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FOUND IN SPACE: A CROSS-LINGUISTIC ANALYSIS OF SECOND LANGUAGE LEARNERS IN ENGLISH MAP TASK PERFORMANCE

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DISSERTATION

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Dedication

This dissertation is dedicated to the noble and courageous people of the Middle East, whose acceptance and resilience in the face of unending conflict and strife inspire my work and my deep commitment to my faith.

To my children, Samantha and Nathan, who have been true supporters and valued critics during my doctoral studies. To my son, Drew, who has passed on to the next world, leaving me with the greatest lessons of my life on Earth. To my dear brothers and sisters Muhammad, Amal, Zouhair, Rahaf, Bashir, Moataz, Nabeel, Hamed, Ghazool, and Razan living across the world, who advise, instruct, and encourage me to their best of their ability, to my sisters and brothers at the Islamic Center of New Mexico, and to my past and future students and colleagues.

May Allah guide all of us to fulfilling and peaceful futures. إن شاءالله

I dedicate my life to transmit peace, knowledge, and education.

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ABSTRACT

This dissertation study addresses the grammar and conceptual organization of spatial language through an investigation of bilingual language use. This involves examining the types of spatial terminology that occur in natural language through the use of an elicited performance task called the Map Task, and the project using this task and direction-giving discourse, along with the ensuing analysis of the task, offers an intimate glimpse of how the usage of spatial language reflects the intention and cognitive grammatical structure of the speaker. Map drawing is a visual manifestation of an internal image and a symbolic behavior, a way for a human to represent himself or herself as a constituent member of an external space.

Understanding the relationship between first and second language use in the area of spatial language has broader implications for our understanding of language learning and consequences for the construction of bilingual assessment instruments for second language learners. The study shows that observing and interpreting the task of map drawing and the related behavior of explaining maps can be a way to explore the linguistic emergence of the

conceptualization of spatial language (at a moment of simultaneous and synchronized incarnation). Altogether, 50 dyads (pairs) participated in the New Mexico Map Task Project; the project included native speakers of English, Russian, Japanese, Navajo, and Spanish.

In an examination of how the grammatical constructions used for spatial descriptions in a speaker's first language carry over into the usage of this speaker's second language, new observations include the intra-subject comparison of dyadic map task performances. Each non-native English-speaking dyad participates in two map task performances: one in their native language and one in their second language, English. Evidence was generated through morphosyntactic, phonological, and pragmatic analyses performed on the sound files of the transcripts. This evidence confirms the connection between the participants' productions of tokens of selected landmark names both in their native language and their second language.

Combining the results of linguistic analyses with educational assessment frameworks allows the predicted development of an evaluation instrument for use with immigrant and refugee students from areas of conflict.

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Prologue

"The word is half his that speaks and half his that hears it."

Michel de Montaigne, *Essays*

In the following pages, you will embark upon a journey – a path that takes you from the time of late Medieval history and economics to the twenty-first century's reality of a child's day-to-day experience as s/he navigates an unfamiliar and foreign educational environment or to the fragility of an adult's travail in his/her daily encounters in an adopted country. This pathway is now one of the most widely traveled byways of our modern world; it is the wayfaring of migration. And, the majority of the people who embark on this odyssey are also learning English as their second (or third or fourth, etc.,) language. In the midst of this journey, you will be able to see how the history and economic values of our collective human past have influenced and continue to impact the cognitive development and daily behaviors of the millions of people who are migrating to other countries around our world today. At journey's end, after you view a many-layered analysis of a task that can expose the underlying processes of how these migrants use English as their second language, you will understand how our multiple systems of language-learning can affect their present precarious situations through an adaptive practice involving educational evaluation and assessment tools. This study is about conceivably changing the lives of millions of people for the better.

In the 15th century, the United Kingdom began a policy of spreading the teaching of English in the places where they conducted their trading operations and in their colonies; of primary importance was instructing key members of the communities in the English language (Beare, 2018). It led to, among other things, the birth of ESL (English as a Second Language). The purpose of this effort was economic; English traders needed to communicate

with the people they did business with, and English was their *lingua franca*, a common language, once the community members learned it. Within a few hundred years, English teachers were being dispatched to make sure to "educate upper-class colonists and local government officials, indoctrinating them with British ideas and culture, including the English language" (Beare, 2018). Fast-forward 600 years and we are in the midst of a huge ESL/EFL movement that seems to only expand each year.

So, today, how many students/people are learning English globally? Recent reports indicate that 1.5 billion people worldwide are studying English – and the estimation is that this number will reach 2 billion by 2020 (Beare, 2018). Why are they engaging in this activity? Well, people learn languages for many reasons: they are looking to better themselves economically; they are applying to higher educational institutions to study; they are migrating to another country and must learn to communicate with the people there; they are forced to leave their own land due to conflict or natural disaster; or, maybe, they simply study it while they are attending school in their native country. English is a global language that has precedence in many arenas today due to these migration, employment, and educational factors (Beare, 2018), requiring a deeper look at this phenomenon.

What is the cognitive impact of learning a second language on a student's mental processes? More to the point, what unique learning styles and needs manifest in the almost five million English Language Learners (ELLs) who are currently part of the educational system in the United States? How many of these students are suffering from trauma – how many of them have been forced from their homes – how many of them are carrying memories that inhibit their capacity to learn? To this day, over 800,000 of them have been identified as having a disability, and many of them are not receiving the services they are

entitled to (Kangas, 2017), according to the law of the land. How does a student find the energy and stamina to learn a language when they are suffering the consequences of leaving, or being forced to leave, their homeland, while realizing that they might never return home again? What are the effects of neglect and trauma on language development? Neglect can be both long term and short term, as can trauma (long term and short term); long term, persistent neglect and trauma can result in adaptive characteristics that allow the individual to deal with prolonged exposure to both experiences. Both slow-acting trauma and adaptive neglect are the outcomes, and these are consistent and stable in a negative developmental way. Even more detrimental to development is the intensity of incidental trauma – its characteristics include uncertainty, inconsistency, and instability; it is nearly impossible to predict the results of incidental trauma (Capstick, 2018).

Related to the effects of traumatic events on language development, recent work has coined the term “language failure” - the failure to learn even one language system (Kangas, 2017). This phenomenon is present in the current descriptive frameworks detailing diagnostic categories in the area of Special Education, and an elaborate description of the inner workings and analysis possible with a linguistic examination of the diagnostic evaluation for special education services is also presented in the following text.

This study and its results suggest that multilingualism exhibits a reorienting/re-organizing potential as a non-invasive treatment for post-conflict trauma and that relearning a language system may re-activate the developmental processes that humans use to acquire language. As an example, trauma, experienced at all levels (some more than others), influences language production to the extent that it requires the re-valuation of silence as a vital communication element; it also alters language use and the user's ability to produce

language continues or re-start. But, the trauma of hearing, learning, studying, or using your own language can also be a source of developmental delay in language acquisition.

There is neuroscientific work in the area of language learning and cognitive development that might offer insight into the possible use of language learning as a therapeutic healing activity (Capstick, 2018). Referring to current work on Post-Orphanage Behavior (Gindis, 2003), there is evidence for strong effects from the traumatic disruption of cognitive structural development, and there may even be a possibility that a basic level and pre-verbal categorizing function such as visual-spatial orientation is affected by the disruption of trauma during development, or even at later stages such as in adulthood. If learning a language re-activates earlier acquired phases, we mentally return to what appears to be a level of attention and assimilation of signals/processes similar to when we are young and gathering input through our primary language processing. It may even be shown that the future of multilingual language development and the capacity for learning languages (multilingual therapeutic approaches) can be explored and exploited to the point not only of healing a mind or psyche that has been damaged but in the larger and more universal context of easing international conflict between historically adversarial populations. Blasi et al. (2016) notices the powerful effects of internal pressures on language change on idiosyncratic language use, but it is also possible that these pressures affect wider language use and change.

Although this work supports much of the long-held assertions about L1/L2 (first language learner/second language learner) and multilingual learning and the cross-linguistic relationships between the languages acquired (Blasi et al., 2016), it also promotes an analytic framework for expanding the field of pragmatic views of multilingual language data.

Researchers who use performance task approaches to generate data for pragmatic analysis can access deeper insights into cognitive processes and offer a more evidence-based foundation for future work. Results from the study expand the means available to observe multiple layers of cognitive development simultaneously, enabling researchers to assemble a convergent analysis of stable, yet inherently variable, data. This data can potentially show how a detailed linguistic analysis of a performance task used to determine variations in the expression of spatial orientation can enhance our predictive ability regarding the successful comprehensive incorporation of novel concepts among students who have experienced emotional or physical trauma in regions where conflict is actively and consistently occurring. The relationship of visual-spatial development to the capacity for metaphorical representation provides a bridge from native language to second language literacy, and the investigations into this relationship offer multiple layers/entry points (instrumental uses) for the practitioner to use for evaluative purposes. If we apply this evaluation to the population of ELLs with disabilities, we can use the assessment of visual-spatial skills to measure stress levels as the consequences of traumatic event, the ease of a student's acclimation to the school environment, and maybe even the predilection of a student's ability to successfully integrate and adapt to her new language and new community. Furthermore, the data offers the potential of a “trauma-informed” analysis for both children and adults from conflict areas, assisting in their successful societal re-entry and integration into their adopted communities.

Detailed linguistic analysis of second language use can also reveal cognitive movement and realignment or the lack of normal acquisition and the failed integrative use of new language; when we are analyzing errors, for example, if an L2 speaker is using the wrong word they may still be using the correct intonation for their language, and for someone

else who knows and speaks their language, they are entirely comprehensible. At the very least, this type of idiosyncratic analysis affords an opportunity to alleviate some of the difficulties of trans-lingual assessment that have been detailed in the literature regarding the issues of ELLs in the American school systems. But broad-based, cross-cultural, trans-lingual assessment is extremely difficult and alarmingly rare, even though such an assessment would prove very useful in multiple educational environments.

Concepts of volition and intention can also come into play if the idiosyncratic aspects of task-based assessment are enhanced. The intersection of volition and intention is crucial to consider here; above there are several suggestions for reasons that people choose (or are forced) to learn additional languages. And, these deeper motivations can incite a multitude of questions. Are intention and volition ever considered as involuntary processes, "reflexes" connected with survival? When does intention become intentional, and when does volition combine with intention? For example, do we "intend" to breathe, to walk, to speak, to eat? Even more importantly, do we intend to learn? Do we want to learn? Does our intention and our desire to learn affect what seems to be a physiologically involuntary process in either a negative or positive way? These questions are vast and beyond the scope of any one small research project, but they do help us to understand the transdisciplinary nature and possible range of this investigation.

The potential for the analysis of task-based assessment to offer insight into the cognitive process has evidence to support it. The project detailed in this study highlights the qualities/characteristics of intersecting events between the production of a second language by a speaker/learner and the native language of this speaker/learner. The link between first and second language use can be exploited to serve as a poly-adaptive instrument to assess

bilingual performance and intra-lingual development among students in bilingual programs; this instrument is part of what is called “pragmatic” analytic framework of student language production (Flecha et al., 2013). The flexibility of a dyadic performance task adapted for a trans-lingual setting is its primary advantage, because not only can it be adjusted trans-culturally, it can also be re-configured to measure variable levels of cognitive development.

My earlier pilot study (Metheny, 2007) displayed a connection between first and second language system development, and it also supported much of the previous work done with linguistic analysis in performance tasks. But this study goes well beyond the historical task-based research. Although similar data to historical work on performance tasks presents itself, the current study's deeper levels of analysis afford a view of cognition in action. Building on my work that delineates that firm connection between one's native language system’s thought processes and the verbal and written expression of one's additional acquired languages, this current study takes it one giant step further.

Deeper analysis allows us to view the alteration and re-combination of linguistically co-developing spatial descriptive tokens. Just as other work in this area might:

> provide a compelling case that gestures (motion information) [accompany] a speaker's message that go beyond what is available in the linguistic stream alone, and listeners capitalize on the additional motion information. The broader point such work makes is that our analysis of others' intentions can be rampantly incomplete when we lack multi-modal information about their behavior. (Givon, 2002, p. 23)

This forms the basis for my belief that (simultaneous) viewing and correlation of data production and analysis is immeasurably invaluable for glimpsing cognitive processes – particularly when the source of the information being viewed is generated at a proto-

linguistic, pre-active language acquisition phase, signaling the speaker's (and listener's) inability/incapacity to interfere with or control the process of language production.

Assessment of cognitive restructuring can be apparent in basic-level language use; visual-spatial competence and expression are two of the early developmental stages of cognitive processing (Flecha et al., 2013). The assessment of these stages offers a view into cognitive processing because the speaker is seemingly unaware of the choices s/he is making in language use. It is important to note how the retention of one's native language allows for the persistence of an embedded language system and worldview that provides a touchstone for not only communication but also for moral judgment and character development. Some research (Capstick, 2018; Lawler, 2017), suggests that resilience in the face of trauma and challenging environmental stressors emerges from both the firm foundation of this native language system and the framework of a newly acquired language system, in tandem.

As deeper level analyses are developed, these analyses reinforce the simple fact that an individual's language production alters with multilingual language development and use implies that even more embedded and increasingly complexly related events may affect language use and production. By extension, if these implications bear out, then the activity of acquisition can be re-interpreted as therapeutic, particularly when trauma is shown to be connected with the language system in place during the commission of the traumatic event. The need for this re-interpretation is there; the hope being that it can be more than “strongly suggested” that this work will underpin a larger effort to clear the way for therapeutic language developmental applications. This effort will align multiple fields (educational service delivery areas) from speech and hearing sciences and special education and bilingual education to higher education instructional frameworks to integrated supported employment

services and institutional and corporate programs for ensuring success for newly arriving and existing members of communities worldwide.

If linguistic analyses are included in the design of the educational delivery services, these services may be more effective. If assessment and analysis are embedded in the treatment process, the system (educational) will be both therapeutic and preventative with the end-goal of built-in safeguards against further damage while also providing a framework for guiding and preparing the recipients to help themselves as well as their fellows. It may sound incongruous, but the potential for using linguistic analysis in therapeutic and even compassionate applications offers a more humanitarian approach to the study of languages. Scholars frequently draw together concepts from seemingly disparate fields, incorporating and integrating them for more practical services, in this case in the educational realm, with students, teachers, and administrators.

This idea of integration and incorporation will emerge in the current work, rising to the surface of the current conflict over second language acquisition. It is entirely possible that the Map Task can be instrumental in showing these approaches to language acquisition to be true and viable. With analytic interpretation, these concepts will reveal the underpinnings of both recurrent and persistent damage from trauma and the resilience required for recovery from this experience. Against a backdrop of statistics, population data, and research analyses is silhouetted the vast issue of educating children and adults who are survivors of conflict – educating them not only to ensure satisfactory livelihood and economic support but to re-invigorate their souls and their dreams – to initiate healing from their trauma and transform their future with not only promises but assurances of love and peace and inclusion and belonging.

