When presenting more material results in less understanding. *Journal of Educational Psychology, 93* (1), 187-198.

McMillan, J. H. (2008). *Educational Research: Fundamentals for the Consumer (5th ed.).* Boston: Pearson Education, Inc.

Meacham, S. (2004). Comments on Bakhtin and dialogic pedagogy. *Journal of Russian and East European Psychology, 42* (6), 82-85.

Mikk, J. (2008). Sentence length for revealing the cognitive load reversal effect in text comprehension. *Educational Studies, 34* (2), 119-127.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological review, 63*, 81-97.

Milton, J. (2009). *Measuring second language vocabulary acquisition.* Toronto: Multilingual Matters.

Milton, J., & Meara, P. (1995). How periods abroad affect vocabulary growth in a foreign language. *ILT Review of Applied Linguistics, 107-108*, 17-34.

Minami, M., & Ovando, C.J. (2004). Language issues in multicultural contexts. In J.A. Banks, & C.A. McGee Banks (Eds.), *Handbook of research on multicultural education* (2nd ed., pp. 699-715). San Francisco: Jossey-Bass.

Mooney, R. L. (1975). The Researcher Himself. In W. Pinar (Ed.), *Curriculum Theorizing: The Reconceptualists* (pp. 175 – 207). Berkeley, California: McCutchan.

Morita, N. (2004). Negotiating participation and identity in second language academic communities. *TESOL Quarterly, 38* (4), 573-603.

Munoz, C. (2008). Age-related differences in foreign language learning: Revisiting the empirical evidence. *International Review of Applied Linguistics in Language Teaching, 46,* 197-220.

Nation, I.S.P. (1990). *Teaching and Learning Vocabulary.* Boston, MA: Heinle and Heinle.

Norris, S.P. & Phillips, L.M. (2003). How literacy in its fundamental sense is central to scientific literacy. *Science Education, 87* (2), 224-240.

Nosofsky, R. M., & Palmeri, T. J. (1997). An exemplar-based random walk model of speeded classification. *Psychological Review, 104* (2), 266-300.

Olaofe, I. A. (1992). A communicative model for assessing second language performance. *International Review of Applied Linguistics in Language Teaching, 30* (3), 207-222.

Ortega, L. (2007). Second language learning explained? SLA across nine contemporary theories. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 225-250).Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Palmeri, T. J. (1997). Exemplar similarity and the development of automaticity. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 23*, 324-354.

Palmeri, T. J. (1999). Theories of automaticity and the power law of practice. *Journal of Experimental Psychology, 25* (2), 543-551.

Pavlov, I. P. (1927). *Conditioned reflexes.* London: Oxford University Press.

Pembina Trails School Division. (2010). Application Process. http://www.pembinatrails.ca/isp/applicationprocess.htm , retrieved July 18, 2010.

Piaget, J., & Inhelder, B. (1969). *The psychology of the child.* New York: Basic Books.

Pinar, W. F. (Ed.). (1975). *Curriculum theorizing: The reconceptualists*. Berkeley, California: McCutchan.

Pienemann, M. (2007). Processability Theory. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 137-154).Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Pinker, S. (2007). The language instinct: How the mind creates language. New York, NY: Harper Perennial Modern Classics.

Pompi, K. F., & Lachman, R. (1967). Surrogate processes in the short-term retention of connected discourse. *Journal of Experimental Psychology, 75*, 143-150.

Reeves, J. (2004). "Like everybody else"; Equalizing educational opportunity for English language learners. *TESOL Quarterly, 38*(1), 43-66.

Rickard, T. C. (1997). Bending the power law: A CMPL theory of strategy shifts and the automatization of cognitive skills. *Journal of Experimental Psychology: General, 126*, 288-311.

Robinson, Francis Pleasant (1970). *Effective Study* (4th ed.). New York: Harper & Row.

Rodriguez, D., Manner, J., & Darcy, S. (2010). Evolution of teacher perceptions regarding effective instruction for English language learners. *Journal of Hispanic Higher Education, 9* (2), 130-144.

