REVITALISING LINGUISTIC RELATIVITY

Pedagogical implications in language teaching

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Abstract

The linguistic relativity hypothesis (LRH), otherwise known as the Sapir-Whorf Hypothesis (SWH), has been passionately debated over the last 60 years. It has undergone a renewed upsurge in scientific, anthropological and social interest. Several attempts have been made to prove or disprove the moderate version of the theory without producing conclusive results. This study analyses the history of the LRH and attempts to clarify its uses and limitations pertaining to ESL discourse in Swedish upper-secondary schools. Pedagogical implications of the study indicate that, if the LRH is correct, there could be a colossal, logistical impact on the national testing of semantic information in English studies which would have to be addressed in order to effectively and fairly assess every student based on their individual, cognitive skills and culturally influenced knowledge of language.

Key words: linguistic determinism, linguistic relativity, Sapir-Whorf, language and thought, upper-secondary school.

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1. Introduction

The essay being presented focuses on the linguistic relativity hypothesis, otherwise known as the Sapir-Whorf hypothesis, which is concerned with the relationship between both language and thought. This association has been of great interest for anthropologists, psychologists, the social sciences as well as fields of humanities for the last century, but the ideology that language influences or affects thought processes has only recently been researched with renewed vigour since the start of the new millennium. In recent neo-Whorfian studies, the debate regarding the concepts of "language" and "thought" has included a third element: culture. This thesis is concerned with both the original ideas of Sapir and Whorf, as well as Boas, but also the neo-Whorfian explanations relating to the theory. The introduction presents a brief summary if the general claims as to how language influences thought, followed by an outline of the disposition of the thesis. Finally, a description of the aim and purpose of the thesis, along with the questions of interest, are included.

1.1 Disposition of the Study

The linguistic relativity hypothesis (LRH) has generated a great amount of interest and controversy since its conception (Lucy, 1997). Proposing that the particular language that we speak influences how we perceive reality, if the theory is proven to be true, then the worldwide implications would affect numerous aspects from understanding cultural life to formulation of governmental policy. Interest in the LRH has not resulted in a vast number of empirical research studies, but renewed enthusiasm for the proposal gained momentum in the late 1990's. According to the Oxford Advanced Learner's Dictionary (2010), language is defined as *"the system of sounds and words used by humans to express their thoughts and feelings"*. The LRH has at its centre the general question of how language influences thought, of which Lucy (1997) claims that there are three levels: semiotic (speaking is a code with a symbolic content which influences thinking), structure (speaking one or more natural languages may influence thinking), and function (whether using language in a particular way, e.g. learning in school, influences thought). The third level is related to discourse and has

been of particular interest over the past 60 years. It is this level, referred to as discursive relativity, which is the essence of this study.

The historical developments of the LRH will be the focus of Chapter Two. The section begins with the German-American anthropologist Franz Boas (1858-1942) and describes his interest in cultural relativity, of which there is a reference as to how Eskimos refer to the concrete concept of snow. The concept of cultural relativism is relatively applicable to societies and cultures using language as a means of communication. The histories of Edward Sapir (1884-1939), who was a student of Boas, and Benjamin Lee Whorf (1897-1941), who in turn was a student of Sapir, are described and an explanation as to Whorf's incorporation of culture in relation to language and thought. Psychologists Eric Lenneberg and Roger Brown argued against Sapir and Whorf's methodology regarding their psychological assertions based on grammatical terms and use of direct translation techniques. Their inclusion is important, as the psychologists were one of the first to criticize the LRH. Finally, the author George Orwell provides insight as to the use of linguistic determinism as a tool for totalitarian rule, and examples are taken from the dystopian novel *Nineteen eighty-four* (1949).

Chapter Three will be focus on the subject area of neo-Whorfianism. A term coined by linguist Stephen C. Levinson to describe the re-examination of Whorfian theory regarding language. The three elements of language, thought and culture are compared to Whorf's theory, and both comparisons and similarities between Levinson and Whorf are made. The controversial linguist Steven Pinker includes criticism with an explanation as to why several Whorfian statements are to be discredited. The chapter ends with insight from Lera Boroditsky as to how different languages perceive the abstract concept of time, as well as a short section regarding how the theory of LR is being re-assessed.

The pedagogical relevance of the LRH with regards to teaching language in Swedish upper-secondary schools is assessed in Chapter Four. Due to the lack of research studies conducted concentrating on the investigation of the importance of LRH in education-specifically focussing on language teaching/learning practices-several examples are included which highlight how European languages differ which needs to be acknowledged by language educators when teaching. The multinational, and therefore multicultural, mini-societies that schools and classrooms are in modern schools create scenarios and opportunities for language learning that require assessing. There are a number of proposals as to how the current national testing system, which exists in the Swedish education system, can be altered in order to effectively assess the culturally diverse students fairly, as indicated by the neo-Whorfian school of thought.

Chapter Five includes a review of the literature from Boas to Boroditsky, as well as a section relating to the several implications and limitations of the LRH. Proposals for further and future research into this scientific area, with regards solely to pedagogy and language teaching, indicates that the truth of the extent of how language affects thought is as yet unresolved. I have illustrated that there is a necessity for extensive future research to fully ascertain how teaching practices need to change in order to effectively mediate information in ESL discourse, but also that assessment tools need to be altered so as to acknowledge the intricacies of how language, thought and culture affect language learning in modern upper-secondary schools.

1.2 Aim & Purpose

The neglect of empirical research and lack of understanding in the pedagogical area of the association of language and thought related to ESL learning formed the basis of the aim of this study. I wish to give enlightenment as to the understanding of the LRH in relation to language learning and give direction as to how educators can realistically utilize the theory when considering teaching practices in multicultural schools.

1.3 Thesis Questions

The overall question for this essay concentrates on the use of LRH in teaching practices involved with ESL discourse in the Swedish state-run upper-secondary education system. The major question is divided into three sub-areas of interest:

   i.   What is the historical background of the LRH?
   ii. What are the limitations of the hypothesis, as well as the cautionary measures required when teaching ESL?
   iii. How can the LRH be implemented in teaching practices?

2. Historical Developments of the Linguistic Relativity Hypothesis

The Linguistic Relativity Hypothesis, LRH or otherwise known as the "moderate principle" of the Sapir-Whorf Hypothesis (SWH), has three key elements: linguistic properties, thought patterns (including social-cultural systems of classification, inference and memory) and how personal experience affects perception of reality. These three key elements are connected in two ways: language can influence thought about reality and language involves an

interpretation of reality. The theory originally consisted of two parts which describe how language affects thought. The stronger version, termed "language determinism", was coined by the linguist Edward Sapir. This stated that thought is determined by the categories made available to individuals by their language. Thus, linguistic determinism is an extreme form of relativism (known also as "strong/extreme Whorf") stating that our language determines how we perceive the world i.e. we cannot view and contemplate objects and concepts another way). Unfortunately, this version of the Sapir-Whorf hypothesis is not testable and does not allow for phenomena such as bilingualism and translation to occur. The implications of the LRH, according to Pinker (2007), are serious as is states that the foundational categories of reality are not in the world but are imposed by culture.

Edward Sapir and his student Benjamin Lee Whorf were two American linguists studying language determinism in the 1930's. Their research led to the formation of one pivotal question: does language shape how we think? Their theory, commonly termed as the Sapir-Whorf Hypothesis, involves as a principle the theory of linguistic relativity which proposes two statements:

i. The strong version – language determines the way we think as different languages carve up and name the world differently. We cannot perceive the world differently that through the language we use.

ii. The moderate (weaker) version – while language does not determine absolutely how we think, different language structures influence and lead us to perceive and interpret the world in different ways, in how we approach problems and remember facts.