This dissertation addresses this very issue indirectly from an analytic viewpoint, suggesting that a careful and comprehensive linguistic analysis or a performance-based task will yield results revealing trans-lingual cognitive development in both adults, and, by extension, children, who are studying English as a Second Language. The structure of this dissertation is two-fold: the primary study and analysis are presented first, along with the historical background and traditionally arranged format of the study. More importantly, the second half of the project offers the application of the data based on the indicators emerging from the analysis for populations of vulnerable individuals, issuing a strong and fervent call for fellow scholars to align themselves with this work, which, if pursued diligently, will reshape the future of global language education.

Chapter 1

Introduction

Humans are language-learning machines. From the moment we are conceived, the focus of our beings is to allow information from the outside of our bodies to become integrated with the information developing inside of our bodies. This integration suggests a framework that may sound like “learning,” but it encompasses more than memorizing an alphabet or distinguishing between shapes and colors – it is an absorption of our environment with the intention of becoming even more adept at absorbing; it's “learning to learn,” and after that, it’s “learning to learn better,” an iterative process. The ongoing focus and endpoint of our developmental integration is the ability and desire to share what we have inside of us with others who are outside of us; humans want to be understood. We don't have a choice in this process; it's what we as humans are born to do, to acquire the abilities to activate, integrate, communicate, and participate as an individual who is part of a group.

The core of language development resides in experience, the interaction between what we think about what we see, hear, touch, taste, or smell and what we try to do and say about what we see, hear, touch, taste, or smell. The words, (the signs and symbols: the names we learn to call things and feelings, locations and actions) we learn as we develop our ability to begin to speak, matching up environmental objects and emotional sensations with which we are very familiar (Vygotsky, 1993). This learning of words, and the incorporation of them into our cognitive data bank, also invites comparison of familiar with unfamiliar, or novel, concepts which enter our visual and sensory space, alternately forcing and allowing us to integrate new and unfamiliar objects, feelings, or actions into our young and scanty framework.

This dissertation study addresses the grammar and organization of spatial language through an investigation of bilingual language use. I am investigating the types of spatial terminology that occur in natural language use as part of an elicited task of wayfinding (direction-giving) discourse; my hypothesis is that this task and its ensuing analysis offer a more intimate glimpse of how the usage of the language reflects the intention and cognitive grammatical structure of the speaker. The terms path-finding, wayfinding, and direction-giving reflect different foci and biases. Although this study presents research from all three areas, I have chosen to use the more embracing term ‘spatial language’ as a way of combining these areas in all subsequent mentions of this type of task and the discourse generated by it. Specifically, I plan to examine how the grammatical constructions of the verbal tokens used for spatial descriptions in a speaker's first language carry over into the usage of these tokens in a speaker's second language; in this investigation, we will also explore the interaction between linguistic analysis and educational assessment.

Understanding the relationship between first and second language use in the area of spatial language development has broader implications leading to our understanding of language learning and the consequences for the construction of bilingual assessment instruments for second language learners. The expanded study for the dissertation shows that observing and interpreting the task of map drawing and the related behavior of explaining maps can be a way to explore the linguistic emergence of the conceptualization of spatial language (at a moment of simultaneous and synchronized incarnation). This study is a continuation of a pilot study on the comparative usage of spatial terminology by non-native English speakers; the current expanded study is called The New Mexico Map Task Project (NMMTP).

Before we begin to explore the specifications of the study itself, I am presenting a section which gives the background of language acquisition and language development and a short description of the theoretical basis for the usage of task-based analyses to study these processes.

Language Acquisition Skill Development

How does the process of language acquisition occur? Suggested answers to this broad question spring from the multidisciplinary theoretical underpinnings of the phenomenon of language itself and the history of the study of language. In Bybee's (2003) view, language states come about through the complex interplay of processes at work as language is used. To assess the place of language in the context of human cognitive abilities, it is important to note that most of the processes at work as language is used apply to non-linguistic activities as well. Thus, automation, habituation, and categorization can be seen to operate in non-linguistic abilities. Language is highly evolved but not totally distinct from other neuro-motor and cognitive abilities (p. 617).

A related approach to the study of human language development comes from the field of cognitive linguistics, resulting from the work of many (Croft & Cruse, 2004; Langacker, 1991; Talmy, 1988) who resisted the tenets of the school of generative grammar and truth-conditional (logical) semantics. There are three major hypotheses to serve as guiding principles for "the cognitive linguistic approach to language:

[*]language is not an autonomous cognitive faculty

[*]grammar is conceptualization

[*]knowledge of language emerges from language use" (Croft & Cruse, p. 1).

These guiding principles can be included in the list of non-autonomous cognitive faculties, faculties that evolved along with basic human abilities to visually evaluate one's surrounding environments for predators or for hunting purposes then to store these evaluations categorically (Barsalou, 1999). The tenets of cognitive linguistics also relate fundamentally to cognitive grammar (Langacker, 1991) and cognitive pragmatics (Marmaridou, 2000), and this connection is clarified in detail in the literature review section.

Visual skills are closely aligned with the developing awareness of changes that occur in one's environment (Gregory, 2007; Marr, 1982), and in this way, these skills participate in the formation of cognitive concepts. Organizing a way to express this awareness, or conceptualization (Lakoff, 1987), is the driving force behind communication, and as such, it also provides the impetus for the organization of a framework, or structure, for these communicative attempts, which results in a grammar. Grammar, the skeletal structure that emerges from a language in use, may share its origin with other structural cognitive capacities, such as categorizing (Rosch, 1973), subitizing (Dehaene, 1997), and acquiring multiple language systems through the interaction of thought and language in the course of natural human development (Vygotsky, 1978). In addition, one of the many functions of language in use is to communicate one’s location in space – to map one’s personal position, and this structural purpose exposes the fundamental cognitive and spatial orientation of the person using the language.

As one of the most observable emergent human processes, language acquisition, and second language acquisition, in particular, melds these sensory and motor experiences with categorization and naming skills; L2 students learn from study, from hearing, and from experience, eventually calling into play comparisons between their first and second

languages, and they work hard to express themselves verbally. As the newer, second language symbols and constructions take root, they inspire a cross-linguistic battery of similarities and non-similarities of morphological and syntactic forms, which incessantly makes available bilingual choices and comparative expressions. When the choice is made by a speaker to use a lexical or syntactic form, it may be based primarily on the context in which it was learned and the accompanying experiences.

Linguistic Analyses of Language Acquisition Skills

Analysis of spatial language acquisition. A popular method that is used to explore the spatial expressions in languages is to study the adpositions that are used in the language to indicate spatial location and/or direction (Bennett, 1968; Levinson et al., 2003; Tyler & Evans, 2003; Vandeloise, 1991, among others). Talmy (1983) emphasizes in his work that the prepositions of a language are members of what he calls a closed-class system; the open-class contains the more frequent lexical items in a language system, meaning, nouns, verbs, and adjectives, but the closed -class system, of which the grammatical system is a part, contains inflectional forms and "prepositions and conjunctions, as well as grammatical relations, lexical categories, and syntactic structures" (Talmy, p. 1). According to Talmy, the open- and closed-class forms complement each other – the open-class carries the content of the concept, and the closed-class is used to structure the conceptualization (p. 2) for expressive purposes. So, the prepositions, being part of the closed-class and serving to structure the conceptualization, would be useful to examine, particularly cross-linguistically; once the prepositions (or the adpositional processes of location and orientation) are delineated per the language being studied, a comparison can be made of the prepositions used in the spatial language task outlined above.

The level of morphosyntactic research has also reached into spatial representational areas with work into prepositional polysemy and semantics (Bennett, 1975; Vandeloise, 1994; Garrod, Ferrier, & Campbell, 1999; Tyler & Evans, 2003; Munteneau, 2003; Nikitina, 2007a, 2007b, inter alia). The comparison of spatial language through elicitation from English second language learners (ESLL(s)) with tokens inspired by a performance linguistics task has not been as comprehensively examined as theoretical, experimental, and ethnographic work on the topic of spatial terminology, which is why this dissertation study looks more closely at the interaction of the grammatical structure of a speaker's native language with the constructions which she chooses to use in a second language. The method of examination of this phenomenon in this study is the analysis of the data from an elicited task. In the next section, various task-based analyses frameworks are presented.

History of tasks used in linguistic analyses. In order to collect data for analysis of morphosyntax and discourse, various methodologies have been developed to facilitate unscripted interaction: the Pear Film, from which stories were elicited (Chafe, 1980); the space games used in experimentation to determine cognitive (spatial) orientation (de León 1994; Levinson 1992); and the *Frog, Where are You?* stories, which were used to determine the sequential preference and topical prominence of speakers as they described the pictures from the storybook (Berman & Slobin, 1994; Mayer, 1969). Researchers utilized these methods with the intention of revealing “information about underlying cognitive, social, and affective processes” (Menn & Bernstein Ratner, 2000, p. 262), and Berman & Slobin (1994) recognized “that the stimuli are filtered through the subject's unique perspectives as well as through the options provided by the subjects' native language and culture” (p. 264). These tasks have resulted in important and influential literature in methods for linguistic analysis,

but the type of language needed for this study requires the elicitation of specialized spatial language. The map task (Anderson, Brown, Shillcock, & Yule, 1984) is primarily used for discourse elicitation, but here the use of an adaptation of the map task is proposed to be used with non-native English speakers as part of an expanded elicitation tradition in usage-based and cognitive approaches to language. In a later section, there is an elaboration on the correlation between visual and mental experiences and why these experiences are part of the map task as a way of explaining how spatial terminology is linked to our understanding of cognition and conceptualization in general.

Facilitating unscripted interaction in discourse. In her recent work on the Map Task Corpus, Davies (2007) says, "task-oriented data is of legitimate interest to linguists, provided their aims fit well with the constraints of the data" (p. 210). Davies emphasizes that the use of transactional data, or data where

> "participants manage, transfer and negotiate information" when assigned a specific task offers the researcher an opportunity to investigate the participants' state of knowledge, as well as the ability to control the goal of the verbal interaction (p. 210).

The analysis of the resulting transactional transcripts from this adaptation of the map task thus requires a distinction into categories which overlap the participants' two languages, the one in use and the native language, which may also be in use in the mental, or cognitive, sphere, and therefore might possibly transfer into the usage of the second language. The interpretation of the data would seem to be evidential of the cognitive framework accrued by the participant, and although this evidence is documented as instances of morphological and syntactic forms, these instances also allow the indirect observation of a cognitive event. As Dan Slobin (1996) suggests:

> there is a special kind of thinking that is intimately tied to language – namely, the thinking that is carried out, on-line, in the process of speaking…any utterance is a selective schematization of a concept – a schematization that is, in some way, dependent on the grammaticized meanings of the speaker's particular language, recruited for purposes of verbal expression. (p. 76)

Analysis of the transactional texts generated by this study (Metheny, 2007) shows that this on-line speaking is observable in a participant's native "schematizations" of spatial language discourse in the use of spatially related syntactic and morphological constructions, specifically, the usage of prepositions.

If we agree with Bybee's suggestion that the "task of the linguist…is…to explore the boundaries between morphology and the lexicon" (1985, p. 208), this can be achieved by the close analysis of the transcripts of this map task. This analysis will expose the overlapping behavior of prepositional use and the trans-lingual expression of spatial terminology by bilinguals in the course of the task performance. Slobin's "thinking-for-speaking hypothesis, which states that linguistic influences occur when language is used during a task" (Feist & Gentner, 2007, p. 283), validates the assertion that bilinguals describing the assigned pathway during the map task offer a glimpse into the transfer of grammatical structure from the first language (L1) into the second language (L2), sometimes retaining the native structures of the L1 in the expression of the spatial language directions given in the L2. With this validation in hand, we can further propose that a speaker's word choice, intonation, and grammatical uses reflect the language that is used to conceive the expression. We can analyze this sequence by looking at the nature (the structure) of the native language and relating it to the structural usage of the second language.

The map as a potential task. Map drawing is a visual manifestation of an internal image, and "visual situations provide a perfect opportunity to do so, due to the correlation between visual and mental experiences of certain kinds and to the inter-subjective nature of visual experience and related behavior…"(Johnson, 1999, p. 160). David Turnbull, the author of the 1989 book *Maps Are Territories: Science Is an Atlas*, introduces his topic by discussing the relationship between maps and theory:

> …the inherent spatiality of maps…[is] the very reason that they are so often employed as a base metaphor for language, frameworks, minds, theories, culture and knowledge…while spatiality may indeed be fundamental to all cultures, what actually counts as the 'relative location' of particular objects may not be quite so basic and may constitute one of the variables that differentiate the way cultures experience the world. That is to say, in any culture, what counts as a natural object and its spatial relations, rather than being an invariant characteristic of the world, may instead form part of that culture's world view, episteme, cognitive schema, ontology, call it what you will. (p. 2)

Map-making, or map drawing, is also a symbolic behavior, a way for a human to represent him or herself as a constituent member of an external space. And "symbolic behavior, including language use, is actually a superimposed type of behavior, since it taps the basic possibilities of one or more sense organs and motor systems and conventionalizes certain patterns based on them as codes to convey specific (types of) meanings" (Nuyts, 2000, p. 11).

Piaget and Inhelder suggest the use of children's map drawing as a method to evaluate the spatial reasoning development of children in their 1954 work *The Child's Conception of*

Space, and in his 1980 book *Beyond Universals in Cognitive Development*, David Feldman takes this usage one step further. Why do research on children's map drawing? Because when we do this, Feldman suggests, "we will glimpse (a) the conditions that give rise to novelties, (b) the changes in organization that seem to accompany novel behavior, and (c) the consequences that follow from getting a foothold in the next level of the domain" (Feldman, 1980, p. 42). Feldman believes that the production of a map entails "a variety of spatial and logical-mathematical skills…[, and,]as a task which requires the coordination of these concepts, map drawing may be used to diagnose both the developmental level of several different sets of skills as well as their integration into a representational system" (pp. 47-48).

In order to more closely examine the development of such a representational system, we need a concrete way of glimpsing the act of thinking in progress, a method of viewing self-reflection, or self- understanding, as Lakoff and Johnson refer to it (1980, pp. 232-233). A glimpse into this process of self-understanding, of the conceptualization of the "unending negotiation and renegotiation of the meaning" (p. 233) of our experiences, is what we need to determine how this integration process happens so that we can possibly "make transparent those instances of mind-constructive production and consumption that...affect people's lives and…come up with counter or alternative version... of individual and social experience" (Shi-xu, 1998, p. 8). In order to provide this conceptual glimpse, I propose the extension of a project which employs a performance task called the map task. I began working with the map task in 2004, and my pilot study revealed exciting entry points for further investigation into the elaborate, exquisitely multi-dimensional conceptual process of spatial language-learning and its manifestation in cross-linguistic, cross-cultural contexts. The theoretical

underpinnings of the two-sided approach of this study: educational assessment and linguistic analysis, are detailed and explicated in the literature reviews that follow in the next chapter.