Roeper, T., & de Villiers, J. (1992). Ordered decisions in the acquisition of wh-questions. In J. Weissenborn, H. Goodluck, & T. Roeper (Eds.), *Theoretical issues in language acquisition: Continuity and change in development* (pp. 191-236). Hillsdale, NJ: Lawrence Erlbaum Associates.

Rosenstock, S. (2009). Course notes. Retrieved Sept –Dec, 2009 from EDUB 7550: Historical and Contemporary Approaches to Curriculum, University of Manitoba.

Ross, J. R. (1967). Constraints on variables in syntax. Unpublished PhD dissertation, M.I.T.

Sabourin, L. (2003). *Grammatical gender and second language processing: An ERP study.* Doctoral dissertation, Rijksuniversiteit Groningen. Groningen Dissertations in Linguistics 42.

Schmitt, N. (2000). *Vocabulary in Language Teaching.* New York: Cambridge University Press.

Schmitt, N., Schmitt, D., & Clapham, C. (2001). Developing and exploring the 194ehavior of two new versions of the Vocabulary Levels Test. *Language Testing, 18* (1), 55-88.

Schnotz, W. & Kurschner, C. (2007). A reconsideration of cognitive load theory. *Educ Psychol Rev , 19*, 469-508.

Seng, G. H. & Hashim, F. (2006). Use of L1 in L2 reading comprehension among tertiary ESL learners. *Reading in a Foreign Language, 18* (1), 29-54.

Shim, D. & Park, J. S. (2008). The language politics of "English Fever" in South Korea. *Korea Journal,* Summer, 136 -159.

Sweller, J. (1976). The effect of task complexity and sequence on rule learning and problem solving. *British Journal of Psychology, 67*, 553-558.

Sweller, J. (1980). Hypothesis salience, task difficulty, and sequential effects on problem solving. *American Journal of Psychology, 93*, 135-145.

Sweller, J. (1988). Cognitive Load during problem solving: Effects on learning. *Cognitive Science*, *12*, 257-285.

Sweller, J. (2010). Element interactivity and intrinsic, extraneous, and germane cognitive load. *Educational Psychology Review*, *22* (2), 123-138.

Sweller, J., & Chandler, J. (1994). Why some material is difficult to learn. *Cognition and Instruction, 12*, 185-233.

Sweller, J., Mawer, R. F., & Howe, W. (1982). Consequences of history-cued and means-end strategies in problem solving. *American Journal of Psychology, 95*, 455-483.

Sweller, J., van Merrienboer, J. J. G., & Paas, F. G. W. C. (1998). Cognitive architecture and instructional design. *Educational Psychology Review, 10* (3), 251-296.

The EFA 2000 Assessment. (2010). Adult Literacy. http://www.unesco.org/education/wef/countryreports/korea/rappport_2_1.html, retrieved December 4th, 2010.

Thorndike, E. L., & Lorge, I. (1944). *The teacher's world book of 3,000 words.* New York: Teachers College Press.

Tsai, Y., Ernst, C. & Talley, P. C. (2010). L1 and L2 strategy use in reading comprehension of Chinese EFL readers. *Reading Psychology, 31* (1), 1-29.

Tyler, R. W. (1949). *Basic Principles of Curriculum and Instruction.* Chicago: The University of Chicago Press.

Valdes, G. (1998). The world outside and inside schools: Language and immigrant children. *Educational Researcher, 27* (6), 4-18.

Van Lier, L. (1989). 'Reeling, writhing, drawling, stretching, and fainting in coils: Oral proficiency interviews as conversation.' *TESOL Quarterly 23/3*: 689-508.

Vanpatten, B. & Williams, J. (Eds.) (2007). Theories in second language acquisition: An introduction. Mahwah, NJ: LEA.

Van Merrienboer, J. J. G. & Sweller, J. (2005). Cognitive Load Theory and Complex Learning: Recent Developments and Future Directions. *Educ Psychol Rev, 17* (2), 147-177.