The extreme form of relativism, linguistic determinism, has not until recently been proved to be testable, and renders any form of bi- or multilingualism and translation impossible if it were true. Therefore, most researchers currently reject the strongest form of the hypothesis, which ultimately claims that we can only think in accordance with the grammatical structures of our mother tongue (January & Kako, 2006).

2.1 Franz Boas (1858-1942)

A German-American anthropologist and pioneer of modern anthropology, Franz Boas applied scientific method to the study of human cultures and societies. In studying Inuit tribes, Boas understood the theoretical difficulties in classifying languages and constructed the theory of cultural relativism (1966). The cultural relativity research program involved

studying the relations between language and its influences on culture. Interested in how the different sounds of newly discovered languages are perceived by listeners, Boas attempted to study an area of descriptive linguistics i.e. how are different words pronounced (an area which includes both phonetics and phonemics). It was not the differences in pronunciation of the same words between tribes which Boas considered to be of importance, but the interpretation of the utterances by English-speaking researchers. The issue involved two factors: English phonetic language could not accommodate the perceived sounds emanating from the tribesmen, and that local variations did not imply different dialects. Thus, cultural relativity affects how individuals perceive another language.

A prime example of his use of cultural relativity occurred in 1911 when Boas proposed that Eskimos used four unrelated words for snow in comparison to the English language which he stated only has one word regardless of the form of the snow. This number was later increased to seven by Benjamin Whorf (1940). In fact, the Eskimo language only has two roots for different types of snow: *qanik* for "snow in the air" (for example *snowflake*) and *aput* for "snow on the ground". This linguistic proposal has since been contested by researchers (Pullum, 1991; Martin, 1986). Ironically, it has been acknowledged that the English language actually contains several words for describing specific types of snow, such as slush, sleet, blizzard, fall, storm, and flutter.

In relation to linguistic relativity, Boas' concept of cultural relativism is the concept of relativity applicable to societies and cultures using language as a means of communication (Yamamoto, 2006, p. 6). After transcribing and translating Amerindian texts, Boas stipulated that the cultures need to be understood on their own individual terms rather than as part of a dominant European language such as English. The theory stems from a cultural awareness of the different modes of classifying the world and human experience.

[Insert cartoon of one Eskimo holding a newspaper with the headline "English have 10 times as many negative words" says to another Eskimo, "Did you know that the English have over 400 words for no?" Omitted due to Copyright Laws.]

Figure 1: Cartoon depicting a" tongue-in-cheek" perspective of Boas' snow statement.[2]

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[2] http://bach21.edublogs.org/files/2011/06/gth02291-2ja5opx-jpg - accessed 28/04/12

2.2 Edward Sapir (1884-1939)

An American anthropological linguist and student of Boas, Sapir (1921) reformulated the proposal and stipulated that languages classify experiences differently and that non-industrial tribes were not to be classed as primitive savages but had a complicated system of three elements: language, knowledge and culture. Sapir proposed that each of the three elements were to be considered as complex and valid as individual concepts. Sapir argued that:

> Human beings do not live in the objective world alone, nor alone in the world of social
> activity as ordinarily understood, but are very much at the mercy of the particular language
> which has become the medium of expression for their society. It is quite an illusion to imagine
> that one adjusts to reality essentially without the use of language and that language is merely
> an incidental means of solving specific problems of communication or reflection. The fact of
> the matter is that the "real world" is to a large extent unconsciously built upon the language
> habits of the group. No two languages are ever sufficiently similar to be considered as representing
> the same social reality. The worlds in which different societies live are distinct worlds, not merely
> the same world with different labels attached… We see and hear and otherwise experience very
> largely as we do because the language habits of our community predispose certain choices if
> interpretation. (1929; ref. in Sapir, 1958, p. 69).

In studying Native American tribal languages, for example Apache, Hopi, and Nootka, Sapir noted that speakers of specific languages pay attention to different aspects of reality simply by putting words together into sentences. A straightforward example is one word for one thought in one language e.g. water (English), which may be regarded in more than one class in another language (e.g. *pane* and *keyi* in Hopi). Another example was that when English speakers decide to use the grammatical use of the –ed verb form, they have to consciously attend to tense, i.e. the relative time of the occurrence of the event referring to a particular conversation. Sapir also noted that sentences can be divided in different ways. This can be demonstrated by English and Nootka for the same event. In English, the sentence is divisible into subject and predicate, whereas the Nootka sentence consists of a single word with the root *tl'imsh* and five suffixes. Even though the differences in the Nootka "sentence" are great as compared to the English form, the structure is very much complete and logical (figure 2).

Boas had argued that variations in implicit classifications of experience represented languages which probably had little effect on thought or culture. The concern of Sapir was not concentrated on grammatical structures, semantics or pragmatics, but on the formal

organization of meaning and how they are constructed. It is the categorization of mental representations which Sapir considered to determine thought.

[Pictural depiction of differences between English and Nootka. The sentence in English contains the words "He invites people to a feast," as well as the sentence in Nootka written in English as "Boil-ed-eat-ers-go-for-he-does" with the Nootka translation "Tl'imsh-ya-'is-ita-'itl-ma" and phonetics underneath.]

Figure 2: The different ways in which English and Nootka formulate the same event. The English sentence is divisible into subject and predicate, whereas the Nootka sentence is not. Both sentences are complete and logical. Also, notice that the Nootka sentence is just one word, consisting of the root *tl'imsh* with five suffixes. (Whorf, 1956, p. 243)

2.3 Benjamin Lee Whorf (1897-1941)

Sapir's observation about language and thought was elaborated upon by Whorf who was employed as an inspector for the Hartford Fire Insurance Company before becoming an amateur scholar of Native American languages and working for Sapir at Yale University (Pinker, 2007, p. 49). Whorf wrote, "*Language is not merely a reproducing instrument for voicing ideas but rather is the shaper of ideas…We dissect nature along lines laid down by our native languages*" (Whorf, 1956, p. 213). He became interested in how the language used by workers lead them to often misconstrue certain dangerous situations, which resulted at times in severe consequences. For example, there was an instance where a worker threw a lit cigarette end into an empty barrel which had previously contained petrol. The barrel was presumed to not have any contents, but exploded as was actually filled with flammable vapour from the residual petroleum which was present:

> Physically the situation is hazardous, but the linguistic analysis according to regular analogy must employ the word "empty", which inevitably suggests lack of hazard. The word "empty" is used in two linguistic patterns: (1) as a virtual synonym for "null and void, negative, inert," (2) applied in analysis of physical situations without regard to, e.g. vapour, liquid vestiges, or stray rubbish in the container. The situation is named in one pattern (2) and the same is then "acted out" or "lived up to" in another (1), this being a general formula for the linguistic conditioning of behaviour into hazardous forms. (Whorf, 1956, p. 135).

Another example includes an employee applying a blowtorch to nothing more than a presumed pool of water which actually contained decomposing waste from tannery treatments releasing flammable gases. Therefore, appearances can be deceptive with language acting as the limited vehicle of thought processes based on individual experience and perception. Whorf wrote:

> We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one, but its terms which are absolutely obligatory; we cannot talk at all except by subscribing to the organization and classification of data which the agreement decrees. (1940; ref. in Whorf, 1956, p. 213).

Linguistic relativity, the weaker version of the SWH, states that it is the differences among languages which equals to differences in thought. This weak form of relativism views language as a predisposition to thought rather than a constraint. In the words of Whorf, the principle of linguistic relativity involves "*users of markedly different grammars are pointed by the grammars toward different types of observations and different evaluations of extremely different acts of observation, and hence are not equivalent as observers but must arrive at somewhat different views of the world*" (1956, p. 221).