Chapter 2

Literature Reviews and Theoretical Background

This Literature Review Section describes the concept of Cognitive Grammar – this the overarching framework that is related to the perspectives of Cognitive Linguistics, the theory that is used to outline the use of the map task to elicit and collect the data for this project. Cognitive Grammar is also directly related to the theory of conceptual metaphor, and this can be proposed as an underlying basis for the linguistic analysis of data for the purposes of educational assessment. And, finally, Cognitive Pragmatics, which serves as the foundation for the linguistic analyses, is briefly introduced but will be discussed thoroughly in Chapter 5. Here also is presented an integrative view of how the literature of educational assessment and linguistic analysis can be combined to form the basis for a trans-cultural evaluative instrument for use with students from post-conflict areas of the world. Descriptions of all three of these frames of reference are included in this chapter.

Review A – Theoretical Basis for Linguistic Analysis

The complex process of acquiring and using language involves the representation of "experientially grounded conceptual archetypes" (Langacker, 2008, p. 94), and the embodied nature of experiential acquisition and categorization would seem to imply that this patterning and regularizing is a fundamental part of the human life process. In his work, Langacker exerts significant effort to provide a basis for semantic characteristics being a major part of human cognitive grammatical growth and development. He enlists the term "conceptual semantics" in his attempt to permanently bind human thought and human language, saying that "a conceptual semantics lets us make sense of how language makes sense" (p. 85). This review offers examples of how this attempt identifies how the norm of asymmetrical clausal

construction might present in an alternate (other than English, and sometimes English) grammatical framework of language in use, using principles laid out by Ronald Langacker in his 2008 book, *Cognitive Grammar*.

Proceeding from the fundamental assumption that a conceptual semantics is indeed possible, Langacker (2008) emphasizes that construal of a concept emerges through the interaction of general and contextual knowledge and the full range of imaginative and interpretive abilities (p. 88). In order to describe a grammar of a language, it is necessary to describe the constructions which exist in the language, and constructions of a language are detailed though the use of four basic factors; these factors include: correspondences, profiling, elaboration, and constituency (p. 183). This section uses the factor of profiling to clarify the delineations between the noun and the verb, or what as Langacker refers to them, the thing and the process. When we examine how a situation is construed, the conceptual semantics view places less importance on the grammaticality of the elemental combination of these interacting factors, focusing instead upon the determination of the "kind and degree of motivation it has in view of all relevant factors" (p. 88).

Understanding, or apprehending, the meanings of the expressions we use is a process which we can carefully analyze in order to provide a "principled and revealing characterization of semantic structure" (p. 85); the resulting analysis provides the bases that lead to the conclusion that it is conceivable that cognitive semantic descriptions can and do exist, and that these descriptions are based on careful analyses and are supported by empirical evidence. Engaging in this type of analysis requires an awareness of a strategy that seeks "converging evidence from each of three general sources: (i) what we know about cognition (independently of language), (ii) what is needed for viable semantic descriptions,

and (iii) whether the constructs appear to support an optimal account of grammar" (p. 85). In a way, this strategy parallels the suggested path of exploration that a cognitive linguist might employ in her own exploration of linguistic phenomena. For example, a person, aware of the expressions of conceptualizations taking place around her, might notice that something someone says or writes doesn't coincide with what she knows or believes to be the case; she notes this anomaly, uses resources for describing linguistic structures to make a comparison of similarly occurring phenomena, then attempts to determine whether or not these similarly occurring phenomena emerge from a previous or a new fundamental cognitive process. The steps on this path of exploration exploit the symbolic nature of grammar that is so crucial to Langacker's framework – the anomalous expression examined by the cognitive linguist may be assumed to be an example of source (iii): an efficient grammatical construct (by virtue of its existence and use); the cross-linguistic comparison of this construct enables a fuller and deeper semantic description, an example of source (ii); and, finally, the speculation of whether or not this construct is indicative of a phenomenon related to a fundamental cognitive process, source (i).

In this way, we can see how the method of cognitive linguistic analysis engages the use of the strategy of converging evidence. Discerning the patterns or regularities of a language structure has been traditionally thought to be representative of mental grammatical organization, but this organization is not typically thought to include meaning (p. 93); Langacker (2008) brings the concept of meaning to the forefront in his analytic framework. The concept of profile(ing), where an expression is determined with regard to "what it is designating or referring to within its conceptual base, [what] an expression selects as its body

of conceptual content" (p. 66); the nature of this profile is what is said to determine its grammatical category, or grammatical class.

The range of profiled expressions then might consist of, for example, the temporal iconicity of a verb, defined "schematically, as an expression that profiles a process" (Langacker, 2008, p. 100). Temporal iconicity is entrenched as part of the verb, since verbs tend to enable the report of events in almost a default-like temporal order; this default order is also the order in which we understand the events. Hence, verb forms have many alternations for displaying temporality. The temporality of the verb offers us an example of the reflexivity of the process of conceptualization, emphasizing the metaphorical, and as such, conceptual, nature of a grammatical class.

Metaphor and conceptualization. When we think, when we learn, when we explain – we use metaphor.

> Metaphor is basic and constitutive for all the thinking that we do, and…the scheme of evolution, metaphor, based on source domains of human experience and neural connections to our embodied sensations, actions, and emotions, is what creates the possibility of 'abstract' reasoning, scientific and mathematical thought, philosophical speculation, in other words language and culture quite generally. (Fauconnier, 2005, p.5)

Using metaphor might even be claimed to be the one of the original ways for humans to acquire new ideas – novel ideas, ideas, or concepts, of recombination that emerge from the minds of human beings. These novel concepts are perceived and expressed through cognitive processes, and "these processes are sometimes called *transition mechanisms* because their function is to transform mental organization" (Feldman, 1980, p. 41). Metaphor is considered

to be a building block of our human consciousness, “the cognitive mechanism whereby one experiential domain is partially ‘mapped’, i.e., projected, onto a different experiential domain, so that the second domain is partially understood in terms of the first one” (Barcelona, 2000, p. 3) As such, metaphor’s benefits parallel the functions of the transition mechanisms spoken of above – our language and our ability to conceptualize are intertwined as part of cognitive human development.

For years, linguists and psychologists have spoken and written about the link between metaphor and conceptualization (Lakoff & Johnson, 1987, 1990; Leary, 1990; Nuyts, 2000; Shi-xu, 1998, 2000; van Dijk, 2000), many of them inquiring into this link by questioning how the role of language represents human and social realities (Shi-xu, 2000, p. 424). When thinking of metaphor as a foundational notion of ‘language’ and “language use in the social context or ‘discourse’ for short”(Shi-xu, p. 424), we can see how this belief has “played a major role in shaping language into the infinitely adaptive tool that modern humans have at their disposal: a system predicated on the uniquely human capacity to understand one thing in terms of another, allowing us to use our existing knowledge structures to understand new domains of thought” (Sanford, 2004, p. 2). These transitions in action – metaphor and conceptualization – transform our language as we use it, emerging from the process of language use as discourse.

In his work on discourse, Shi-xu uses terms which directly link mind and discourse, inclusively defining mind in the following way: “that dimension of discourse through which the human private individual and collective interior – cognition, emotion, self, consciousness and the like – is co-constituted, i.e. formed and fashioned” (Shi-xu, 1998, p. 7). It is our ability to think, to learn – to conceive from mental representations -- that makes us human,

and this ability uses the combination of linguistic, social, biological, and cultural skills in the process of conceptualization. Linguistic structures and patterns "are to be found in processing activity and are thus emergent rather than fundamental" (Langacker, 1997, p. 239). The integration of these patterns, metaphors being among them, by means of conceptualization is a difficult process to observe, particularly in research.

Metaphor, conceptualization, and research. Although the psychologists who do research into the cognitive aspects of human development do not typically take a linguistic theory such as that of conceptual metaphor into account, the emergence of human language is a large factor in this research, so linguistic theory is still present as part of language use and development. Linguists and psychologists often team up to do this type of research (Anderson et al., 1984; Anderson, Clark, & Mullin, 1991; Brown, Anderson, Shillcock, & Yule, 1984), working side by side to illuminate the process of conceptualization. Language acquisition is considered an "…*emergent interplay* of the individual with linguistic, social-interactional and cultural structures and processes created, maintained and transformed *jointly and step by step*" (Shi-xu, 1998, p.4). As one of the more observable and chronicled emergent human processes, language acquisition melds sensory experiences with categorization and naming skills; children learn from seeing, hearing, and experiencing, eventually using metaphors which "…are often not verbalized, but can be expressed through gestures or other non-verbal communicative devices, or not be communicated at all and simply motivate our behavior" (Barcelona, 2000, p. 5). And so, when people describe their experiences, they also often use nonlinguistic communication, such as eye contact, humorous sounds, and gesture as they are speaking. To exclude this part of the descriptive experience

would be “tantamount to ignoring half of the message out of the brain” (McNeill, as quoted in Beattie, 2004, p. 139).

The integration of these experiences led Christopher Johnson to the creation of his Conflation Hypothesis (1999), which is based on the experiential metaphor theory of Lakoff and Johnson. C. Johnson’s own description of the Conflation Hypothesis follows below.

> Certain polysemous linguistic forms are initially associated by children with semantic representations that combine or “conflate” notions relevant to distinct adult senses. Such representations arise because children first encounter the forms in situations that allow interpretations corresponding to more than one adult sense. The child’s eventual achievement of the distinct adult senses arises not through the extension of a fixed basic sense to novel situation types, but through a process of differentiating use-types from one another. (1999, p. 155)

Implying a process of joint construction of language and concept development, Johnson suggests that researchers employ their levels of observation in visual situations and visual experiences; he believes that “adults may use situations involving visual experience, and forms from the visual domain, to talk to children about mental experience before children have learned much mental vocabulary” (1999, p. 160). Acquiring a language, then, involves thought, manifest holistically, but internally; “unlike speech, [it] does not consist of separate units”; in one’s mind “the whole thought is present at once, but in speech it has to be developed successively” (Vygotsky, 1934/1986, p. 251).

Conflation also can be seen in the development of language for use, where certain structures appear to be more frequent than others, and, as such, are seen as “language chunks” or formulaic language; Wray (1999) proposes a definition of formulaic language:

> A sequence, either continuous or discontinuous, of words or other meaning elements, which is, or appears to be, prefabricated: that is stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar. (p. 214)

More specific syntactic analysis comes from the actual formulaic language constructions that are used in daily interactions, and this analysis comes from looking closely at the components of these constructions (Herskovits, 1980) and of the differences in the ways that people use them (Richter et al., 2004). This analysis also takes into account the familiarity of the interlocutor with the usage (Fenk Oczlon in Bybee & Hopper, 2001), explaining the replacement of one formulaic construction with another more familiar embodied construction by native speakers of English in various types of routine discourse.

As she discusses formulaic language, Wray (2002) develops specific categories of formulaicity which are helpful in distinguishing chunks which have formulaic potential; one category which she outlines is that of idiosyncratic things which sometimes turn into types of chunks that appeal to people (p. 219), possibly because of their metaphorical origin, meaning, the embodied (sometimes universal, but certainly common enough that the semantic roots of the expression are understood cross-locutionally) nature of the expression allows an assumed, often pre-expressed, understanding to take place when the expression is deployed.

Lakoff (1987) suggests that the basic structure of metaphor comes from the most basic, concrete human experiences. Wray (2002) agrees, musing that language should be operating on the same principles as other cognitive processes, and so, people who are unfamiliar to each other may begin to behave more typically (using more embodied, personal

constructions) once they feel they've achieved a certain level of comfort with each other. Interestingly, if an expression is becoming more frequent in the course of routine discourse usage, it is not completely incomprehensible to non-native English speakers. Although Wray (1999) claims that the usage of formulaic sequences, and, in particular, of metaphorical idioms, "is apparently largely restricted to normal adult native speakers" (p. 227), a specific case may differ somewhat. Based upon the characteristic of transparency, as coined by Nunberg, Sag, and Wasow (1994), a non-native speaker of English may well be able to ascertain the meaning of an unfamiliar expression, given a specific discourse context and the ability of the listener to understand the construction as part of a metaphorical base once she breaks down the expression. Fillmore, Kay, and O'Connor (1988) claim that the understanding of an expression occurs through time as a strong representation builds up from repeated exposures to a particular construction.

We know it is often the case that we fail to recognize metaphors; not only are they physiologically-based and cognitively embedded and, as such, are difficult to distinguish in our everyday speech (Lakoff, 1992), but in order to recognize them, it requires a heightened state of awareness (Gibbs & O'Brien, 1990) to pull them out of our typical conceptualization processes that emerge through our daily speech. The best way to see these emerging conceptualization efforts is the study of natural discourse. Therefore, linguistic and psychological research must include a method for the investigation of the semantic endowment of the word as it occurs in speech in order to attempt to ascertain the compositional experiences contained within the thought.

The indication is for interdisciplinary research to study this joint construction of language acquisition, which offers insight by determining the use of metaphors in

conceptualization (Nuyts, 2000; Shi-xu, 1998). Research is needed where the "object of research should be (defined as) *primarily linguistic-symbolic activity in real-life context*, ('primarily' because there may be other simultaneous semiotic means like gesture and posture)" (Shi-xu, 1998, p. 4). The object of research will then be the discourse generated as language is used, and we can examine the language use to allow us to "focus on discourse as a window on human cognition" (Chafe, 1980, p. 8). In order to attempt this type of research, we must regard the 'object of research' from multiple perspectives, which come together at a nexus of analysis through the combination of multiple disciplinary frames, the linguistic frame of discourse and the psychological frame of orientation.