Van Weijen, D., van den Bergh, H., Rijlaarsdam, R., & Sanders, T. (2009). L1 use during L2 writing: An empirical study of a complex phenomenon. *Journal of Second Language Writing, 18*, 235-250.

Vincent, M., & Yeon, J. (2003). *Teach yourself Korean.* London: Hodder & Stoughton Educational.

Vygotsky, L. S. (1963). Learning and mental development at school age. In B. Simon & J. Simon (Eds.), *Educational psychology in the U.S.S.R.* (pp. 21-34). London: Routledge & Kegan Paul.

Waggoner, D. (1999). Who are secondary newcomer and linguistically different youth? In C.J. Faltis & P.M. Wolfe (Eds.), *So much to say: Adolescents, bilingualism, and ESL in the secondary school* (pp. 13-41). New York: Teachers College Press.

Wallace, C. (2008). Vocabulary: The key to teaching English Language Learners to read. *The Education Digest, 73* (9), 36-39.

Wang, Y., Many, J., & Krumenaker, L. (2008). Understanding the experiences and needs of mainstream teachers of ESL students: Reflections from a secondary social studies teacher. *TESL Canada Journal, 25* (2), 66-84.

Ward, M., & Sweller, J. (1990). Structuring effective worked examples. *Cognition and Instruction, 7* (1), 1-39.

Wenger, E. (1998). *Communities of Practice: learning, meaning, and identity.* Cambridge:
    Cambridge University Press.

Wesche, M., & Paribaht, T.A. (1996). Assessing second language vocabulary knowledge: Depth versus breadth. *The Canadian Modern Language Review, 53*, 13-40.

West, M. (1936). *A general service list of English words.* London: Longmans, Green and CO LTD.

West, M. (1960). *Teaching English in Difficult Circumstances.* London: Longman.

White, L. (2007). Linguistic theory, universal grammar, and second language acquisition. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition:*

An introduction (pp. 37-55).Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Wilkins, D. A. (1972). *Linguistics in Language Teaching.* London: Arnold.

Willinsky, J. (1989). *The Triumph of Literature/ the Fate of Literacy: English in the Secondary School Curriculum.* New York: Teachers College Press.

Yeung, A.S.; Jin, P. & Sweller, J. (1997). Cognitive load and learner expertise: Split-attention and redundancy effects in reading with explanatory notes. *Contemporary Educational Psychology, 23*, 1-21.

Yu, W. (2000). Direct method. In M. Byram (ed.). *Routledge encyclopedia of language teaching and learning* (pp. 176-178)*.* New York: Routledge.

Zhang, L. J. & Anual, S. B. (2008). The role of vocabulary in reading comprehension: The case of secondary school students learning English in Singapore. *Regional Language Centre Journal, 39* (1), 51-76.

Appendix A

INTERVIEW PROTOCOL

Interview

PSEUDONYM: _____   DATE:

_____

START TIME: _____   END TIME: _____

DURATION: _____

Opening Comments: As you know, I am talking to you today about English language learners' perceptions of effective methods to learn English. You are free to withdraw from the study at any time and/or refrain from answering questions you prefer to omit, without prejudice or consequence. With your permission this interview will be audio recorded and transcribed to ensure accuracy. The interview should take approximately one hour. Are you ready to begin?

Question 1: Why do you want to learn English?

Question 2: Describe your experiences learning English. What courses have you taken? What books have you read? How do you practice English?

Question 3: What is the best/worst way to learn English speaking? Why?

Question 4: What is the best/worst way to learn English reading? Why?

Question 5: How do you use Korean to help you learn English? Do you translate English words into Korean? Do you translate Korean into English? Do you take Korean notes? Do you read Korean books about learning English?

Question 6: When you are speaking in English, or reading English, what thoughts do you have in Korean/English? What are you thinking about and which language are these thoughts in?

Question 7: Which is harder for you, speaking or reading in English? Why?