Whorf utilized a structure-centred approach which began with looking for observed differences between languages in their structure and meaning (Lucy, 1997, p. 296). In an intensive structure of the language of the Hopi Indians of Arizona, Whorf compared it to a number of Standard Average European languages. Using temporal marking, Whorf's approach of comparing English and Hopi languages structurally indicated that the Hopi have a fundamentally different concept of time than that of the European world. This presumption led to one of Whorf's most startling claims in the 1930's as to how the human mind may vary due to the aspects of language. He claimed that European cultures are organized in terms of time and space, while Hopi cultures emphasize events. Also, the Hopi language had no words or expressions referring directly to the abstract concept of "time" i.e. the past, present or future. According to Whorf (1956; ref. in Pinker, 2007, p. 53), the Hopi focussed on a system related to change and processes, instead of having an interest in chronology and patterns of days, months, years, decades, as a continuous, homogenous, formless abstract notion.

Unlike Boas and Sapir, Whorf was interested in a third factor apart from language and thought: culture. Whorf was interested in the potential connection between language and cultural patterns. He attempted to indirectly connect how language influences culture via its effect on the speakers' thought processes. Lucy (1992b, p. 64) has attempted to schematize Whorf's argument in that specific linguistic patterns influence a native speaker's thoughts, which in turn stimulates both cultural and behavioural norms:

Large-scale linguistic patterns
(integrated fashions of speaking)

⬇

Linguistically conditioned habitual thought
(microcosm that each man carries about himself)

⬇

Linguistically conditioned features of culture
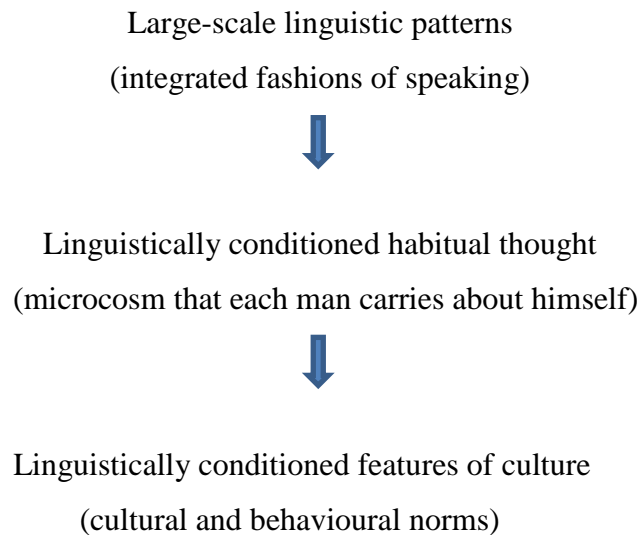(cultural and behavioural norms)

Figure 3: Structures of Whorf's argument linking language, the individual and culture.

Hill (1988, p. 18) proposes that the concept of "culture" is to be considered as a set of completely rational mental phenomena. Whorf had previously understood the complexity of the causal relationship between the three elements stating:

> How does such a network of language, culture, and behaviour come about historically?
> Which was first: the language patterns or cultural norms? In main they have grown up
> Together, constantly influencing each other
> (Whorf, 1956, p. 156)

Whorf proposed that languages refer to an infinite variety of experiences that can be formally categorized to form groups of lexis and grammar. The categories can then be assembled into coherent systems of reference which are specific for a particular language. The linguistic categories act as guides in habitual thought processes.

2.4 Eric Lenneberg and Roger Brown (1954)

Early Whorf critics argued against two points of the methodology incorporated by Sapir and Whorf in their research. Psychologists Lenneberg and Brown criticized the fact that Whorf did not personally study any Native Americans himself, i.e. he never actually physically came into contact with an Apache or Hopi. Therefore, it was considered that Whorf's psychological assertions were based solely on grammatical terms: the language is different to English and so they think differently (due to the words they speak). The second criticism stemmed from the fact that Whorf used glossaries in justifying the grammar in direct translations. This, according to Brown (1957), renders the sentences as dull and mundane. He illustrated this fact by translating a Mark Twain speech, originally in perfect German, which produced a newly translated version and possibly indicating that Germans think differently to native speakers of English. Brown summarized Lenneberg's (1953) standpoint that Whorf appeared to propose two hypotheses:

i. Structural differences between language systems will, in general, be paralleled by non-linguistic cognitive differences, of an unspecified sort, in the native speakers of the two languages.

ii. The structure of anyone's native language strongly influences or fully determines the world-view he will acquire as learns the language.
(1958; ref. in Kay & Kempton, 1984, p. 86)

Brown and Lenneberg conducted studies which incorporated a behaviour-centred approach to investigating Whorfian claims. Their approach begins with encountering a marked difference in linguistic behavioural patterns believed to stem from thought patterns affected by the language patterns of an individual. Brown and Lenneberg (1954) developed a domain-centred study of codable colours. The research demonstrated that some colours were more codable than others in English and the more codable colours were recognised and remembered better in non-linguistic tasks which was a finding repeated in later research studies (Kay & Kempton, 1984).

2.5 George Orwell (1903-1950)

In writing his dystopian novel *1984,* Orwell (1949) indicated that the mechanism for the control of language in totalitarian regimes existed in the Soviet Union, and that it proved successful. However, total control over the thought processes of the collective has historically been undermined by the force of human nature, as observed in the behaviour of Orwell's continually questioning protagonist, Winston Smith. On the other hand, it can be argued that it was the simple social policy governing Oceanic rule which shaped the collective's thoughts instead of the language of Newspeak. The purpose of Newspeak was to provide a vehicle or medium for mental expression but also to render all other modes of thought impossible i.e. rebellious thoughts against the ruling bodies would not be possible as this would not have the vocabulary with which to formulate the thoughts in the first place. The invention of new words did not expand the language of the collective, but reduced it by eliminating undesirable or non-orthodox meanings. The new language was an updated, decayed version of the previous, even though the streamlining was considered to be the road to forming a perfect language.

Orwell places trust in the masses, otherwise known as the proles, which in his novel account for 80% of the population and use the original Oldspeak language as a means of communication. It can be noted that "proles" may be a play on the word "parole"[3] meaning any linguistic influence not primarily related to the formal systemic structures of a language, but to cultural conventions and individual style of use (a term associated with the Swiss scholar and semiotician Saussure, 1857-1913). Therefore, even if the Inner Party (the central ruling government) attempts to streamline and reduce the previously used language known as *Oldspeak* to the newer version termed *Newspeak*, this may not result in fully limiting the vocabulary which could be used in the formulation of thought. Language, as proposed by Whorf (1956), is affected by culture and knowledge, assists in the accumulation and construction of social experience and knowledge. Thus, past historical experience has demonstrated that attempts to control societal use of language has not succeeded over a prolonged period of time due to the diversity and ability of human thought.

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[3] Ferdinand de Saussure used the term *parole* (meaning "speech") to describe the individual, personal phenomenon of language as a series of speech acts made by a linguistic subject. He is also associated with the French term *langue* (meaning "language") describing language as a semiotic system of signs (Sampson, 1980).

3. Neo-Whorfian Studies

As previously stated there is no evidence for the determinism (strong) version of the hypothesis that language controls perception and thought (a theme in Orwell's dystopian novel *1984*, 1949). The strongest evidence indicating a possibility for determinism involved early results from colour coding experiments (Brown & Lenneberg, 1954; Kay & Kempton, 1984), which demonstrated how perception is controlled by biological factors instead of linguistic factors. Relativity, the weaker version of the hypothesis that language has some effect on memory and helps in problem-solving tasks where linguistic encoding is important, has until recently been proved to be too vague.