The frame of discourse. In this area of research, the emergence of language as discourse is not limited to the spoken or written word. Language use and human discourse includes linguistic processes such as metaphor, and "a conceptual metaphor…may conventionally be activated by or instantiated in, a morpheme, a word, a phrase, a clause, a sentence, a whole text, gestures and other types of behavior, reasoning processes, etc." (Nuyts, 2000, p. 5). Our language abilities are built by and enhanced with mental representations in order to share information with others, i.e., to communicate. Nuyts emphasizes this facet of language and its importance when considering research into language:

> …if language is a means to communicate, and if communication is (at least) a matter of transferring conceptual contents between minds, then it stands to reason that the cognitive systems and processes involved in language use are closely interrelated with the cognitive systems and processes concerned with conceptualization and thought. Hence, language research must deal not only with the linguistic systems and

> processes per se, but also with how these relate to deeper dimensions of mental activity, and particularly to the conceptual systems and processes. (Nuyts, 2000, p. 5)

"Research on language…must refer to the conceptualization," Nuyts continues, "…to warrant adequate modeling of the linguistic systems and processes [and] also for the sake of understanding conceptualization [because] the task is multimodal" (p. 13). A multimodal task requires a multimodal method of observation and a multimodal method of analysis. Since metaphor theory has been so helpful in connecting the realms of conceptualization and discourse and language development, it can also be employed to establish a unique method of experimental design by combining the embodiment aspects of conceptual metaphor theory with a cognitive discourse analysis of language used in the performance of routine tasks. There may be no direct way to observe the "structures and processes inside the system which intervene between perception and behavior", but "the functional dimension of language…is part of the observable behavior,…[and] just as one can observe the structural features of language in use, one can also observe… the purposes for which these linguistic structures are used" (Nuyts, p. 3) through such an analytic procedure. An exploration into the linguistic structures is revealed in discourse analysis, and the usage of certain grammatical constructions, along with other commonalities, such as word usage and the establishment of understanding between speakers, are also often illuminated by such an effort. In addition, one of the structural purposes of language in use is to communicate one's location in space – to map one's personal position, and this structural purpose exposes the cognitive orientation of the person using the language.

The frame of orientation. In his 1968 work on the hierarchical nature of language acquisition, Herb Clark suggests that spatial terms, words which reflect the learner's

immediate surroundings and the organization of the items in these surrounding, are acquired first: “the child acquires...spatial expressions by learning how to apply them to his prior knowledge about space, and…he acquires...temporal expressions in turn by extending the spatial terms in a metaphor about time” (p. 62). This preference for learning the terms that describe one’s immediate surroundings implies that one’s place in the world, ‘the place where one lives,’ (Nemirovsky & Noble, 1997), may be a pivotal process in development and in language acquisition. Ongoing face to face caregiver experiences, a sharing that establishes the closeness of relationships with both people and objects in one’s environment, allow the learner to partake in a shared view of the world (Frith & Frith, 2007). With this shared view comes the opportunity to acquire the names of the items in one’s environment as well as the names for the relationships between them.

Clark proposes that what he calls “positive terms are comprehended more easily than negative terms” (p. 57), and he emphasizes the advantage of positive over negative, where positive terms include what he understands to be a more prototypical location, as opposed to the negative terms, which assume an element of directional subtraction or incompletion (p. 61). An example of such a relationship would be ‘high – low,’ where ‘high’ is the more prototypical term, establishing location, and ‘low’ the less prototypical term because it assumes that a directional change has occurred in relation to the location of ‘higher’ and so, ‘lower’ is not as much of a baseline orientation for the individual. In other words, we need ‘high’ in order to know where ‘low’ is, and we are less likely to employ an orientation of ‘low’ when we begin to try to describe our environment.

Whether or not the acquisitional order of positive and negative terms actually bears out in Clark’s 1968 hypotheses (pp. 55, 57), the concept of individual orientation as a factor

in the process of human language acquisition and conceptual development is an important one. It speaks to the significance of the involvement of visual-spatial skills, among others, as a part of cognitive development, and focuses on the truly cognitive interfaces that have to be responsive to the attention (and intention) of the users (Velichkovsky, 2006) who are engaged in acquiring cognitive skills such as acquiring a language.

Orientation and its relationship with cognitive grammar. Thingness, the quality which defines nouns, stems partially from the human cognitive capacity for grouping, or sorting things "into groups on grounds of similarity" (Langacker, 2008, pp. 104-105). Grouping enables us to perceive clusters (adjacent member characteristics of a quality space), and combined with "the capacity to manipulate a group as a unitary entity for higher-order cognitive purposes" (p. 105), also known as "reification," these two cognitive abilities allow the definition of "thing as any product of grouping and reification" (p. 105).

Although Langacker (2008) insists on the fundamental "distinction between a process and a non-processual relation [between a verb and a noun]" (p. 99), he offers occasional bridges between the two types of relations:

> A relationship which does develop through time can be non-processual by virtue of being viewed holistically, so that its temporal evolution is backgrounded. In (1)(b) [*She climbed up **onto** the roof.]*, for instance, *onto* profiles a spatial relation that develops through time, defining the path of motion, yet the preposition itself construes it holistically, as a single gestalt (in the manner of a multiple-exposure photograph). Whether it is simplex or viewed holistically, a non-processual relation is **atemporal** in the sense that evolution through time is not in focus. (p. 99)

It is in clause structure that things and processes interact and exhibit this interaction in various complex and diverse ways; clause structure is "seen as being grounded in human experience" (p. 355), and, as such, exudes the characteristics of human communication events, portraying participants, settings, actions, locations, and interactions by use of basic archetypal roles and their alternations and extensions. The potential alternations and extensions exist as evidence of how conceptual structures relate to linguistic structures.

In order to show how the mind organizes conceptual representations into categories, Langacker (2008) introduces the *construction*, as well as the concept of default arrangements and their incorporated conventionality as a background for the human capacity for organizing conceptual representations into categories and building interlocking, meaningful, composite structures in order to reveal the underlying conceptual/grammatical structure of the language s/he uses. The framework that Langacker is exhorting exhibits these interlocking and expanding composite structures as dynamic but conventional semantic bases. For example, constructional schemas are schematic symbolic assemblies, which provide the basis for semantic and grammatical composition (p. 167). The structures of a symbolic assembly are linked by correspondences, which are relationships between the two representations of the same conceived entity (their elements are super-imposed and their specifications are merged in the process of forming the composite construction) (p. 165). In the higher level process of categorization, these correspondences relate the categorizing structure in the background asymmetrically to the target of the categorizing process, which is foregrounded because it requires identification in accordance with the relationship between the target and its structure: the categorizing structure is there to provide a way of apprehending the target, a

'stepping stone' for reaching yet another composite structure, and so on…these composite structures combine into a complex assembly in order to define a compositional path (p. 165).

Langacker connects these compositional paths in his description of the nature of *grammar*, which, he says, consists of conventionalized patterns, symbolic assemblies, analogous to the complex expression they characterize, and so are schematic (p. 168). This conventionalizing process is related to the default viewing arrangements. First of all, if particular cases of viewing arrangements are considered to be a default configuration, it sometimes opens up instances where a specific default arrangement might be considered to be anomalous. "If they are usually considered anomalous, it is simply because the default arrangement is taken for granted as the basis for their interpretation" (p. 158). Secondly, this process is indeed reflected in the grammatical classes and subclasses discussed by Langacker, and it is reflected as well in the structure of discourse; for example, there is the continuum of 'thingness' to 'process,' where the profile of the noun gradually migrates to the territory of the verb. Is there a connection? And, if there is, where is it likely to see evidence which supports this connection? With that focus in mind, an examination of some examples from Kiswahili, offered in an article by Joan Maw (1990), provides support for a closer relationship between things and processes.

Cognitive construction of spatial events. Let us recall that events, by nature, are bipolar, and that the poles represent conceptualization and means of expression. According to Langacker (2008), conceived events as situations are coded by the finite clauses and the verbs describing them, and "certain types of clauses are specially suited for coding particular kinds of occurrences" (p. 357); he even states that there is "reason to think that clauses, especially finite clauses, are basic discourse units" (p. 486). Offering insight into the nature

of event construction in Kiswahili, Joan Maw (1990) adds that in “the case of...examples involving having things done to or for oneself, one could suppose that deep feelings are aroused, and it is as if the grammar comes from the unconscious” (p. 483). It is from this unconscious structuring that Maw extracts the term “symmetrical,” and in her mind, it is particularly evident (a) when the body is involved and (b) when strong feelings are aroused. (p. 485). A short discussion on the uses of the terms, “symmetry” and “asymmetry” in logic, in mathematics, and in linguistic analysis is useful at this point.

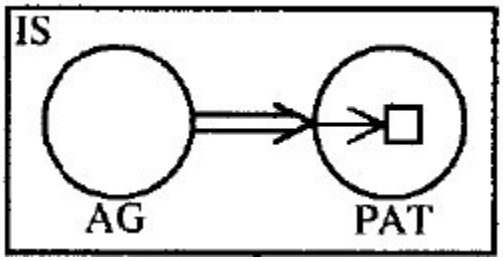
In general, the uses of the symmetry/asymmetry distinction descend from the machinations of logicians, and their definitions of the terms are associated with standard mathematical definitions, such as “A relation R is symmetrical iff for all x, y: if R (x,y), then R(y,x)” and “A relation is asymmetrical iff for all x, y: if R(x,y), then – R(y,x)” (Partee, 2008, p. 1). As a sort of extension, symmetry/asymmetry passed into the linguists' vocabulary by means of a rather bumpy ride; Croft (2001), in his typological work on word order, uses the following description of symmetry: “Symmetric patterns are those in which languages appear to exist in two word order types, an order and its mirror image” (p. 1), with an equally compatible description of asymmetry in language use of “uncorrelated word patterns” (p. 2). Proponents of Universal Grammar (UG) employ primarily the term of “asymmetry,” implying that it might be embedded as part of a human UG, as “part of the initial state of the language faculty, enabling human beings to develop the grammar of the language to which they are exposed, to interpret and to quickly generate the expressions of this language in a relatively short period of time” (DiSciullo, 2003, p. 3), and they present asymmetry as a basic tenet of UG. Various notions of symmetry/asymmetry are used in linguistic analysis, and Langacker's (2008) view of these terms tends to be one of balance/imbalance; when he

discusses the relationship between degrees of elaboration as part of spatial relationships, for example, he offers the following with regard to an explanation of *near* and *the door*:

> Each component structure can usually be thought of as elaborating something evoked at least potentially by the other. To some extent, therefore, each component structure is dependent on the other. Yet there tends to be a marked asymmetry, such that the dependence in one direction is stronger and more clearly evident. In the case at hand, *near* is more strongly dependent on *the door* than conversely. (p. 201)

In the current work, symmetry is used as Croft uses it, to describe a linguistic phenomenon and its mirror image – by extension, asymmetry is used when there is a distinction between the grammatical components under discussion. This is also the spirit in which Maw uses the terms.

Langacker's view of asymmetrical syntax as the norm is most apparent in his fundamental work with the Canonical Event Model (1991, p. 285). The insight afforded by Maw's brief analysis of Kiswahili discourse structure as potentially symmetrical seems to dispute his Canonical Event Model (p. 357), which is seen below:



The Canonical Event Model itself predates 2008, appearing in Langacker's earlier work from 1990/1991, the same time period in which Maw was doing her work. Maw was intending for her work to extend the ramifications of asymmetrical/symmetrical reasoning and consequent verbal expression into the realm of psychoanalytic (therapeutic) discourse analysis, but since

her examples represent typical usage events, which occurred during her field experience, these usage events also offer an authentic glimpse into human conceptualization.

“Langacker’s canonical event serves as a prototype both of transitive events and of events in general” (Janda, 2008, p. 2), so in order to provide evidence for an alternate view of what can be termed “canonical,” Maw offers Swahili as an example. Swahili, or Kiswahili, is an Eastern African Bantu language, in which the grammatical subject and object are marked in the verb. Examples for discussion are below; they are drawn from Maw's 1990 paper:

1a. mtoto anawapenda wazee	'the child loves the parents'
1b. wazee wanapendwa na moto	'the parents are loved by the child'

In these first two examples, note that the construction is asymmetrical: there is a diametrical opposition of AGENT and PATIENT (for example, the grammatical subject is the actor in 1a) (p. 481). But symmetry, the cancellation between the self and the other (p. 482), reappears when a person speaks about having something done to himself or to herself, and the speaker then often uses active and not passive constructions, as in the following examples:

2. nitang'oa jin	'I shall pull a tooth' (I'm going to have a tooth out; SUBJ is not the dentist)
3. yuko hospitalini amepausa	'he is in hospital having operated' (he has had an operation)

There are also examples of what Maw terms “stative symmetry” in Kiswahili:

8. nimeng'oka jino	'I am out tooth' (I've had a tooth out)
9. nimekatika sikio	'I am cut ear' (I've got a cut ear)

The above examples emphasize the relationship between the action and the experiencer, which has been described as “empathetic” (Tomioka, 2006). It is argued that “ the relevant dimension here is neither person, nor presence, per se, but rather a shift in empathy whereby the speaker suggests a shift in point of view to that of the hearer” (Bobaljik, 2007, p. 9), and although the empathetic shift described characterizes a shift toward the hearer's, and not the experiencer's, point of view, it can also be applied to a situation where the point of view (or focus, in Langacker's case) shifts to the experiencer and not to the person, as in (2), who is performing the action. This type of symmetrical construction allows a balance to take place in the action; there is no agent stated, so the mirrored arguments, which are more often seen in a stative construction, continue in stasis. These types of constructions can be seen when there is a sufficient empathetic connection (Siewierska, 2004), which, in the case of one's own body, would seem adequate.

Spatially, in Kiswahili, place is also on a par with animates, as it can perform actions (p. 483). Maw offers two examples, the first one being what we might expect of a normal speaker, the second example being an actual instance of what is typically said:

13a. Watu wanapita njia ile – people are going down that road

13b. Njia ile inapita watu – that road is going down people

The two examples above reminded me of the following typical English constructions:

A. The Columbia River runs with salmon every year! (I'm guessing here)

B. Trouble rains on her wherever she goes!

The comparison between (13a) and (13b) and A and B might not be completely fair because there are distinctions, and thus, asymmetrical properties, present in the English versions. They do sound similar as to their construction, however, and similarity is also a property

associated with symmetry (Gleitman, L. R., Gleitman, H., Miller, & Ostrin, 1996). The strong feeling present in (13b) is tangible, though; it evokes a powerful visual image of a road streaming with people. No such image is called up when a more traditional construction is used; for example, it is also possible in Kiswahili to use the locative in this type of constructed conceptualization:

13c. Njiani mnapita watu – in the road (there) go people

What is typically used (Maw, 1990, p. 483) by speakers who are exhibiting some sort of strong feeling is 13b (the road is filled with people, and you cannot pass).

A comparable situation occurs in the following examples, where the action, the agent, and the patient, are intertwined semantically; the meaning of each component is dependent not only on the other two components, but also on the accompanying feeling contextualizing the discourse.