Question 8: What is more important to learn, English grammar or vocabulary? Why?

Question 9: When you read something in English, do you read it only once or many times? How does this help / hurt your English learning?

Question 10: How can Korea improve their English education programs?

Question 11: Is it better to learn English in Korea or North America? Explain your answer.

Question 12: How frustrated do you get reading English? Why do you get frustrated? How does this affect your learning?

Question 13: Do you think L1 explanatory notes would help you learn English / content? Explain your answer.

Question 14: When you read something in English are you concentrating more on learning content or the English language? Explain your answer.

Appendix B

Motivation Survey

Strongly Disagree

Strongly Agree

아주 조금 동의한다   많이 동의한다

1. I think it is very important to learn English?   1   2   3   4   5
나는 영어 배우는 것을 아주 중요하게 생각한다

2. I am taking English lessons now (or I will soon).   1   2   3   4   5
나는 지금 영어수업을 수강하고 있거나 가까운 미래에 영어수업을 수강할 것이다

3. I need to learn English for my job.   1   2   3   4   5
나는 내 일을 위해서 영어를 배울 필요가 있다

4. I enjoy learning English.   1   2   3   4   5
나는 영어 배우는 것을 즐긴다

5. I want to travel, work, and/or study in North Americ   1   2   3   4   5
나는 북미(미국,캐나다)로 여행,일 또는 공부하기를 원하다

6. I will continue to study English until I am fluent in it   1   2   3   4   5
나는 내가 영어를 잘 말할 수 있을 때까지 영어공부를 계속 할 것이다.

7. I have never failed a grade in school.   1   2   3   4   5
나는 학교에서 한 번도 낙제 해 본 적이 없다

8. I put a lot of effort into studying English or any other subject. 1   2   3   4   5
나는 영어공부 또는 다른 과목에 있어서 많은 노력을 했다.

9. I do my assignments or work without having to be reminded. 1   2   3   4   5
나는 다른 사람이 나에게 일러주기전에 숙제 또는 일을 알아서 했다

10. I think learning is more important than high grades.   1   2   3   4   5
나는 좋은 성적보다 배우는 것이 더 중요하다고 생각한다

11. I enjoy reading (both Korean and English books).   1   2   3   4   5
나는 한국 책 그리고 영어 책 둘다 읽기를 즐긴다.

12. I am interested in global issues.   1   2   3   4   5
나는 세계 문제에 대해 관심이 있다

13. Many of my friends and family have learned English. 1   2   3   4   5
내 주위의 많은 친구와 가족들이 영어를 배우고 있다

14. I am very interested in participating in this study.   1   2   3   4   5
나는 이 자료 조사 참여에 많은 관심이 있다.

Appendix C

Vocabulary Checklist Test

Circle all of the words that you know in the following list. Look at each word carefully;

some are real words and others are made up. Only circle the ones you know for sure.

Journalist	Badlook	sewage	mysterious	uncorrorate	Africa	Poisoning
aution	Reaction	hamlike	Typical	Dirty	permeated	Paperty
illness	Rendomize	criticizes	Sentian	Distrutly	Theight	Frightened
waver	Assessing	Stonic	Stress	Hunger	infections	Unvagelly
malaria	Passpart	chemicals	Frightess	programmes	unfathomable	Radio-active
swifer	Affluence	aeroplane	Overlook	Lusilly	Squalor	Toes
tuberculosis	Hazards	expensive	Symptoms	Keen	Beliefs	Curative
Rascue	Analyze	unhealthy	Medicine	infectious	death-bed	Lumptive

Appendix D

Consent Letters

Title of Thesis: An exploration in the effects of L1 explanatory notes on L2 oral production: Liberation of the mind.

Student Researcher: Kevin Carter

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

This letter is an invitation to participate in a study I am conducting for my thesis as part of a master's program at the Faculty of Education, University of Manitoba. My Advisor is Dr. Sandra Kouritzin. I would like to provide you with more information about this study and what your involvement would entail if you decide you would like to take part.