Hunt and Agnoli (1991) argue from the perspective of cognitive psychology that there is a plausible version of the LRH i.e. that a thought expressible in one language cannot be expressed in another. They state that the difference between the two languages will have consequences with which cognitive processes can be carried and acquired, thus proving problematic in second language acquisition. An example of this could be that one language has only a single word representing a particular concept, whereas another language may have an entire sentence. The first language would have a reduced memory load as compared to the second. The word *mokita* from the Kiriwana language of New Guinea translates to "truth everybody knows but nobody speaks" (Tohidian, 2009, p. 72). Thus, the use of *mokita* in Kiriwana is more economical than the English translation. Another example of the economical use of singular words is that of the Swedish term *lagom*. The English counterpart is translated as "not too much and not too little". Even though English and Swedish have the same Germanic origin (Yule, 2010, p. 225), the differences in these languages, according to Hunt and Agnoli, "*pose different challenges for cognition and provide differential support to cognition*" (1991, p. 387). This conclusion suggests that different languages, regardless of their origins, affect thought processes.

3.1 Levinson's Linguistic Culturalism

The re-examination of Whorf's theories regarding language, thought and culture is, according to Yamamoto (2006, p. 99) the very essence of neo-Whorfianism, a term which was coined by comparative linguist Stephen C. Levinson. It is a reference to the recent resurgence of interest in Whorfianism theory in fields such as philosophy, developmental psychology and linguistic

anthropology. It is the view of Levinson that the "classical" version of Whorfianism is faulty, stating that *"human spatial thinking is quite heavily influenced by culture and more specifically by language"* (Levinson, 2003, p. 18). The criticism of Whorf's studies is based on Levinson's own spatial studies of the Mayan Tzeltal tribe that produced contradictory results regarding the idea of the role of grammatical categories on thinking patterns. The language's locative description forces speaker to choose from a set of 300 verbal roots encoding angle, disposition and shape of the subject. For example, the statement "the cup is on the desk" would need to be elaborated upon as whether or not the cup was upright, if it was wide at the top, etc. (Gumperz & Levinson, 1996, p. 616).

However, the inclusion of the three elements of language, thought and culture likens Levinson's neo-Whorfianism perspective as following Whorfian principles. In significantly contributing to the modern advancement of the LRH, Levinson suggests a co-relation of the three concepts which are compatible with Whorf (Yamamoto, 2006, p. 100). The view that language and thought are intertwined with each other leads to the conclusion that "semantic parameters" are not universal in all languages. Consequently, Levinson's perspective can be considered as being more relativistic that Whorfian theory, as well as being linked to Boas' theory of cultural relativism.

3.2 Pinker: Language Instinct

Pinker states that "*there is no scientific evidence that languages dramatically shape their speakers' way of thinking*" (1994; ref. in Pinker, 2007, p. 57) and proposes several arguments as for the non-feasibility of the strong version of the SWH i.e. language determinism. Firstly, Pinker suggests that we are often unable to convert our conscious thoughts into words and we manage to verbalise information which does not tally or accurately reflect what we are thinking at that moment. Secondly, memory of events or conversations can become affected over time. During these instances of slight memory malfunction, humans do not tend to remember exact words, but recall the *gist* (see glossary) of what was said at that moment. This is an attempt to try to reconstruct the original conversation.

Another assertion of Whorf's refuted by Pinker is that people who speak different languages from English think differently. The methodology undertaken by Whorf was to directly translate utterances from Native Indian languages, such as Hopi, Apache and Nootka, to English. For example, the Nootka sentence meaning "*Boiled-eaters-go-for-he-does*" is translated to "*He invites people to a feast*" (see figure 2, ref. in Whorf, 1956, p. 243). Whorf

concluded that as the Nootka sentence is not divided into the subject and predicate whereas the English translation is ("*I invite*"), then the Native American sentence is illogical and incomplete.

A fourth Whorfian claim denied credibility by Pinker concerns that of the fact that Hopi do not have any concept of time as compared to the standard average European. Malotki (1983) performed an extensive anthropological study of the Hopi and reported that they used speech containing structures for verb tense, units of time, time metaphors, as well as quantifiers of time. Therefore, the study discredited Whorf's claims which were based on vague methodology, as well as presumed limited and poorly analysed samples of Hopi speech.

Pinker also stated that there are many examples of people who are raised without a language, for example Idelfonso (Schaller, 1991), a twenty-seven-year-old illegal immigrant from a small Mexican village, or the deaf and blind scholar Helen Keller (1880-1868) who contracted either scarlet fever or meningitis at 19 months of age leaving her disabled. Just as with the case of Anne Sullivan and Helen Keller, Idelfonso made a breakthrough when Schaller taught him the sign for "cat" (p. 58). The once isolated, languageless adult was soon able to convey aspects about his childhood, lack of education due to poverty and his past employment, as well as demonstrating a abstract forms of thinking.

There are many well-documented cases of victims of stroke or aphasia who lose the power of language who exhibit the capability of thought without language. In instances where stroke patients have had language production and comprehension restored, a number have been able to describe what they were thinking during their languageless period. Pinker presents the case of Mr. Ford, a Coast Guard operator who suffered a stroke at the age of thirty nine (2007, pp. 35-36). Interviewed by neuropsychologist Howard Gardner, Mr. Ford struggled to relay grammatically correct information back to his interviewer. He was observed to omit –ed and –s endings, as well as missing common functional morphemes such as *or*, *be* and *the*. He could name objects correctly and understood the gist of certain questions from the constituent words, but with questions needing grammatical analysis (e.g. The lion was killed by the tiger, which one is dead?) Mr. Ford was found to be impaired. When Gardner asked about what the patient had been doing in hospital, Mr. Ford replied:

> Yes, sure. Me go, er, uh, P.T. nine o'cot, speech…two times…read…wr…ripe, er, rike,
> er, write…practice…get-ting better." (Pinker, 2007, p. 36).

All of the patient's intellectual functions not connected to language, such as calculating equations, reading maps and carrying out commands, were fully intact as associated with areas in the brain coordinating non-verbal tasks. Even with his language impairment, Mr. Ford was able to show understanding of his predicament regarding Broca's aphasia through dialogue. However, in the cases of Helen Keller and Idlefonso, the ability to communicate using sign language was acquired during either childhood or adulthood, respectively, whereas Mr. Ford became linguistically disabled when nearing middle age. This meant that his spoken language skills were fully functioning at the time of the stroke, and he did not have to acquire new communication skills but re-learn existing ones. All of the examples demonstrate that thought processes can occur without being determined by language, but that an element of thought is facilitated by the mediatory vehicle of language.

3.3 Boroditsky and Language Shaping Thought

Boroditsky (2010) considers that language is a unique human gift, a creation or tool, which mankind invented and is continually honed to suit our needs. Due to the non-advancements of innatist theorists such as Noam Chomsky, Boroditsky explains that "*a flurry of new cognitive science research is showing that, in fact, language does profoundly influence how we see the world*" [ibid]. Interested in answering the question of whether the languages we speak shape our thoughts, Boroditsky reveals that the implications in the study of language and thought can have importance in the realms of politics, law and religion. She agrees that even though people talk differently, it does not mean that they think differently. Research studies involving language uncover part of what makes us human i.e. indicating differences in human nature depending on the languages that we speak. Boroditsky writes:

> Languages, of course, are human creations, tools to hone to suit our needs. Simply
> showing that speakers of different languages think differently doesn't tell us whether
> it's language that shapes thought or the other way round. To demonstrate the causal
> role of language, what's needed are studies that directly manipulate language and
> look for effects in cognition. (Boroditsky, 2010).