14. kiti kinakaa mtu – chair sit someone (you want to sit down, but you cannot)

18. mwitu wazunguka simba – forest prowls lion

Maw points out that these examples (13, 14, and 18) contain motion verbs, which normally do not have objects (p. 483), but as her last examples of Kiswahili, she offers two statements in which the subject and object are simply reversed:

21. shilingi imepata mtu – shilling got person

22. chakula kikala watu wa mji mzima – food eat a townful of people

These final examples, although they seem more asymmetrical in spirit, still retain the balance that symmetry that infuses the grammatical system of Kiswahili. In all the Kiswahili examples, the bridging that Langacker suggests between thingness and process comes clear in a muddy sort of way, depending on whether or not you speak Kiswahili as a native

language. Although Langacker (2008) states that a non-processual relation's atemporality, “in the sense that evolution through time is not in focus” (p. 99), is the determining characteristic for thingness, the fuzziness that some of the above examples provide for disputing the strict thing/process divisions does not seem as if it would be unwelcome in the Cognitive Grammar framework; even he says that “nominals and finite clauses show extensive parallels,” corresponding to archetypal notions even though they are “defined in terms of mental operations, the unitizing effect of grouping and reification contrast[ing] with the expansive nature of apprehending a relationship and tracking its evolution through time” (p. 127).

This phenomenon present in Kiswahili, as well as in other Bantu languages (Bresnan & Moshi, 1990) relates to a sort of personalizing, or animating, of force-dynamic relationships and illuminating the fundamental nature of the event representation. Since conceived reality is the starting point for verbal grounding, these finite clauses, although they do exist for specified periods of time, can also have a hint of “persistent nominal quality”(Langacker, 2008) in that they do represent a conceptualization of thingness while also representing a process. From Langacker’s point of view, since the viewer is indeed part of the description, she brings her previous and current experiential base with regard to that type of event to bear upon any description she construes. From that experiential base springs the essential trajector/landmark alignment (p. 521), which he discusses throughout his work, and he presents this essential alignment as evidence of the sequential and temporal nature of human mental processes. The evidence may be partly circumstantial, Langacker says, but he maintains that “trajector and landmark are conceptual entities, inherent in the meaning of a verb or a larger predicate...subject and object nominals are symbolic structures [, and] their status as subject and object depend[s] on correspondences between their profiles and the

clausal trajector and landmark" (p. 521). Still, the grammatical structure of the Bantu languages remains in place, particularly in usage events, and most particularly, it offers an alternative configuration of essential conceptual alignment as it is expressed morphosyntactically. If the connection between conceptualization and expression is truly as intimate as Langacker's Cognitive Grammar requires and Maw's evidence shows, the case for a persistent asymmetrical norm might be defeated, seeing that a symmetrical norm is frequently the case for relaying information in a number of non-English (and possibly even English, if influenced by a native language) grammatical frameworks.

Cognitive linguistic analysis combining frames of metaphor, discourse, and orientation. In order to connect this work with the usage of conceptual metaphor, the writing of Teun van Dijk on cognitive discourse analysis (2000) is helpful. Van Dijk emphasizes that "…a metaphor cannot be accounted for only in semantic terms, but needs to be described and explained in terms of cognitive processes, representations or the structures of knowledge" (p. 6), and we can look at his method of analysis as a comparison with the methodology of Feldman. Van Dijk's idea of cognitive analysis "…is an analysis of those properties of discourse that are accounted for in terms of cognitive concepts, such as various types of mental representation" (p. 6). As we have discussed, metaphors play a significant role in the conceptualization skills of humans, but, as conceptual structures, metaphors are always unavoidably channeled through the structural properties of the behavioral system in which they are encoded (the gestural, the linguistic, etc.); they do allow (at least partial) access to the contents of one's conceptual knowledge, but they do not provide a means of knowing the nature of or the format in which this knowledge is represented, or the principles according to which it is stored, organized, and used. (Nuyts, 2000, p. 12)

Metaphors are part of the process of conceptualization, but it is not an easy process to observe unless we have a substantial means for glimpsing the act of thinking in progress, a method of viewing self-reflection, or self-understanding (Lakoff and Johnson, 1980, pp. 232-233). “Just as we seek out metaphors to highlight and make coherent what we have in common with someone,” they say, “so we seek out *personal* metaphors to highlight and make coherent our own pasts, our present activities…as well” (p. 233). A glimpse into this process of self-understanding, of the conceptualization of the “unending negotiation and renegotiation of the meaning” (p. 233) of our experiences, is what we need to determine how this happens so we can possibly “make transparent those instances of mind-constructive production and consumption that negatively affect people’s lives …” (Shi-xu, p. 8), most importantly, instances of misconception and misunderstanding.

Struggling to find a way to observe the development of the concept of orientation (per Gal'perin, 1989) in language acquisition would aid in the revelation of how the misconceptions arrive and are developed conceptually: an attempt might be made by looking first at the incorporated content of the visual input (the specific activity which formed the basis of the concept, as Davydov, 1988, says), then comparing it with an expression (written or verbal) of the eventual internal reproduction of this input, assuming it has been generated as output after assignment to its proper category within which it is imbued with semantic value. Describing the observation to be attempted is very complex. And designing this type of research requires interdisciplinary considerations and contributions, where the researchers must be willing to spend time “in conceptual spaces where each and every one of [them]…[feel] far from comfortable” (Westley & Miller, 2003, p. xiii).

It’s akin to solving a puzzle that with its solution holds so much potential for so many applications, and the research design must be multimodal in its method and its analysis. This puzzle holds the future of successful interdisciplinary work as its prize, and “putting the puzzle together is not something we can do on our own, but requires the cooperation and consent of the entire community of scholars of (the many different faculties of) the human mind” (Nuyts, 2000, pp. 14-15). Part of this puzzle, the part we are looking to observe, may lie in the realization of the disciplinary connections between the processes of acquiring first and second language systems by examining divergent cross-linguistic representations. The basic design of the research begins with a look at the similar origins of these cognitive skills.

Review B – The Assessment of Second Language Learners of English for Special Education Placement

This literature review will examine diagnostic and therapeutic approaches to special education evaluation in the public schools using a multidisciplinary lens. With a view towards the incorporation of a performance task-based instrument in existing evaluative frameworks (Lawler, 2017) used to assess second language learners of English for special education services in the U.S. public schools, the question which focuses this section is: How does the discourse used in the evaluation and treatment of immigrant children who have been categorized as disabled by the public school system affect their ability to reintegrate into the regular education environment, and how can an analysis of this discourse be used to determine the extent of the child's ability to experience life success? In the course of exploring the literature, I highlight the consequences of such categorization on linguistic and psychosocial development in children. In the future, the possible effects of these

consequences might be alleviated through the inclusion of an adaptive, flexible evaluation tool such as the map task in their diagnostic rubrics and individualized educational plans.

Drawing on a range of disciplines, the discussion of the literature throughout will focus on the aspects of each particular discipline as it relates to diagnostic and therapeutic activity in the public schools. I use the terms "diagnostic" and "evaluative" to mean the discourse used in the assessment process for an individual child who has been identified in the public schools by a teacher, counselor, parent or administrator as possibly in need of behavioral health services. The terms "therapeutic" and "treatment" relate to the outcomes of the Individual Education Program, or IEP, that is designed and subsequently implemented for a student in the public schools once she has been assessed and determined to qualify for special education services.

The literature review offers a look at this broad issue using a topical approach: the first section gives an overview of the international impact of special education law through its accompanying legal and institutional lens; the second section discusses the development of diagnostic and therapeutic analyses and their effects on language and psychosocial development in students who learn and speak English as a second language. It suggests that linguistic discourse analysis allows observation of that impact; and the third and final section illustrates some of the past and present research in the area of cognitive linguistic discourse analysis in educational diagnostic and therapeutic settings, indicating areas of application and potential methodology for future research.

It is important to note here that the term "discourse" is used in ways that extend the linguistic meaning of the term, which is "passages of connected writing or speech" (Hall, 1997, p. 44). In this review, I am using Foucault's concept of discourse, which is: "a group of

statements which provide a language for talking about - a way of representing the knowledge about - a particular topic at a particular historical moment. Discourse is about the production of knowledge through language. But, “since all social practices entail meaning, and meanings shape and influence what we do - our conduct - all practices have a discursive aspect" (p. 44). Discourse, then, is intimately linked with the concept of "culture, [which] is no reified thing or system, but a meaningful way of being in the world" (Kondo, 1990, p. 300).

The culture of special education. Before 1975, children with disabilities were not always allowed to attend school. Despite compulsory attendance laws, most states allowed school authorities to exclude children if they believed that the child would not benefit from education or if the child's presence would be disruptive to others, i.e., to non-disabled children and teachers. After a congressional investigation, it was determined that an estimated eight million children were living with disabilities in the United States, and almost 4 million of these children were receiving either very few or no educational services (Wright & Wright, 2000). This information combined with the conclusion that "billions of dollars are expended each year to maintain [handicapped] persons ... who themselves have received no educational services. .in ... subhuman conditions in public residential institutions" (p. 9), led to the proposal of the Education for All Handicapped Children Act, Public Law 94-142, which was passed and went into effect on November 19, 1975. A reauthorization of the law in 1990 resulted in a renaming of it as the Individuals with Disabilities Education Act (IDEA). In the IDEA, the definition of a child with a disability is given as:

> A child: (i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (hereinafter referred to as 'emotional disturbance'), orthopedic

> impairments, autism, traumatic brain injury, other health impairments or specific learning disabilities; (ii)and who by reason thereof, needs special education and related services (20 USC, et. Seq. 1401(3)).

The definition above aligns with the medical model of the disability as present within the student, and, as most definitions of terms such as "impairment," "disabilities," and "handicap" imply, it is "based on a model of the classification of diseases" (Whyte, 1995, p. 5). But as a federal statute, the language of the IDEA can be compared to a similar definition developed by the World Health Organization (WHO) in an attempt to "universalize the definition" (p. 5) of disability, with one significant difference: the WHO includes a consideration of cultural factors in its definition, stating that "cultural factors are especially involved in attempts to count cases of disability. Handicap depends on valuations and expectations that put the disabled person at a disadvantage. The WHO manual states explicitly [emphasis my own] that valuation depends on cultural norms" (p. 6). Susan Reynolds Whyte, an anthropologist who has consulted with the WHO involving a study of attitudes and practices relating to mental impairment in Tanzania says, "The point here is that the disadvantage posed by a disability depends upon the capacities most prized or needed in a particular context" (p. 7). But she remains dissatisfied with this relativistic classification "because it ignores the way in which culture structures whole life worlds, imbuing individual variations of the human condition with significance more far reaching than the simple ability to perform a given activity" (p. 7).

The concept of disability, so commonly ascribed in North American and European countries, was unfamiliar to the populations of non-European and non-North American countries, who often have come to know disability "as a social identity,... created ... through

surveys, research projects, rehabilitation programs, and governmental policy" (Whyte, p. 7). Whyte cites Henri-Jacques Stiker, a French historian who traced the history of impairment in Western society [, saying he]

> argues that legislation gives to infirmity an existence and a consistency it never had before - definition, criteria, and degrees of severity. People with infirmities become a marked group; they are given a social identity, as citizens who have the same rights as others and should be integrated like ordinary people. They have a double self image: as injured beings and as citizen/workers like everyone else. Paradoxically, they are designated so as to disappear, they are named so as to go unmentioned.” (Stiker, 1982, p. 149, author's translation, quoted in Whyte, p. 8).

It's interesting that Stiker, while noting that the designation of "people with infirmities" as worthy of the rights of ordinary people, also saw that the people with infirmities, once they were accorded the rights, tended to disappear; people in non-European and non-North American cultures who learned to identify disability through the use of research terminology might have previously felt as if those identified had the same rights as everyone else in their communities until the researchers arrived and taught them that they were different.

As an example of further cultural comparison, there is the concept of special education in Russia known as "social education" in visionary psychologist Lev Vygotsky's terms, rather than what he called, "social charity," which is how he referred to the special education system in the West (van der Veer & Valsiner, 1991, p. 63). "Social education" in Russia came into being during the first quarter of the twentieth century with the founding of sanitarium schools that addressed the needs of "anomalous" children (Kozulin, 1990, p. 197). During the 1920s thousands of homeless children roamed the Russian streets after the

violence of the Russian Revolution and the Civil War, and this inspired Vygotsky to focus on what became "defectology," and to attempt to incorporate a more holistic approach to the instruction of children with disabilities; "at that time all handicaps, both physical and mental, were seen in one social perspective" (p. 197). In Vygotsky's view, "it was the social problem resulting from a physical handicap that should be seen as the principal problem... blind children do not originally realize their blindness as a psychological fact. It is only realized as a social fact, a secondary, mediated result of their social experience" (van der Veer & Valsiner, p. 62). The consideration that disability was a social and not an individual problem was part of Vygotsky's sociocultural theory of learning and development, which was "based on the concept that human activities take place in cultural contexts, are mediated by language and other symbol systems, and can be best understood when investigated in their historical development" (John-Steiner & Mahn, 1996, p. 191).

Distinctive in comparison to this holistic idea, the current system of special education in America is based on a system of evaluation which requires isolating the student for testing purposes. Many times, the first professional to evaluate the student is the school psychologist, and "the educational systems that employ them [psychologists] are increasingly asking whether psychiatric classification should be part of the school psychologist's role" (House, 1999, p. 180). Alvin House, in his book, *DSM-IV Diagnosis in the Schools* (DSM-IV stands for the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, fourth edition*), comments that one possible explanation for asking school psychologists, who are not trained in depth in diagnostic procedures, to begin to use the psychiatric classifications is that "mental health diagnosis makes available the possibility of accessing other potential sources of funding for psychological services within schools - the

'third party payers' of insurance companies, as well as of state and federal government agencies"(House, p. 180).

Contrasted with the holistic and inclusive attitude that Vygotsky's work proposes, which suggested that "by participating in social life in all its aspects [people] would - in a metaphorical sense - overcome their blindness and deafness"(van der Veer & Valsiner, pp. 62-63), the American system for the evaluation and treatment of individuals with behavioral problems seems increasingly to be fraught with legislative and medical terminology meant to exclude the person identified from any participation in what might pass as a "normal" social life, at least until the process of evaluation is accomplished. What might be some of the effects of categorization upon individuals who have been labeled as emotionally disabled?

The discourse of evaluation and its possible effects on language and identity development in the categorized individual. In the two hundred years before the nineteenth century, society implemented much legislation that would "segregate criminals and indigents from fools,... prompted, as often as not, by a desire to protect the poor, the criminal, the man imprisoned for debts, and the juvenile delinquent from the frightening bestiality of the madman" (Foucault, 1988, p. vii). Remember that mental illness and physical disability at this time, and sometimes even now, is thought to be something that society needs to be protected from. As we saw in the first section, it was partially to combat this social protectionist attitude that the Special Education laws were enacted in 1975, hoping that it would encourage the treatment of students with disabilities as "full-fledged human beings" (Lipsky & Gartner, 1987). How has this legislation affected the psychosocial development of individuals who are identified for categorization as Emotionally Handicapped?

The answer to the above question is most often framed in the institutional vocabulary or discourse of the educational professionals, diagnosticians, school psychologists or counselors, school administrators, and special and regular education teachers. "There are basic questions asked in all scenes called educative in America; Who can do it? Who can't? Who is smart? Who is dumb? ... These questions acquire their answers... with the help of tests, diagnoses, specialists, and government-sponsored budgets... " (McDermott, 1993, p. 290).