As part of a graduate program in education, the goal and conduct of this study is to learn more about second language acquisition (SLA) through both quantitative and qualitative research methods with a particular focus on the effects of reading scaffolds on one's oral production of English. The project will help me learn more about the topic area and develop skills in research design, data collection and analysis, and writing a research paper / thesis.

Participation in this study is voluntary. It will involve meeting on a maximum of three separate days. Day 1 will take approximately an hour and consist of testing your English vocabulary knowledge and motivation to learn English. To participate, you must be over the age of 18 and have Korean as your first language and culture (i.e. you must have been schooled in Korea, at least up to the secondary level). To continue participating in this study on days 2 and 3, you must score between the 2,000 and 5,000 word level on the Vocabulary Levels Test (Nation, 1990) and below 82% on a Vocabulary Checklist Test (Anderson & Freebody, 1983). In addition, you must have an average Likert score of between 3.5 and 5 on a motivation survey. If selected, Day 2 will also take approximately an hour and consists of reading an English text and orally recalling it. An interview about English learning methods will also take place during this session. You may decline to answer any of the interview questions if you so wish. Day 3 will take

approximately 30 minutes and consists of a final recall and debriefing. All meetings will take place in a mutually agreed upon location and time. Furthermore, you may decide to withdraw from the study at any time and without penalty by advising the student researcher.

With your permission, the sessions will be audio-recorded to facilitate the collection of accurate information, and later transcribed for analysis. All information you provide is considered confidential. Your name or any other personal identifying information (e.g. , name of your school or workplace) will not appear in the research paper resulting from the study or in any future publications or presentations that make use of the results. To further ensure confidentiality I will transcribe the audio-recording by myself. However, with your permission, quotations may be used along with pseudonyms to protect your identity. These direct quotes will be used to show patterns or contrasts between participants' responses in order to better understand learners' different views on effective English learning methods. The use of direct quotes in this manner adds to the trustworthiness of the study that could not equally be established through paraphrasing or summarizing of the participants' words. To further ensure the trustworthiness of this study, you will be provided with transcripts and a preliminary analysis of your sessions via E-mail. You will be asked to review them over a period of a week and to respond if you feel that the transcripts or my preliminary analysis contains errors or misunderstandings. I may also periodically contact you through E-mail if I require further clarifications or if I need you to respond to my analysis of your sessions for accuracy purposes. In total, this review of your transcripts and my analysis of them should only take about an hour of your time. Transcriptions and/or tapes collected during this study will be retained for one year until the completion of my thesis in a locked filing cabinet at my house and then shredded or erased. Electronic data will also be stored on my personal computer, which is password protected and only known by me. A backup of this data will also be stored on a USB which will be locked in my filing cabinet, to which I am the only one with a key. Only my advisor and I will have access to the data.

There are minimal risks to you as a participant in this study, but you may benefit from the dialogue, practice of English, and reading the final results of the study which I will make available to you. There will be no compensation for your participation.

If you have any questions regarding this study, or would like any additional information to assist you in reaching a decision about participation, please contact me by email at khsuz@hotmail.com or at 010-9009-8434. You can also contact my advisor, Dr. Sandra Kouritzin by email at kouritzi@ms.umanitoba.ca or at 204-474-9079.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a participant. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time and/or refrain from answering questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed

as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Education Nursing Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 204-474-7122. A copy of this consent form has been given to you to keep for your records and reference.

I very much look forward to speaking with you and I thank you in advance for your assistance in this project.

Sincerely,

Kevin Carter

Please read the following statements and use a check mark to indicate your response.

Yes _____   No _____

I agree to participate in day 1 (Initial Vocabulary and Motivation Testing) of this study.

Yes _____   No _____

I acknowledge that I may not be invited to participate further as a result of my scores on the initial vocabulary and motivation tests.

Yes _____   No _____

I acknowledge that if I am not invited to participate further in this study that the results of the vocabulary and motivation tests will be made available to me and then immediately destroyed.