According to Boroditsky (2001), there for three main limitations common to most of the recent studies in language determinism as opposed to language relativity. The first limitation is that participants are normally tested in their mother language, which results in any comparisons being attributed to the effect of the native language on thinking for that particular language. Therefore, the results are meaningless for thoughts in other languages or non-linguistic thought processes. Secondly, there is no standardization of stimuli or instructions in all languages studied as there is no way of fully knowing if the information is the same in both languages, verbal or written. As there is no method of knowing if the participants are performing the same task, it is dangerous to presume that the comparisons provide meaningful results and conclusions. A third limitation is that by categorising concepts in explicit non-linguistic tasks, participants need to make conscious decisions using their native languages. This final limitation means that evidence collected using explicit measures such as sorting preferences is not considered to be as convincing as for non-linguistic tasks (p. 3).

Boroditsky [ibid] studied whether speakers of English and Mandarin Chinese thought differently about the concept of time and demonstrated that there was an effect of first-language thinking on second-language understanding using the implicit measure of reaction time. In testing twenty-five Mandarin-English bilinguals with varying degrees of experience with both languages, she discovered that cultural bias affected how individuals perceived time. The results indicated that vertical bias, as opposed to the regular Western horizontal bias for time, appeared to be independent of the length of exposure to English (p. 14). Therefore, Boroditsky demonstrated that: (a) one's native language exerts a strong influence over how individuals think about abstract domains such as time, (b) the acquisition of semantic biases (such as habits of thinking about time) decreases with the age at which second-language exposure begins (possibly related to habitualisation of thoughts related to specific concepts), and (c) new beginners of a second language produced results similar to those of Mandarin speakers, suggesting that the effects occurred due to differences in language and not culture.

In Mandarin, native speakers use the spatial morphemes of *qián* ("front") and *hòu* ("back") when discussing the abstract concept of time horizontally. This also occurs for English speakers who predominantly address time as if it were horizontal. One major difference between the languages, as noted by Boroditsky, is that Mandarin also commonly describes time as a vertical concept. Events in English are predominantly referred to as either ahead of or behind us, and although vertical spatial terms such as "to hand down information" or "the issue was about to come up" are used by English speakers, their use is not as common

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or systematic in glosses when compared to the Mandarin metaphors of shàng ("up") or xià ("down"). Boroditsky (2010) states that Mandarin speakers use vertical metaphors of time and space nearly eight times more often than English speakers. The following examples demonstrate the parallel uses of the morphemes when utilised spatially or temporally (Scott, 1989; ref. in Boroditsky, 2001, pp. 4-6)

i. Space:
    Mand. zài zhuōzi <u>qián</u>-bian zhàn-zhe yī ge xuésheng.
    Eng. There is a student standing <u>in front of</u> the desk.

    Time:
    Mand. hǔ nián de <u>qián</u> yī nián shì shénme nián?
    Eng. What is the year <u>before</u> the year of the tiger?

ii. Space:
    Mand. zài zhuōzi <u>hòu</u>-bian zhàn-zhe yī ge lǎoshi.
    Eng. There is a teacher standing <u>behind</u> the desk.

    Time:
    Mand. dàxué bìyè yǐ-<u>hòu</u> wǒ yòu jìn le yánjiūyuàn.
    Eng. <u>After</u> graduating from university, I entered graduate school.

iii. Space:
    Mand. māo <u>shàng</u> shù
    Eng. cats <u>climb</u> trees

    Time:
    Mand. <u>sháng</u> ge yuè
    Eng. <u>last</u> (or previous) month

iv. Space:
    Mand. tā <u>xià</u> le shān méi yǒu
    Eng. has she <u>descended</u> the mountain or not?

Time:

Mand. <u>xià</u> ge yuè

Eng.   <u>next</u> (or following) month

Therefore, as proposed by Boroditsky, an individual's mother tongue appears to influence strongly how humans think about abstract domains such as space and time. Mandarin speakers were more likely to think about time vertically as opposed to the horizontal relationship of time which was observed with English native speakers (2001, p. 19).

Another possibility is that language determines thought for abstract concepts not reliant upon the senses, especially in the conceptualization of relations involving verbs and spatial prepositions. Abstract terms, which habitually come into play during English lessons, need to be lexicalized and relational concepts often vary more cross-linguistically than that of concrete object concepts. Thus, when teaching abstract thought, educators need to acquire awareness of the use of language as a powerful tool and, as stated by Boroditsky, its important role in shaping how speakers think:

> While language plays a central role in cognition, there is nothing magical about how language shapes thought. Languages shape our thinking in the same ways that going to medical school or learning to fly a plane also build expertise and transform what we can do. Different languages encourage different kinds of cognitive expertise in their speakers, and as a result, speakers of different languages end up thinking differently. (Boroditsky, 2010) [4]

3.4 Rethinking Linguistic Relativity

The new linguistic relativism is a question investigated by linguist Deutscher (2010) who states that research areas such as gender, spatial perception, colour and time suggest that language affects thought. Deutscher criticizes the theories of several anthropological linguists and suggests that Whorf never had any actual evidence to support the claims he made. Instead, Deutscher argues that the most powerful evidence for language influencing perception comes from the study of geographic references or deixis in different groups of people, such as the Pormpuraawans tribe in Australia (Boroditsky, 2010).

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[4] www.economist.com/blogs/johnson/2010/12/neo-whorfianism/print - accessed 20/03/12

It is Deutscher's view that the most serious mistake made by Whorf was to assume that our native languages imprisons and constrains our cognition, preventing us from thinking certain thoughts. In other words, if our languages consist of an inventory of words which determine the various concepts we come across in life, there would be no feasible strategy available for learning anything new, for example another language. Deutscher considers gender differences in different mother tongues compel speakers to inform about the sex of the individuals involved in a speech act or utterance, even though the speaker may not wish to divulge this information. In both German and French, the *genderization* of particular nouns is obliged to occur as the grammatical forms are intricately woven in the foundations of the languages, whilst in English they are not.

Using an analogy of an entire floor in a hotel, Deutscher explains the differences in concepts of physical orientation of our bodies and objects in the way that some geographic languages involve training in directional rotation, such as the Guugu-Yimithirr aboriginal tongue from north Queensland, Australia, when committing information to memory, whereas others do not. If staying in a hotel with the aboriginal speaker, your friend staying in the room opposite yours and the corridor consists of identical-looking doors, then the rooms are identical in every way from the position of the furniture to the same telephone on the dressing table. For an English-speaker, the event would mean that the same room has been seen twice, whereas the Guugu-Yimithirr speaker would see every item reversed in your room. In other words, the bed in your room in the north would be deemed as being in the south in the other room. Thus, the experiences of the world for the two speakers, based on spatial orientation, would differ.

Culture plays a vital role from birth in shaping our orientation to the world and objects we encounter in our surroundings. Therefore, Deutscher states that due to instances of decision-making based on intuition, impulses, gut-feeling or emotion that all speakers of all languages are not imprisoned by the deductive logic of determined language. Instead, he proposes that different concepts, ideologies and values need to be experimentally assessed in order to reduce cultural and political misunderstandings, and the first step is to stop pretending that we all think the same as our native languages are vastly different.