In the special education system, the labels of emotionally handicapped (EH), severely emotionally disabled (SED), or emotionally disabled (ED) attached to the individual accomplish this distinction, this categorization. These labels don't represent the student; the labels keep her or him from gaining true representation. Hugh Mehan (1993), in his article "The Politics of Representation," writes about the creation of handicapped students through the diagnostic processes of special education assessment and placement. He offers insight into how "students' identities are sharpened as they move from regular education classrooms to testing rooms and finally to meeting rooms... [saying] an important feature of this process is the transformation of discourse into texts" (p. 249), and I believe that by following this transformed text, we can begin to see how the identity of student shifts from environment to environment.

The labels used to define people with disabilities are "performative ... [and they] bring into being that which they name" (Osborne & Segal, 1994, p. 2), as Judith Butler says in an interview. And she continues, "Begin[ing] with the Foucauldian premise that power works in part through discourse and it works in part to produce and destabilize subjects,... discourse might [also] be said to produce a subject... this is the moment in which discourse becomes

productive... performativity [is]... that aspect of discourse that has the capacity to produce what it names" (p. 2). And at this point, in reference to people, particularly to students with disabilities and naming them with the labels of evaluative discourse, it is producing them in the image of what the greater society sees as abnormal development. Dr. Seymour Halleck (1971) examined the process of labeling on people who are seen as deviant, and he says in his book, *The Politics of Therapy*, that "the process of labeling also contributes to the oppression of deviant groups in a more subtle manner by strengthening community beliefs that those who are different are somehow dangerous or inferior ... When an individual is given a medical label, society is encouraged to believe that his behavior cannot be controlled ... " (p. 101).

The children who are identified and categorized as emotionally disabled are coached into a particular pattern of behavior through the administration of pharmaceuticals or of therapeutic practices, or both, before professionals deem them eligible for readmission into the mainstream of society. Often the therapeutic intervention includes the reforming of one's identifying vocabulary. An example of this is a study done by Cathryn Houghton (1995) on "The Treatment of Reproduction and Sexuality in a Therapeutic Institution." In this study, Houghton explores the use of "you" by the client in an example of the dialogic exchange between the therapist and a young Latino woman who has become pregnant as a teenager:

Client: You know how that is when you just want to have a baby, just something that is yours and belongs to you -

Therapist: No Mirna, we don't know what it is like. Please tell us, but don't say "you." It is your experience, not ours, so you need to say "I" instead of "you."

> 'The use of you here,' says Houghton, 'is ... a colloquial use that assumes experience in common with others, and... function[s] to construct alignment with other members of the group. [This use] authorizes one's experience and views. The use of you constructs an alliance on the assumed basis of a common experience; the use of I breaks down potential alliances' (Houghton, 1995, p. 124).

Further in her study, she shows that the client has assumed the desired use of language in order to comply with the hidden rules of the institution. As Houghton concludes, the client's gradual use of the acquired therapeutic language is a "model of control, ... mutually built between client and therapist: The problem of, in this case, unwanted teenage pregnancy, is identified as located in the individual" (p. 124). I believe that the client potentially carries this language alteration and its accompanying belief back into her personal environment once she is "cured" of her desire to have children, and additionally, that the client's family life is permanently altered by her new view of herself, particularly since she will share this adopted view and her adopted therapeutic discourse with her children, her family and her friends.

An extended application of Houghton's study into the school environment shows how the discourse of evaluation and therapy and the discourse of special education also work their way into the vocabulary of the student and her family. Once this institutional vocabulary has indeed been partially assimilated into the everyday language of parenting, how does child learn to make meaning for herself? Additionally, if the child grows up from age three, for example, hearing himself or herself discussed in terminology that is pathological in nature, would it ever be possible for them to reconcile the social identity assigned to them with the personal identity they are already developing, or are kept from developing? McDermott sees this categorization of the child as degradation, "in which ... a person must not only do the

wrong thing, but exactly the wrong thing that everyone is looking for someone to do and then at just the right time" (p. 256).

If, in order to "get well," according to the medical or educational institution which has control over you (and your parents), you must assume the vocabulary and attitudes of the therapeutic institution, when do you develop your own individual ideas of who you are? Constrained by "the predominant paradigm [which] ... evolved from a medical or child deficit model" (Wiest & Kreil, 1995, p. 401), the child is semantically " 'institutionalized' through legislative definitions, case law and agency interpretation of federal and state regulations" (p. 401). The interpreting agency in this case would be the school system, with education professionals: special and regular education teachers, diagnosticians, counselors, therapists and administrators – as interpreters of the law. The semantic institutionalization occurs through the usage of the terminology of special education assessment discourse.

My family has personal experience with the world of special education assessment; my youngest son was born with multiple disabilities, among them emotional problems. One thing you realize immediately when you have a child with disabilities is that you are no longer part of the "tribe" of normal people. Your community, your family, even your other children look at you differently. It's very hard to understand how one day you could be part of the larger “normal” group, and the next day, you are part of the small group of "students with special needs;" it feels very far away and very removed from the rest of "them." Writer Dorothy Allison (2000) tells how confused she was when she was treated differently, "Most of all I have tried to understand the politics of they," she says, "why human beings fear and stigmatize the different while secretly dreading that they might be one of the different themselves" (p. 271).

This dreaded difference is categorized by the diagnosis of bodies as becoming “special,” as in “Special Education.” The categorization of being a “special ed student” connects with a falsely assigned title of privilege, called "an unchallenged privilege... [lurking] in the rhetoric of benevolence" (p. 29) by Wen Shu Lee (1998). This benevolent privilege is more often seen as "stigma." Erving Goffman (1963) writes about stigma as "information about an individual ... abiding characteristics, ... reflexive and embodied, ... conveyed through bodily expression in the immediate presence of those who receive the impression" (p. 43). Stigma also pervades the institutional categorization of children and adults. The individual who bears the stigma, the illness, the disability, can become a "non-person," as Fauconnier and Turner (2002) might say. Being evaluated for mental health or special education services places an individual in the position as the focus for the intervention, the treatment, the Individual Education Plan, or IEP. It is at this time that the therapist, the psychologist or the diagnostician, whoever is speaking on behalf of the person, remains at the center of the conversation, "becomes a material anchor for an absent person being talked about" (p. 263). The “center-ship” of the student is stripped away, leaving in its place the stakeholders of the system, those who are intended to address the needs of the now “objectified” student. Most importantly, even with provisions in the law to ensure that the family understands what is happening in the evaluation process by offering translation services (Wright & Wright, 2000), many families, especially the families of migrant children with special needs, find themselves drowning in the discourse of special education.

What happens to a child who finds that he and his family must adopt a new and foreign institutional discourse? Vygotsky says that "the most important cultural tool is speech, and... the fate of the child's whole cultural development depends on whether he or

she masters the word as the main psychological tool" (van der Veer & Valsiner, 1991, p. 71). The adoption of a new institutional discourse concurrent with the mastery in the child's first language presents a challenge to the progression of cognitive developmental stages. In Vygotsky's investigations, he found "that children, adolescents and adults may mean different things by the same words [showing] ... that children's learning of words may take years to reach a culmination point. In a way, the children and the adults are living in a different universe, and the words they use coincide only in that they refer to the same objects" (p. 267). Here, learning words, acquiring language and an idea of 'who I am,' seems to be an objective skill, and yet, the child sees himself differently when he is in his special education classroom than when he is observed through the eyes of a regular education teacher. The family might also respond with confusion; their life routines are disrupted, and the child's developmental trajectory is forced to realign in accordance with the new discourse operating on him. He must attempt to reconnect somehow with his developing self, while assimilating the new experiences into a future self. "For children, the development of language is a development of social existence into individuated persons and into culture" (John-Steiner & Tatter, 1983, p. 83, quoted in John-Steiner & Mahn, p. 202).

If a child defines her individual self according to her social interactions during development, a sudden alteration of that definition can negate part of her individual identity. It is entirely possible that the conflict that occurs as a person's internal identity construction is questioned ensures his continued presence on the periphery simply because his established identity is threatened (Metheny, 2004, pp. 4-5). This is the "moment in a child's life, an instant when the common sorting of human difference into categories of 'able' and 'disabled,' 'normal' and 'abnormal' [when]... the child,... not yet a believer in disability as a reality, ...

stands at the threshold of a decision of moral and political implication: Shall I believe in disability?" (Danforth & Rhodes, 1997, p. 358) In order to illustrate how this might affect a child, I offer an anecdote from an article by Scot Danforth, a child and family therapist at the Calvin Hunsinger School in Florida:

The story concerned a third-grade boy who had been diagnosed emotionally handicapped (EH) and had previously been educated in a self-contained [segregated from the rest of the students] classroom. Under the new inclusion program, he had been switched into a general education classroom and seemed to be faring well. After a few weeks of this new arrangement, he approached one of his two teachers with a simple question, "Does this mean that I'm not EH anymore?" (Danforth, 1995, p. 136).

Although this boy was centered as the object of attention, his wants and desires were irrelevant. Danforth reflects upon this incident, saying, "I began to wonder about his child's self-definition and our professional power in teaching a child who he or she is... we the knowledgeable and caring adults had taught him that he was a child bearing a disability of affect and behavior... we had repeatedly taught him of his defectiveness... that he was somehow lesser than his 'normal' peers" (Danforth, p. 136). This little boy and the young Latino woman in Houghton's study are looked at as extensions of the institution (in the little boy's case) or of the person (the therapist, in the young woman's case) who is doing the attending. These individuals have become the products of the beliefs that are instilled in them; their identities are defined by the language used to evaluate and categorize them.

Assessment need not be the cause of further isolation of a child's limitations. Insoo Kim Berg and Teresa Steiner (2003), therapists who work with and assess children who have special needs, approach assessment differently. "Unlike the view that assessment is an

objective, unbiased, scientific study of facts, we believe that assessment is also very interactive[;] surprised by the discovery of what the child is capable of doing... we can build on these [abilities] when addressing his or her limitations" (p. 119).

In looking at the uses of language in educational, institutional, or therapeutic situations, sometimes professionals forget that real human beings are involved. "Psychologists, teachers, and parents have different languages for talking about children because of their different experiences and backgrounds, [but]... these... perspectival ... modes of representation are not equal. The psychological representation of the student supplanted both the sociological [teacher's] and the historical [parent's] representations of the student" (Mehan, 1993, pp. 256-257).

People like the young woman in Houghton' s example and the little boy in Danforth's example need to know that there is a choice, that there are "arguments about identity," as Lee says, which "distinguish 'is' from 'is not,' and 'what to be' from 'what not to be'" (Lee, 1998, p. 23). It is neither a professional privilege nor a right to separate people from their environments and mold them into beings that are considered "normal." There is an obligation to teach children and young adults about the choices they possess so they are able to identify themselves; " 'Self' becomes a significant symbol only in relation to 'other.' It takes a process of 'doubling' or 'pairing' to signify meaning" (p. 23). This "doubling" refers to making meaning from words as pairs of concepts and defining "ability" only when one is aware of the definition of "disability." Danforth (1995, p. 136) worries, "What social injustice is being forwarded by understanding and representing this child as emotionally disturbed?"

How can a child who has adopted the therapeutic discourse of the medical paradigm, and who, along with her family, friends and ancillary caregivers, perceives herself as

pathological, ever be re-included in a traditional classroom, community or social environment? By complying with the special education laws, by categorizing students, what are the developmental effects for them performed by the professionals and sometimes even by family members? And, importantly, how do we perform research that will adequately investigate the effects of categorization on students with disabilities?

Research on evaluation in educational diagnostic and therapeutic settings. Research into the discourse used in the school setting of diagnosis and evaluation for children who are identified as possibly needing special education is often difficult to locate. The Family Educational Rights and Privacy Act, or FERPA, "deals with privacy and confidentiality, parent access to educational records, parent amendment of records and destruction of records" (Wright & Wright, 2000, p. 281). In this federal regulation, the disclosure of records is controlled by clauses which deny funding of the "educational agency or institution," or school, if the records of students are shared with persons outside of the school system in which the student is enrolled; there is a further stipulation that the agency, research is protected so carefully, it's difficult for an outsider to acquire access to even a single student's records to conduct a study, and so, as in Scott Danforth's work with children who have emotional problems, it is not unusual for a therapist to do research with the children in his immediate setting, where he was able to get permission and protect the participants in his study.

Courtney Cazden performed her research as a teacher-researcher, and she describes her way of accessing the classroom discourse, particularly, the authoritative discourse of others, meaning, of the professionals in the schools: "... when we transform the authoritative discourse of others into our own words, it may start to lose its authority…we can test it,

consider it in dialog... [so] appropriation [of text] can be reciprocal" (Cazden, 2001, p. 76), thus allowing it to be studied along with the children's classroom language. When Jane Katch began working with emotionally disturbed children at the Orthogenic School at the University of Chicago, she worked under the supervision of Bruno Bettleheim then taught kindergarten with Vivian Paley at the University of Chicago Laboratory School. Katch's 2001 book, *Under Deadman 's Skin: Discovering the Meaning of Children's Violent Play*, has a preface by Vivian Paley, who applauds the method Katch used in studying the violent play of her kindergartners and first graders: she "let the children join her in studying a phenomenon that holds them hostage. Instead of eliminating the script, [she made] it a focus of classroom discourse" (Katch, 2001, p. ix).

In her epilogue to her 1996 landmark work, *Ways with Words,* Shirley Brice Heath expresses the need for research to expand across disciplines and to change; she says that "it is difficult to know just how representative language uses in youth organizations are of the talk of youth when no adult or central group task is present. I now bring young people in as co-researchers and ask them to respond to the data and interpret and compare patterns of vocabulary, grammar and intonation" (p. 373). Transcultural psychology is also a burgeoning field of research in the preserve of mental health representing collaborative research, "interdisciplinary collaborations that are fostered by a population health approach to mental health" (O'Hanlon, 2003, p. 1). The results of interdisciplinary research can be displayed through the use of "boundary objects, [which] serve multiple constituencies in situations where each constituency has only partial knowledge... and partial control over the interpretation of the object" (Arias & Fischer, 2000, p. 3). To describe them further, "boundary objects are inscriptions [material signs] that are used across several communities

of practice... they serve as interfaces between multiple social worlds and facilitate the flow of resources (information, concepts, skills, materials) among multiple social actors" (Roth & McGinn, 1997, p. 42). A fine example of interdisciplinary research, the UCLA School Mental Health Project has designed "comprehensive & multifaceted guidelines for mental health in the schools, [saying]those who mean to advance MH [mental health] in schools must work to ensure their agenda is not seen as separate from the school's educational mission. That is, in terms of policy, practice, and research, all activity related to MH in schools, including the many categorical programs for designated problems, eventually must be embedded fully into school reform initiatives" (Addressing Barriers to Learning, p. 3).