Please forward a summary report of the vocabulary and motivation tests to me by E-mail using the following address:

_____

_____

Participant's Name (Please print)

_____

Participant's Signature   Date

_____

Student Researcher's Signature   Date

UNIVERSITY OF MANITOBA

Title of Thesis: An exploration in the effects of L1 explanatory notes on L2 oral production: Liberation of the mind.

Student Researcher: Kevin Carter

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

This letter is an invitation to participate in a study I am conducting for my thesis as part of a master's program at the Faculty of Education, University of Manitoba. My Advisor is Dr. Sandra Kouritzin. I would like to provide you with more information about this study and what your involvement would entail if you decide you would like to take part.

As part of a graduate program in education, the goal and conduct of this study is to learn more about second language acquisition (SLA) through both quantitative and qualitative research methods with a particular focus on the effects of reading scaffolds on one's oral production of English. The project will help me learn more about the topic area and develop skills in research design, data collection and analysis, and writing a research paper / thesis.

Participation in this study is voluntary. Having completed the initial vocabulary and motivation testing, you are now invited for full participation in this study. It will involve meeting on two separate days. The first session will take approximately an hour and consists of reading an English text and orally recalling it. An interview about English learning methods will also take place during this session. You may decline to answer any of the interview questions if you so wish. The last session will take approximately 30 minutes and consists of a final recall and debriefing. All meetings will take place in a mutually agreed upon location and time. Furthermore, you may decide to withdraw from the study at any time and without penalty by advising the student researcher.

With your permission, the sessions will be audio-recorded to facilitate the collection of accurate information, and later transcribed for analysis. All information you provide is considered confidential. Your name or any other personal identifying information (e.g. , name of your school or workplace) will not appear in the research paper resulting from the study or in any future publications or presentations that make use of the results. To further ensure confidentiality I will transcribe the audio-recording by myself. However, with your permission, quotations may be used along with pseudonyms to protect your identity. These direct quotes

will be used to show patterns or contrasts between participants' responses in order to better understand learners' different views on effective English learning methods. The use of direct quotes in this manner adds to the trustworthiness of the study that could not equally be established through paraphrasing or summarizing of the participants' words. To further ensure the trustworthiness of this study, you will be provided with transcripts and a preliminary analysis of your sessions via E-mail. You will be asked to review them over a period of a week and to respond if you feel that the transcripts or my preliminary analysis contains errors or misunderstandings. I may also periodically contact you through E-mail if I require further clarifications or if I need you to respond to my analysis of your sessions for accuracy purposes. In total, this review of your transcripts and my analysis of them should only take about an hour of your time. Transcriptions and/or tapes collected during this study will be retained for one year until the completion of my thesis in a locked filing cabinet at my house and then shredded or erased. Electronic data will also be stored on my personal computer, which is password protected and only known by me. A backup of this data will also be stored on a USB which will be locked in my filing cabinet, to which I am the only one with a key. Only my advisor and I will have access to the data.

There are minimal risks to you as a participant in this study, but you may benefit from the dialogue, practice of English, and reading the final results of the study which I will make available to you. There will be no compensation for your participation.

If you have any questions regarding this study, or would like any additional information to assist you in reaching a decision about participation, please contact me by email at khsuz@hotmail.com or at 010-9009-8434. You can also contact my advisor, Dr. Sandra Kouritzin by email at kouritzi@ms.umanitoba.ca or at 204-474-9079.

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I very much look forward to speaking with you and I thank you in advance for your assistance in this project.

Sincerely,

Kevin Carter

Please read the following statements and use a check mark to indicate your response.

Yes _____   No _____

I agree to participate in this study.

Yes _____   No _____

I agree to have my interview tape recorded.

Yes _____   No _____

I agree to the use of anonymous quotations in Kevin Carter's thesis, as well as in any future publications and presentations.

Please forward a summary report of the research findings to me by email using the following address:

_____

Participant's Name (Please print)

_____

Participant's Signature   Date

_____

Student Researcher's Signature   Date