According to Gentner and Goldin-Meadow (2003), the basic concepts which constitute a language are building blocks for novel, complex concepts and innovative ideas, and it is the speed at which languages delineate and construct concepts may affect differences in creative thinking abilities in specific areas as compared to other languages. It is proposed that the effects of language on memory and cognition may occur continuously as much of our

consciousness involves mental activity for both externally and internally verbalising information. Gentner and Goldin-Meadow acknowledge that even though LRH research has included the classification of colours, space, time, gender, objects, and artefacts of culture, many (if not all) domains remain unexplored. If the major influences of language are culturally linked, this consideration would tally with Levinson's theory of linguistic culturalism (Levinson, 2003).

3.5 Counting: A Culture-Based Concept

Apart from the differences in abstract spatiotemporal concepts of time and space, counting studies suggest that there is a case for instances of linguistic determinism. Gordon (2004) studied the hunter-gatherer Pirahã tribe in Brazil, which consists of approximately 200 people, whose language only contains words equivalent to the numbers one and two. The Amazonian tribe, located in small villages, have little social structure, use bartering instead of currency for financial exchanges, have a phonemically limited language (consisting of only ten consonants and vowels), and no cultural forms of art. The investigation demonstrated that, as the language does not define numbers above two, a limitation in language seems to affect cognition. Thus, Gordon proposed that the members of the Pirahã tribe use a "one-two-many" system of numerical counting.

One of the several tasks utilized by Gordon involved laying out a random number of objects such as batteries, nuts and sticks in a row, and the tribesman or woman were supposed to lay the same number of objects from their pile. When the number of objects increased to more than three, the Pirahã made more errors and deviated from the correct number of items as the number increased up to ten. This evidence illustrates that if certain concepts could not be verbalised due to the limitations of a language, this acted as a preventative barrier for speakers to understand the concepts. However, it is acknowledged that in this particular case there may be other reasons as to why the tribe's people could not distinguish the higher numbers of items, such as not being used to participating in set tasks.

There have been notable differences in how English and Chinese native speakers apply numbers when counting and performing mathematical equations. Hunt and Agnoli (1991) proposed that having one word for a concept, and not an entire sentence, reduces the amount of memory load in thinking. For example, the Chinese language has the basic number terms of one to ten, 100, 1000, 10 000, etc., whereas native English speakers are culturally experienced with the utilization of the concept of *teens*. Therefore, English-speaking children find it

difficult in learning to count in the teen-range, whilst Chinese-speaking children do not have this problem (for example, the concept of the number *eleven* would be "ten and one" in Chinese).

3.6 Further Criticism of Theories

There has been an almost complete absence of research up until the late 1980's (Lucy, 1997, p. 294). Furthermore, in the last 60 years, psychological research has – according to Boroditsky – uncovered very little about the LRH, and most of the research has been directed towards testing the weaker version of the LRH, i.e. words have some effect on memory and categorization. Parr-Davies (2001) criticizes the LRH from the perspective that the concept of codability is unsubstantiated regarding Boas' implication that the Hopi had four words for the concept of "snow". This subject was studied by Martin (1986) on the story and this work was popularized in an essay by Pullum (1991) who both criticized the claims by both Boas and Whorf. Pullum acknowledges that LR grew from Boas' statement as part of a project about non-literate cultures, but considers the claims of the concepts of cultural relativity and linguistic relativity as "*trite*".

Sampson (1980) proposes that there are valid arguments against Whorfianism. For example, imagine a tribe with a language which differentiates in gender, so terms used for females (girl, woman) have a special mark associated to them. These "feminine" markings are also used for inanimate objects, for example *rock* and *door*. This tribe is not obscure or lives in the jungle areas of South America, but lives in France. Thus, stones and doors are not considered to be female in the same way women and girls are. A problem which arises is that there is confusion between linguistic classification ("animate", "feminine") in languages such as Hopi, French and Spanish, and biological classification ("living", "female"). It is to be noted that there is evidence for frequent correspondence in languages between these classifications, but there does not need to be. Also, linguistic forms do not force us to ignore any biological distinctions.

Phipps (2001) states that, even though there are advocates of the LRH in that language strongly influences thought, there is suitable evidence from available literature indicated that language influences thought and perception, but does not govern thought or how we perceive reality. Chaika (1989) considers the prospect that the relationship between language and thought not only shapes our perceptions of reality, but that the opposite can also occur in that reality can shape the language used by individuals in both their idiolects and sociolects:

Language and society are so intertwined that it is impossible to understand one without the other. There is no human society that does not depend on, is not shaped by, and does not itself shape language. (p. 2).

4. Pedagogical Relevance to Language Learning

The relevance of linguistic relativity to pedagogy and classroom discourse is paramount. According to the LRH, there are two associated principles: linguistic determinism and linguistic relativity. Linguistic determinism states that our thinking is determined by language and linguistic relativity that individuals speaking different languages perceive the external world differently. In the last half a century, there have not been many research studies conducted which state the importance of LRH in education, but it can logically be hypothesized that, if language determinism were true, learning and translating a second language into a mother tongue would prove to be problematic, or virtually impossible, as students would need to completely alter their thought processes. If content and context are bound and limited in a form of linguistics, this would assist in creating verbal meaning using the medium of language.

In Sweden, English is one of three core subjects studied from age eight to nineteen i.e. from primary to upper-secondary level (the other two core subjects being Swedish and Mathematics). One pertinent question could be that, if linguistic relativity exists, how can the national knowledge of English be testable at specific ages when each student's knowledge of English is affected by their experiences and perception of the world? As the level of English would vary greatly, the possibility of fairly testing the knowledge of each and every student would prove impossible based on the LRH. There are a specific number of hours allocated to English course lessons, but the time allocated could be considered as a waste of time as the experiences and intelligence of students taught would differ.

During instances of direct translation, as stated by Sapir and Whorf when translating Hopi, Apache and Nootka languages into English, grammatical structures can differ. This can be said to be true for European languages such as Swedish and German. If translating the Swedish phrase "*det tror jag*" directly into English, the translation would be "*it believe* I". Thus, the predicate and subject are inverted. In German, the phrase "*Ich habe frustuck gegessen*" can be translated as "*I have breakfast eaten*" in English. Thus, the object and past participle have swapped places in the sentence, but this does not necessarily mean that German-speakers and English-speakers have different thoughts or perceptions regarding the

same concepts. Other instances of languages with differences of word order are Asian languages, such as Japanese and Korean, as opposed to many European languages. For example, both Japanese and Korean belong to the Altaic language tree and have a Subject-Object-Verb basic word order, whereas English and Swedish have Subject-Verb-Object, which is the most common word order among the languages of the world. Therefore, when teaching English to students with Asian backgrounds, this possible difference in both language and thought needs to be acknowledged. Backman (2012) provides evidence of basic differences in communication between Japanese and English by including the following examples of differences word order:

Japanese.   Watashi wa kouen made arkimasu.

English.   I park to walk (correct sentence is "I walk to the park") (p. 5)

Japanese.   Terebi wo kodomo ga miteiru.

English.   Television child be watching. (p.18)

Pinker (2007) states that the ability to learn languages of other cultures is associated with the understanding of words and grammatical problems and not to different ways of thinking. But, instances where texts have important concepts which are "lost in translation" – of non-English texts such as Sophocles or Kafka – has a possibility to alter the impact of how texts are received and perceived by upper-secondary school students. This Whorfian perspective contrasts greatly with that of the universalism approach to language. Universalists adopt the cloak theory language as simply dressing of thought can be expressed in several ways. The argument rests on the belief that whatever is said in one language can always be translated into another. A simple example of this falling foul is that of the Swedish translation of prepositions into English. For example:

Swe.   Vad ska vi göra <u>under</u> lektionen?