New methodologies of assessment, which might be most helpful, come from the current research into culture-fair assessment (Fagan, 1992, 2000; Fagan & Haiken-Vasen, 1997; Verney, Granholm, Marshall, Malcarne, & Sacuzzo, 2005) and formative assessment (Boston, 2002; Wolfendale, 2004). Culture-fair assessments include information processing and psychophysiological assessments to "reduce cultural biases in standardized assessment" (Verney et al., p. 316). Formative assessment is "the diagnostic use of assessment to provide feedback to teachers and students over the course of instruction ... teachers assess how students are learning and then use this information to make beneficial changes in instruction" (Boston, p. 1). Both assessment frameworks, culture-fair and formative, although not specifically designed to evaluate children for behavioral health problems or trauma-related issues, might be included as part of a more broad-based approach to the evaluation for behavioral health services in the public schools.

As this review has shown, much of the problem with assessment for mental health problems in children stems from the language of assessment and evaluation and how this

language affects the psychosocial developmental paths of the children identified for services. There is no denying the fact that there are also many children/students who are immigrants and in need of behavioral health services Often the school is the first environment where these students encounter professionals who are trained to look for students who might be having difficulties that profoundly impair their social and intellectual development. The goal of the identification of children for behavioral health services (as with services for other children with identified disabilities) should be to ensure the highest level of their participation in the life of their family and of their community, and expanding the tools used in this identification process cross-culturally and cross-linguistically should be a priority.

Presently, there are many negative views of second language acquisition that exist in the foundational research (Flores, 2007), and in order to reframe this perspective, educators must actively assert that there also exists a therapeutic value of multilingual acquisition and use. This viewpoint can enhance language learning as a positive and reaffirming enterprise, where nothing is lost, and new languages, new perspectives, and new ways of communicating are gained. In fact, the inclusion of a performance task in evaluation reinforces that very fact – as we delve deeper and deeper into the usage of a second language, the conceptual structures of the native language emerge time and time again, revealing the fact that ingrained linguistic constructions are indeed, never lost.

A link between assessment, trauma, and linguistic analysis: Post Orphanage Behavior Syndrome. This section is an introduction to the work of scholar and professional, Dr. Boris Gindis, who uses Lev Vygotsky's methods for assessment and for his work with internationally adopted (IA) children here in the United States. It is brief and far too general to actually present the true breadth of the problems of these children, but hopefully it offers

an example of the need for future work in this area. To establish a bit of background for Dr. Gindis and his work, see below for a short summary of Lev Vygotsky's concepts.

In 1930s, in Moscow, the Research Institute of Defectology, which is now known under the name of the Scientific-Research Institute of Corrective Pedagogy, was opened. Russian psychologist Lev Semeonovich Vygotsky, mentioned above, was the founder, and it was there that he developed his theories regarding how the child who had identified defects could be evaluated for the most appropriate training, resulting in his or her needs being addressed and the possibility of becoming a part of their community (Gindis, 1995). "Defectology was the main empirical domain from which Vygotsky obtained data to support his theoretical conceptions" (p. 158). Until the 1990s, this Moscow institute was the only one in the Soviet Union to evaluate children with disabilities, who often had to travel through as many as seven time zones to reach Moscow to be evaluated. Remembering that these children were not the healthiest, most resilient children, the travel must have been a great burden for many families. The institute was also responsible for developing educational materials, textbooks for use with the children, and in-service education for the staff members who would implement the recommended training programs.

When we look at Vygotsky's suggested developmental program for the individual child, it offers insight into how a category for mental illness comes into being After all, evaluation and categorization are both natural human processes of integration and redefinition, and they are dynamic in nature (Gindis, 1996). Primary to the field of assessing children's mental health is Vygotsky's concept of

> secondary defect, [which] refers to distortions of higher psychological functions due to social factors. As Vygotsky wrote, organic impairment prevents handicapped

> children from mastering some or most social/cognitive skills and from acquiring knowledge at a proper rate and in an acceptable form. Progressive divergence in social and natural development leads to the emergence of delays and deficiencies: it is the child's social milieu, not the organic impairment per se, that modifies a course of development and leads to defective development. (Gindis, 1996, p. 12)

Boris Gindis, a licensed psychologist, runs the Center for Cognitive-Developmental Assessment and Remediation in Suffern, New York, and he is also a professor at Touro College in the Department of Psychology. In his work at his center, Dr. Gindis identified two syndromes, one of which he calls Post-Orphanage Behavior Syndrome and one called Institutional Autism, both occurring in children who have been adopted from a foreign country. These children are adopted after being placed in institutional settings at or shortly after birth, and these adoptions are by parents in the United States of children ranging in age from a few months to approximately ten years old. According to the report, *Evaluation of the Assistance to Russian Orphans Program (ARO)* produced in Russia and submitted to the U.S. Agency for International Development/Russia in 2001, "there are peaks on the curve of abandonment: One, very high at birth when the state still puts many newborns in "baby homes" and the other at age 3-4 when parents find they cannot cope, especially if the child is learning disabled" (Heegaard, Brakarsh, Drozdovskaya & lakimets, 2001, p. 13).

The decade of the Nineties was a difficult economic time for families in the Russian Federation, and many families were forced to abandon their children to institutions. In Russia, the act of relinquishing a child and placing the child in an institution became known as "social orphanhood, where parents abandoned their children to state institutions because

they found they could not take care of them" (Heegaard et al., 2001, p. 4). As the need for more adoptable White infants rose in the United States, "with

> ... waiting periods of up to two or more years to adopt healthy, white infants" (Stolley, 1993, p. 37), it's probable that many parents from the United States began to look abroad for white infants to adopt. The trends to adopt internationally show increases every year when statistics were collected, from 1989 until 2003. These statistics show that Russian children began to be adopted in 1992, when the total was 324. In 2003, there were 5209 orphan children from Russia who were issued visas for adoption (Intercountry Adoption Statistics Page, 2019).

According to Kathy Stolley's article on adoption statistics, "adoption issues also have consequences for the larger society in such areas as public welfare and mental health" (p. 26). In a study of pediatric exams of a sample (56 children adopted from Russia), researchers found "gross-motor delays in 70 percent of the children, fine-motor delays in 82 percent, language deficits in 59 percent... suggest[ing] that children coming from these environments [post-institutional settings] should be considered – at least temporarily – 'special needs' children" (Gindis, 1998, p. 6).

Some of the problems for older school aged internationally adopted children occur when school personnel evince a "tendency to consider internationally adopted children (IA) as bilingual and apply to them insights, knowledge, and practices that have accumulated regarding language acquisition in bilingual persons" (Lawson, 2003, p. 1). At his center, Dr. Gindis focuses on the problems of adaptation for Russian orphans who have entered this country through adoption. He uses Vygotsky's method of "dynamic assessment" (DA) to evaluate children at his center. This method focuses in part on determining the levels of

"compensatory processes in a child's development-and behavior, which substitute for, supersede, and overarch the defect" (Vygotsky, 1993, p. 32). So, Dr. Gindis and his team of professionals use what Vygotsky had called "psychoeducational assessment" which has now come to be called "dynamic assessment... [which] in the Vygotskian tradition leads the child to the point of his/her achieving success in joint/shared activity" (Gindis, 1996, p. 12). There are various methods employed under DA, but they all include

> the principles or assumptions that (1) cognitive processes are modifiable, and an important task of assessment is to ascertain their degree of modifiability, rather than to remain limited to estimation of the child's manifest level of functioning;
>
> 2) interactive assessment that includes a learning phase provides better insight into the child's learning capacities than unaided performance [as is used in standardized testing procedures]; (3) the primary goal of assessment is to suggest psychoeducational interventions aimed at enhancement and realization of the child's latent abilities to learn. (Lidz & Gindis, 2003, p. 103).

Dr. Alla Gordina, a pediatrician and one of the professionals who work with Dr. Gindis at his center, writes that "adopted children do have their special needs and problems... for many children even hearing Russian language is frightening and painful. Some parents do report that children as young as 18 months of age would start crying unconsolably when they will hear Russian speech even while still in the country [Russia],... [but] they calm down very quickly when spoken to in English" (Gordina, 2002, p. 3). This reaction to their native language is similar to symptoms of Post-Traumatic Stress Disorder, but Dr. Gindis emphasizes that "proper evaluations: medical, psychoeducational, speech/language... [must

be] done at the right time and by the right professionals" (Gindis, 1999, p. 106) is most important at this time in order to provide a correct diagnosis.

I'd like to share with you an example of how a child might react with symptoms of Post-Orphanage Behavior. Dr. Gordina offers this anecdote in her paper from 2002:

> Recently I had to evaluate a 3 yo girl, adopted one year prior to this. From the very beginning, in the waiting room, she became very agitated and started crying, when my office staff greeted her in Russian. When her grandmother tried to reason this toddler, telling her that she (the girl) is Russian too, she responded - no, I am American! When I was taking her history, I found out that this baby had problems with her sleep - both falling asleep and waking up in the middle of the night. She would have the same "nightmare" every time she would scream "Wolf, wolf, take away the wolf." Initially mother was not able to understand what was going on (no books with wolfs [sic] were read to this child), until one day she followed where her daughter was pointing and saw a ... Russian doll, hanging on a mirror. Soon after this doll was removed, child started sleeping more peacefully. (p. 3)

Dr. Gindis' syndrome "Post Orphanage Behavior" or POB, exhibits symptoms which are common to, among other disorders, Post Traumatic Stress Disorder, Reactive Attachment Disorder, Bi-polar and Attention Deficit Hyperactivity Disorder, but he stresses the importance of this sharing of symptoms "with serious mental/emotional disorders... POB may mask, be in addition to, and be reinforced by organic and neurological-based genuine disorders... [Sometimes,] it takes time to diminish the effects of POB in order to be sure about the underlying emotional problems.

On Dr. Gindis' website, www.bgcenter.com, there is a wealth of information for U.S. parents who have adopted children from foreign countries. In addition to the evaluation of IA children, the Boris Gindis Center offers online classes for parents and interested professionals so they can learn how to help their own children, or the children they are working with, adjust to their new families, new schools and new life in the United States. One of these classes, "School Issues of an Internationally Adopted Child" has some comprehensive descriptions of the two disorders that Dr. Gindis has identified as being possibilities for IA children with behavior problems. The information presented below offers an idea of some of the symptoms that might be evident in either syndrome:

Post-orphanage behavior syndrome - acquired during institutionalization, which for many children occurs at birth. What follow is a list of symptoms used to identify this syndrome.

Learned survival skills - Attempting tasks that are normally beyond age level

Take "justice" into their own hands in their relationships with peers instead of appealing to adults

Try to deprive parents of their roles by taking care of their own needs

Try to reverse parent-child role by "supervising" and imposing their authority on parents

Would **prefer to be seen as uncooperative** rather than an underachiever

Prefer to always be in control- on one's own turf- not risk takers

Act helpless because the helpless get the most attention

Extreme attention seeking and indiscriminate friendliness with strangers

> **Institutional Autism** - some adopted children have the symptoms, acquired or learned, or autistic-like patterns of behavior produced by an orphanage-based rearing. Symptoms of "organic-based" autism, such as stereotypic or self-stimulating behaviors (rocking, head banging, shaking of hands, face shielding, etc.) that becomes habitual in institutionalized children are very stubborn and may appear at times of stress. (Gindis, 2002)

Again, all of the above information was gathered from condensing some of the available data from Unit 3 of Gindis' online course, "School Issues of an Internationally Adopted Child," which can currently be accessed on his website, where it is consistently recommended that a comprehensive assessment be performed to locate the roots of the adopted child's disorders before misdiagnosis and wrong treatment is offered.

There are many directions to go from here when looking at the situations of internationally adopted children; it invites comparisons to the plight of immigrant students. The impact of the research in this area spans disciplines of Linguistics, Anthropology, Psychology, and Education, and contributes in major ways in the area of Bilingual Theory and Language Acquisition in children. Research into this area offers insight into why children should be included into regular classrooms as opposed to gathered together in groups of children with multiple disabilities in a self-contained classroom.

With the recent increases in immigration to the United States in the last decades, the issues dealing with children who have moved with their families to the United States and are learning new languages are related to this very important work. Work in this area might also be applied to the thousands of children who are in foster care settings in the United States; as an historical example, in the year 2000, there were 3590 children in New Mexico in foster

care, and, according to Child Welfare Outcomes 2000, there were 822 children waiting to be adopted (Child Welfare Outcomes 2000, p.1).

The problems of internationally adopted children as a topic is understandably overwhelming, and the importance of future research to these children and to their families is immeasurable. Stolley, in her 1993 article on adoption statistics, recommended a comprehensive national data collection on all adoptions in the U.S. to ensure that statistics are available to policymakers and practitioners in order "to facilitate program planning, to develop policy, to design outcome evaluations of those policies and practices" (p. 38). On the website of the National Adoption Information Center (NAIC), which is a part of the U.S. Federal Department of Health and Human Services, they recommend that you look for statistics which are gathered by "private organizations" (2003, p.2), since there is no legal requirement to maintain a national database, particularly on international adoptees. From the years 1957 until 1975, there was comprehensive data gathered "by the Federally funded National Center for Social Statistics" (p.1), but it was voluntary, and the NCSS has since been dissolved. States are only required "to collect data on all adopted children who were placed by the State child welfare agency or by private agencies under contract with the public child welfare agency" (p. 2). When and if adoption is framed as a public health issue, stronger guidelines for data collection may be forthcoming.

Although centers like the Boris Gindis Center for Cognitive-Developmental Assessment and Remediation are wonderful resources for the United States, it is one oasis (even with its small branch operating in Arizona) amidst the population of a country where, in 2003, over twenty-one thousand children were adopted into families in the United States

from other countries (Intercountry Adoption Statistics Page). This description of his mission from Dr. Gindis displays the commitment it will take to address the needs of IA children:

> My interests are focused on exceptional children with an "atypical" background outside of the social/cultural mainstream, those who were underserved, subjected to deprivation, maltreatment, and abuse in their early formative years, e.g. internationally adopted post-institutionalized children. Following Vygotsky's appeal, I am looking for alternatives to existing tests and clinical procedures to evaluate their needs, and means of rehabilitation, remediation, and compensation. I believe that contemporary psycho-educational assessment and remediation must be interdisciplinary, culturally inclusive, and technologically advanced. (bgcenter.com)

Based on this mission statement, a next step might be the proposal of a framework for studying the issues facing children who have been adopted or who have relocated/migrated from foreign countries. The following section outlines a melding of the two approaches of linguistic analysis and educational assessment in an attempt towards this outcome.