Eng.   What shall we do <u>under</u> the lesson? (Own, direct translation)

It is noted that a simple direct translation from the Swedish preposition "under" does not provide the correct contextual meaning in English (the correct English preposition being "during"). Therefore, the concept of when to correctly use prepositions must be effectively

taught by language teachers along with various examples and exceptions of the rule in order to be able to fairly test and assess student's knowledge.

The process of visual thinking is thought not to be affected much by language, if at all. Graph-based learning and approaches to problem solving do not immediately involved language, but the concepts represented by the annotated diagrams can be translated into words and sentences. Therefore, the process of visual thought – at some point – is required to be translated into formal language for comprehension, which would agree with the theory of LD that language determines thought. The language of mathematics uses physical objects and written language as a means of representing concepts, but there is always a symbolic representation (albeit in the form of numbers) to organize thought processes and form understanding through language. As Gardner (1983) proposed with his nine forms of intelligence, students expressing a tendency for visual learning have to be addressed in classroom discourse as textual information may not be understood as effectively as imagery.

The inclination of a speaker to involve language categories in thought may be affected by institutionalized discursive practices in a culture. The most obvious cases here include education (Vygotsky, 1978), specialised occupations such as law and science, and class demographics. Lucy (1997) explains that the importance of linguistic ideology in shaping attitudes towards the structure and practice of language, and the important role of poetic or artistic works, are pivotal in approaching attitudes of verbal fluency. The sociocultural theory of the Russian developmentalist Lev Vygotsky (1896-1934) claims that dialogue between a skilful tutor and a novice pupil in collaborative (or guided) learning tasks, where the acquisition of knowledge undergoes social scaffolding with the pupil's peers in the classroom (Vygotsky 1978; ref. in Schaffer, 2009, pp. 90-91). Vygotsky's theory states that a child learns the most collaboratively within his or her zone of proximal development, or ZPD. The ZPD is Vygotsky's term used to describe the range of tasks too complex for a learner to accomplish independently and what he or she can accomplish with the guidance and encouragement from a more skilful partner, or more knowledgeable other (MKO) (Vygotsky, 1978, p. 86). This sociocultural theory of knowledge construction complements the LRH in a classroom context as the individual students will have different cultural experiences which are intrinsically linked to both language and thought, as well as agreeing with modern neo-Whorfian thinking, in that students' knowledge can be stretched to reach the next subsequent level of their specific ZPDs. Thus, the cultural element of language learning may be effectively facilitated as multicultural classrooms act as microcommunities of interactive dialogue.

According to Boroditsky (2001), it is possible to demonstrate that the multiple aspects of linguistics which shape thought by teaching native English speakers grammatical gender systems. The new knowledge influences the mental representations individuals have of existing objects similarly as that for Spanish, German and Russian native speakers. The gender assignment to inanimate nouns, such as tables and chairs, seems to have an effect on how concrete objects are perceived. This phenomenon may be reversed for teaching ESL in Swedish upper-secondary schools. Students from a multitude of different nationalities and cultures attend compulsory English tuition during the first year at this particular level of academia. If the students have an L1 which consists of a grammatical gender system for nouns, educators need to be aware that descriptions for certain objects may be affected when describing the translated word in English. For example, the word "bridge" is designated to be feminine in German and masculine in Spanish. Boroditsky discovered that the German speakers described the bridge as "beautiful", "pretty" and "slender", whereas the Spanish speakers used adjectives such as "strong", "sturdy" and "powerful". Even though the testing was performed in English (a language without grammatical gender designations), the results were not biased. Thus, pedagogical strategies are necessary in order to combat the issue of negative transference of L1 grammatical structures in L2 language learning situations.

Finally, Gumperz and Levinson (1996) consider that the idea of LR would still exist even if complete semantic isomorphism[5] involving grammar and lexical meaning occurred. Linguistic relativity is proposed to exist at the level of interpretation, which can be inferred to as a complicating factor when considering ESL discourse in both linguistic and cultural contexts.

5. Conclusion

5.1 Previous Literature: A Review

The Linguistic Relativity Hypothesis, otherwise known as the "moderate principle" of the Sapir-Whorf Hypothesis, has generated a great amount of interest and controversy since its conception. Since the 1990s, there has been an increased interest in the proposal that language influences thought. In recent neo-Whorfian studies, debates regarding the concepts of language and thought have included a third element: culture. As language is described as "a

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[5] A term used for a hypothetical worldwide use of English (Gumperz & Levinson, 1996).

system of sounds and words used by humans to express their thoughts and feelings", the central question as to how language influences thought processes has advocates both for and against the proposal.

In Chapter Two, a historical summary of the development of the LRH introduced the research of several key anthropologists and linguists, beginning with Franz Boas who was interested in cultural relativity – a concept considered relatively applicable to all societies and cultures using language as a means of communication. He had a keen interest in the interpretation of tribal words and utterances by English-speaking researchers, not the phonetic sounds themselves. Boas concluded that the English phonetic language could not accommodate the sounds made by the tribesmen. Thus, cultural relativity affects how individuals perceive language and that cultural awareness is necessary in understanding how individuals classify the world and human experience.

Sapir, a student of Boas, reformulated cultural relativism stating that languages classify experiences differently, and the classification is governed by three elements: language, thought and culture. In studying several Native American languages, Sapir argued that it was not grammatical structures, semantics or pragmatics which were of major concern, but the formal organisation of meaning construction which determined thought i.e. the categorization of mental representations. Whorf elaborated on Sapir's observations in his interest in how language can be deceiving when acting as a vehicle of thought based on experience and perception, of which he experienced several examples such as an "empty" barrel which exploded and applying a blowtorch to a presumed puddle which ignited.

Whorf's proposal that languages refer to experiences formally categorized into groups which are assembled into specific, coherent systems of reference was criticised by psychologists Brown and Lenneberg (1954). Not only did they note that Whorf only studied transcripts of which he then proposed his psychological assertions based on grammar differences, they also criticised the glossaries Whorf used in direct translation. In conducting their own studies based on the codability of colours, Lenneberg and Brown concluded that colours differed in how they are coded and recognised, which indicated that the structure of a native language can strongly influence or determine an individual's perception of the world. The results from this research were later reinforced by Kay and Kempton (1984).

Chapter Three focused on the area of neo-Whorfianism, a term coined by linguist Stephen Levinson to describe the re-examination of Whorfian theory regarding language. Cognitive psychology research argued from the viewpoint that a thought expressible in one language cannot be expressed in another (Hunt & Agnoli, 1991). It was concluded that the

economical used of language, an example being the New Guinea language called Kiriwana, reduces memory load and that different languages-regardless of their origins-affect thought processes. It has been stated that language, thought and culture are the essence of neo-Whorfianism (Yamamoto, 2006), and that Levinson's studies of the Tzeltal tribe contradicted Whorf regarding the role of grammatical categories on thinking patterns. But, with the suggestion of a co-relation between the three elements, Levinson's own ideas are, in fact, more Whorfian than the original theory itself. Pinker (2007), Boroditsky (2001, 2010) and Deutscher (2010) all criticise Whorfian theory, but state that modern language research has discovered instances where specific cultures demonstrate forms of linguistic determinism or linguistic relativity Boroditsky (2011) reinforces this claim by proposing "*language does profoundly influence how we see the world*" (p. 65).

5.2 Implications & Limitations

The LRH concludes that language determines how we experience and perceive the world and our immediate surroundings, as well as arguing that individuals base their experiences on the limited knowledge of language they possess. Even though not one solid experimental procedure has produced data to confirm or disprove the hypothesis, the most generally accepted view is that the truth of the matter lies somewhere between LD and LR. But there is also another twist to be acknowledged: thought shapes language. Therefore, modern research studies and techniques need to concentrate on studying if language affects thought, rather than how it affects thought.

   According to Pinker (2007), there are several reasons for not accepting theory of linguistic relativity. Therefore, with the problems surrounding the codability of snow (Boas' studies) and the existence of seemingly languageless adults (for example Schaller's Idelfonso and Helen Keller), the theory of linguistic determinism becomes invalidated. Language may not determine our thought processes, but may enable thought to be translated verbally. It has been considered to be a form of life, or *lebensform* as described by Ludwig Wittgenstein (1889-1851; ref. in Wittgenstein, 1961). As a tool for human communication, language is a uniquely human attribute which develops from birth, beginning after the first few months of life when babies enter the gurgling and cooing phase of language production (Lightbrown & Spada, 2011, p. 2), continually changing and combining with infinite factors of everyday life. Hence, this perception of language, that our personal cultural experiences affect how we perceive the world, would coincide with the weaker version of LRH.

The pedagogical implications of the LRH, as discussed in Chapter Four, are great in relation to language learning and teaching practices. The following example, completely hypothetical, will attempt to illustrate the pedagogical complexities of the theory to a modern-day situation in testing knowledge of ESL in Sweden. As previously stated in this study, English is one of three core subjects which are tested nationally in both lower- and upper-secondary schools. If in the reading section of the national test for the English 6 course, a question states "Pick out the verbs which are classed as phrasal verbs in the following statement: John cheered up when he heard Jessica's voice as she would figure out what to do next." If a particular student has not been taught the concept of phrasal verbs fully, or that they have not encountered the examples of "to cheer up" or "to figure out" during their education, then it is unfair to test this semantic information as the student may not know the answer. The lack of knowledge may not be due to the student's language skills, but the fact that he or she has not been taught a particular part of the concept of phrasal verbs. Therefore, an element of culture i.e. schooling, has proved to affect both language and thought. It is not the student's fault that they cannot answer the question correctly. It can be viewed that it is the individual's culture which is, in fact, the issue. Therefore, to overcome the issue of culture, ESL in Sweden would have to become completely standardized nationwide for annual tests to continue as normal. It is acknowledged by this study that the standardization of language teaching is not a viable option for Swedish upper-secondary schools.

Language, according to Boroditsky (2010) is uniquely a human gift, and due to the latest neo-Whorfian interest, it has been perceived as a tool to shape not only our thoughts, but also how we see the world and go about our daily lives.

5.3 Further/Future Work

With regards to the LRH, it has been previously proposed that the elements of language, thought and culture are closely related terms. Generally, research studies have concluded that even though there may be some truth to the LRH, the extent of this truth is as yet unresolved (De Cruz, 2009). As the hypothesis is rather broad and vague in its assumptions and presumptions, various problems arise regarding the interpretation of results. Therefore, there is a necessity for extensive future research in the subject area in order to ascertain how teaching practices can effectively mediate information in ESL discourse. As schools are multinational microcommunities consisting of students from, in many instances, diverse backgrounds, the methods with which teachers assess the knowledge of language students

needs to be revised to acknowledge cultural differences which can affect their recall during national test situations. A revision of the existing national test system, from testing semantics to asking open-ended questions, is proposed by this study to possibly increase the *fairness* of assessing the students' knowledge of language, especially in ESL.

Due to the improvements in anatomical scanning equipment, biochemical and physiological studies of the areas of the brain involved in SLA, as well as the structures concerned with the acquisition of culture, may provide further insight into the interaction of the three elements of language, thought and culture in language learning. Moreover, research studies are necessary in Scandinavia to elucidate which strategies upper-secondary students use when learning new concepts in language classes. It is the proposal of this study that the information could possibly prove to be invaluable for both educators and students in gaining further understanding of the complexity of learning a second language such as English.

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7. Glossary of Terms

Apache Athabaskan languages of the Apache, which have about 14,000 speakers altogether, though some are virtually extinct. Origin from Mexican Spanish, probably from Zuni *Apachu*, literally 'enemy'.

Culture Socially acquired knowledge. Origin: the ideas, customs, and social behaviour of a particular people or society e.g.*Afro-Caribbean culture.*

Cultural materialism Cultural Materialism is a scientific research strategy that prioritizes material, behavioral and ethical processes in the explanation of the evolution of human socio-cultural systems.

ESL English as a second language.

Guugu-Yimithirr **Guugu Yimithirr** (many other spellings) is the traditional language of the Guugu Yimithirr people of Far North Queensland. An Australian-Aboriginal language, it belongs to the Pama-Nyungan language family. Most of the speakers today live at the community of Hopevale, about 46 km from Cooktown. It is one of the more famous Australian languages because it is the source of the word kangaroo. The word *guugu* means "speech, language", while *yimithirr* (or *yumuthirr*) means *yimi*-having, *yimi* being the word for "this". The use of the word *yi(mi)*, rather than some other word for "this", was seen as a distinctive feature of Guugu Yimithirr.

Hopi The Uto-Aztecan language of the Hopi, with around 2,000 speakers. A language used by Pueblo Indian people living chiefly in NE Arizona.

Kiriwana   A tribal language of New Guinea.

Language   Communication of thoughts and feelings through a system of arbitrary signals, such as voice sounds, gestures, or written symbols. Used by a nation, people, or other distinct community; often contrasted with dialect.

Linguistic determinism   The idea that we can only think in the categories provided by our language., in contrast to linguistic relativity.

Linguistic relativity   The idea that, to some extent, we think about the world using categories provided by our language, in contrast to linguistic determinism.

Neo-Whorfianism   A term by linguist Stephen C. Levinson referring to the resurgence of interest in Whorfian ideas with converging strands of thought from different fields such as linguistic anthropology, philosophy and developmental psychology.

Newspeak   An ambiguous euphemistic language used chiefly in political propaganda. Origin: the name of an artificial official language in George Orwell's *Nineteen Eighty-Four* (1949).

Nootka   The Wakashan language of the Nootka, now with few speakers. Named after Nootka Sound, an inlet on the coast of Vancouver Island.

Oldspeak   Normal English usage as opposed to technical or propagandist language. Origin: from George Orwell's *Nineteen Eighty-Four* (see newspeak).

Pormpuraawan   The language of a remote Australian Aboriginal community of Pormpuraaw, located on the west coast of Cape York Peninsula, Australia.

Pirahă   Pirahã, a language spoken by about 300 hunter gatherers
                            living in the Amazonian rain forest, having only three vowels, i,
                            a, o, and eight consonants, p, t, k, /, b, g, s, h. (/ is the symbol for
                            a glottal stop, a sound that does not have any lip or tongue
                            action).

Pragmatics   The branch of linguistics dealing with language in use and the
                            contexts in which it is used, including such matters as deixis, the
                            taking of turns in conversation, text organization, presupposition,
                            and implicature.

SLA   Second language acquisition.

Semantics   The branch of linguistics and logic concerned with meaning. The
                            two main areas are **logical semantics**, concerned with matters
                            such as sense and reference and presupposition and implication,
                            and **lexical semantics**, concerned with the analysis of word
                            meanings and relations between them.

Thought   Refers to any mental or intellectual activity involving an
                            individual's subjective consciousness. It can refer either to the act
                            of thinking or the resulting ideas or arrangements of ideas.
                            Thought underlies almost all human actions and interactions.
                            Understanding its physical and metaphysical origins, processes,
                            and effects has been a longstanding goal in academic disciplines.