Integrating the Two-Sided Approach: Developmental Cognitive Spatial Displacement

> Force is that which makes a thing of whoever submits to it…it makes the human being a thing quite literally,…someone was there and, the next moment, no one.
>
> Simone Weil (2006)
>
> What have we done to ourselves by doing these things to them?
>
> Linda Ware (2003)

Many of us who work in or with institutional settings such as schools or social services agencies participate in the definition or the construction of people’s identities based on their possession of sufficient cognitive ability. When a child is referred to a school

administration for special services, an area of concern is suggested before the child is evaluated. Often, the area is one of academic failure: the child is not keeping up with his peers, possibly not performing at grade level, usually in Math or in English. It is up to the diagnosticians to evaluate the child for weaknesses in his emotional, physical or cognitive development, aided by discussions between the school principals, the child's classroom teacher, the school psychologist or counselor, the parents, and the students themselves.

The labels that are used to identify the students do not represent them authentically, and they may keep students from gaining true representation. The discourse of evaluation and assessment, incorporated into the discourse of education, works its way into the vocabulary of the student and her family. Once this institutional vocabulary has indeed been partially assimilated into the everyday language of parenting, how does child learn to make meaning for herself? Again, if the child grows up from a very young age, hearing himself or herself discussed in terminology that is pathological in nature, is it ever be possible for them to reconcile the social identity assigned to them with the personal identity they are already developing with the one they are kept from developing?

When the initial recommendation for evaluation occurs, the request may take the frame of right or of privilege: this is being accorded to you because your child is "special." To reiterate, this is what Wen Shu Lee (1998) calls, "an unchallenged privilege…[lurking] in the rhetoric of benevolence" (p. 29). Although the immediate reaction of the parents might be relief, Wiest and Kreil (1995) comment that "a label is still a label; it suggests a form of permanence and [indicates] failure and worthlessness. In their search for help in teaching their child, parents may join a framework and interpretation that implies that the child is not capable" (p. 402).

When someone is part of a larger community (his or her adopted country) but is also a member of a smaller community (the group s/he inhabits as an immigrant), the meanings of the concepts and categories of the larger community are often not shared with the smaller community, and essential meanings are denied to the individual. A word may have one meaning in the larger context and another in one's personal space; words can have very different meanings in these alternating environments. And yet the student, the child or the adult, is primarily responsible for acquiring, using, and manipulating the words in his or her world, because in the "natural process of individual development…the [student] is the meaning maker who encounters, produces, and utilizes linguistic symbols and sounds in lived experiences" (Danforth & Rhodes, 1997, p. 361). If "meaning occurs as a reflection of cognitive environment," as Sperber and Wilson say in their 1995 book, *Relevance, Communication and Cognition*, it's possible that these essential meanings might be denied to an individual whose "abiding characteristics" (Goffman, 1963, p. 43) are brought forth in his uniquely cultural expressions, some of which may not blend in with the larger community surrounding him and his family.

Often identified children and students who are in the process of being evaluated for educational services are discussed when they themselves are not present; hence they become the "non-persons." The center-ship of the person is altered. When a student is seen as an object, one being worked on as an attempt to repair it, he or she must relinquish the typical assumed position of the center and become the thing acted upon. In order to retain any sense of inclusion in the immediate environment, this person accepts the view that he (or she) is broken and must be mended. Still, earlier internalized definitions of a human identity persist even though external circumstances have changed. If one has defined himself according to

his social interactions during development, a sudden alteration of that definition might negate part of the identity of the individual. The relocation of an individual to the periphery, where he is defined externally, from the center, where internal definition is applied, challenges him to adopt a perspective which may not have been part of his previous internal definition of self. It is entirely possible that the conflict that occurs as a person's internal construction is questioned assures his continued presence on the periphery simply because his established identity is threatened.

Linguistically, this student's "deictic center" (Marmaridou, 2000, p.99) has shifted. Even though "deixis," as defined by Marmaridou, "is a grammatical category which reveals our conceptualization of human beings as objects in space and of human language as an object in time" (p. 99), we can extend the use of this concept to understand how this "relocated" person now becomes the thing acted upon. S/he was once centered as the object of attention, and now her/his wants and desires are irrelevant. When we look at the uses of language in educational and institutional situations, we sometimes forget that real human beings are involved. We may evaluate the speech acts of the participants, but we must reconnect the people making the acts to the environment in which they exist. It is neither our privilege nor our right to separate people from their environments and mold them into beings that we consider "normal."

By categorizing people, we are creating a class of students, eventually citizens, whose identities are being constructed for them by the professionals. George Lakoff and Mark Johnson say, "The environment is not an 'other' to us. It is not a collection of things that we encounter. Rather it is part of our being. It is the locus of our existence and our identity. We cannot and do not exist apart from it" (Lakoff & Johnson, 1999, p. 566). We may evaluate

the behaviors and the speech acts of participants, in this case, children, in a discourse, but we must reconnect the evaluations and assessments of the actors, of the students, to the environment in which they typically, not categorically, exist. An illustration follows.

Categorizing anomalies are clearly evident in Eve Clark's (1991) article about lexical development in children and its relationship with language acquisition and conceptualization. Clark talks about Bowerman's work with Korean children; in the Korean language, the association which we call "in" in English is more like a near proximal location in Korean. The children learn that a ring can be "kki-ta" a finger, a hand might go "kki-ta" a glove, and …. – but an apple cannot be "kki-ta" a bowl, or a book cannot be "kki-ta" a room. This is a distinct linguistic type of spatial organization – a type which children learn as they learn their language, a way of seeing their world and interpreting it by learning to use the language of their parents, their relatives and older friends, and their peers. A child learning Korean as a first language, then English as a second language might not understand the many different English "ins" – "Are you in the mood?" "Can you come in for a drink?" "Put your hand in mine." "Don't give in to temptation." – some of which might sound like "kki-ta", but many of which may not. Ask this child to put a paper into a notebook, and she will understand because the paper will be proximally located in relationship to the notebook, but when she looks at a worksheet, which tells her to draw the smaller shapes in the larger shape, how does she know where to put them? If this child is given a test with shapes, and she is asked to record what is in a particular shape – but the object in the shape is not in contact with the larger shape, so it's not really "kki-ta" to the larger shape, how can she answer? Is she able to "walk without seeing"? Her new environment requires "cultural bifocals" – she needs to be able to negotiate between the "in" of English and "kki-ta" of Korean. She knows how to

navigate space according to her spatial language in Korean, because she is wearing her native "reading glasses" and walking through her own " language house" – she doesn't need to see because she knows how things are laid out, but suddenly, she has the reading glasses of English on, and now she is forced to look through them and identify the space around her, but she is unfamiliar with the spatial terminology in English; her conceptual framework is distorted, she flinches lexically and weaves precariously through a conceptual place that should be known to her, but she can't quite bring it into focus because her native tools are of no use here – without the advantage of both linguistic "bifocals," a navigational ability in Korean and in English, her orientation is thrown off, and she feels lost. Can we use the linguistic analysis of the map task and relate it to educational assessment to help this little girl?

Aligning the two-sides – Further support for the intersection of linguistic analysis and educational assessment. In the world of educational assessment, a good baseline is the key to measurement, and ideal in the current multicultural climate is an instrument, or test, which is viewed as "culture free," that is, that the abilities required to complete the testing task are biologically determined, such as general state of health and "the natural progression of the stages in brain maturation and growth that support visual-motor integration skills" (Henry, 2001, p. 34). Assessing the cognitive development (thought) of children as it relates to language acquisition (language) is difficult to say the least, and often the larger evaluation task is broken up into smaller, more manageable chunks of assessment. With an eye for how thought manifests through use, the basic consideration of this type of assessment is based on what Bowerman calls a "nagging old question: does learning how to structure meanings for a particular native language have consequences for speakers'

nonlinguistic ways of viewing the world" (Bowerman, 2002, p. 2)? Once the smaller chunks of assessment are determined, the instrument itself becomes very important; not only are we using these assessment tools to look more closely at the child who is taking the test, or who is being evaluated, we're using these tools to categorize human beings.

Research linking these two processes, language and thought, is scarce (but see Lucy, 1996), and Pederson, Danziger, Wilkins, Levinson, Kita, & Senft (1998) believe that with the help of their nonlinguistic experiments (their task kits or language games), the assumption that "humans naturally categorize their spatial environment using the planes of the human body – dividing 'front' from 'back' and 'left' from 'right' and 'up' from 'down'" (Pederson et al., p. 558) can be tested. If experiments do show a variation in the linguistic systems that describe spatial location, these experiments also imply that this variation is present in the conceptual and cognitive systems of humans, further claiming that there is a basis for believing that "even basic conceptual representations are formed from an interaction of biological endowments with significantly varying cultural and linguistic input" (p. 559).

Assessment itself can be considered a structured system of categories (Rosch, 1978), in that it forms baselines with assessment instruments as indicators of developmental boundaries between children. In the area of "the development of visual-motor integration in children, or design-copying skills in children" (Henry, p. 34), for example, there is evidence in the literature of an age-linked scale regarding this ability. "In general, prior to the age of 3, children can draw horizontal and vertical lines…circle drawing emerges at approximately age 3, followed by the ability to draw a square at age four and a triangle at age five" (p. 34). So, in the case of the assessment of design-copying skills of children, the "internal

constituency" (Labov, 1973) of the category of the development of design-copying skills of children is the hierarchical and temporal acquisition of the varying ability levels.

When we look at the internal constituency of a category, we attempt to discover what it is about the object, or in this case, the process, that we are considering that makes it belong to a particular category – what is it about that piece of furniture, what is inherent to it, that tells our 'categorizing animal' natures to call it a 'chair'? We look at the characteristics that: outline the form or function of the piece of furniture; make it different from other pieces of furniture; and make up what we might consider 'essential qualities' of "chair-ness" (Labov, p. 342). To apply this to the category of design-copying skill development, we do distinguish between the internal constituents of this category by segregating them according to skill acquisition, and we establish boundaries in order to clarify the process.

A closer look at the boundaries between the categorical constituents makes it possible to incorporate the changes that occur in language acquisition and the variations within the linguistic structure (Labov, p. 343). Looking at a boundary involves a closer examination of the categorizing process rather than the actual properties of the categories. In the realm of language study, when languages are seen as continuously adapting, shifting, as Labov says, to situations in everyday usage, looking at the boundaries between the categories offers deeper and more thorough insight into the intersection and interaction of the "denotations" of words, rather than the defining characteristics of what separates them (p. 343). The resulting insight allows us to view language as emergent and dynamic, viewing the process dynamically instead of making it stand still in a created text for categorical dissection. It also enhances the ability to observe the process of categorizing through assessment.

In the process of assessing the spatial representation abilities of children by looking at their ability to accomplish a design-copying task, accuracy is often not the focus of the measurement. Instead, the interest of the researches lies in how the spatial tasks are solved (Kyllonen & Gluck, 2003, p. 217). It is important to develop a tool, an instrument, which is standardized enough "to allow more exact comparison across languages" (Pederson et al., 1998, p. 585); this allows the results "to illuminate the relationship between linguistic and cognitive representations" (p. 585). Pederson et al. (1998) designed the "animals in a row" experiment: here the participant viewed several animals in a row set up on a table, then turned their back on the original animal row and reconstructed the animal row with the same animals unorganized on a different table to reflect how they remembered the order of the animals when they first saw it. Imagine for yourself how this task works, then try to imagine yourself doing a similar task – when you remember and describe how the animals are arranged, how are you looking at them, thinking about them, and seeing them in your "mind's eye": as if they were in a picture hanging on the wall and not changing position (absolute); as if they were part of your own space as you moved (relative); or as if they were arranged relative to each other (intrinsic) (p. 584)? As Pederson et al. say, "…language use is always contextually dependent,"(p. 585), and they illustrate this fact with the evidence showing that people often alternate their perspectives in the process of describing; sometimes they use an absolute frame of reference, sometimes they use a relative frame of reference, and sometimes they use an intrinsic frame of reference, but in their descriptions we can always see "a striking relationship between the cognitive responses and the linguistic patterning of each community"(p. 585).

An example of another instrument designed to be as "culture-free" as possible is the Rey-Osterrieth Complex Figure. The Rey-Osterrieth Complex Figure (ROCF) has been in use for over sixty years (see the example in the Appendix A); Andre Rey, a Swiss psychologist, devised the figure in 1941 to assess cognitive processes, including problem-solving skills and memory functions (Lezak, 1983). The instrument is very simple: the participant is offered a drawing to copy and variously colored markers to use in a particular order to accomplish the task. It is this instrument, which is being applied in various cultures (Henry, 2001; Stiles, Lee, & Reese, 2005), which I would like to discuss regarding the relationship between spatial representation and spatial orientation and their subsequent link with assessment. Even though human communities differ in dramatic ways with respect to spatial reference in language (Pederson et al, 1998, p. 584), Lakoff (1987) says, "they are not randomly assigned"; Lakoff suggests that physical and cultural experiences are the root of spatial metaphors (p. 18). The results of the Henry (2001) study with six children, ages 6 through 15, in the village of San Pedro, 100 miles from Iquito in Peru, offered some interesting observations:

> there was an absence of any relation between age and strategic approach. All children began their copy performance on the left side of the figure utilizing that area as an "anchor" and proceeded in a left to right fashion. All children displayed a spatial piecemeal approach, for example, adding items in a left to right fashion as opposed to a gestalt approach, for example, drawing the large rectangle from left to right initially, and then proceeding to add whole items thereafter. (p. 36)

Comparing this to results from North America on the ROCF, we see that there is a very strong developmental trend with the North American children in that they tend to delay

their strategic approach of “anchoring” the drawing until they are age 9. In fact, other studies (Berry, 1971; Miller, 1973; Myambo, 1972) have also indicated “that cultural groups for whom hunting is important for survival” (Henry, p. 37) perform better on spatial representation tests than their North American counterparts. In his conclusion, Henry advises sensitivity when evaluating minority children (p. 38). A possibility for incorporating this sensitivity might be the expansion of the ROCF to include a verbal description of the process of design-copying. I am suggesting that the test itself could be altered to include an oral component, where the participant explains his copying process as he is performing it. This alteration would offer additional data for the analysis of the link between language and thought.

Although there is a relationship between the “constituents” of the categories apportioned in the ROCF, this relationship changes with the populations which are studied. There is a significant feeling that the boundaries of the categories begin to blur and that the distinction between different skill levels alters slightly along with the cultural attributes of the community. Labov (1973) offers the concept of “vagueness” as a descriptor of this blurring; he says, “…in the world of experience all boundaries sow some degree of vagueness, and any formal system which is useful for semantic description must allow us to record, or even measure, this property” (p. 352). Perhaps the system of assessment also needs to have the means to record or to measure this property of vagueness, for it seems that the boundaries between the categorical constituents of assessment are often overlapping, and seldom discreet. If, as Labov says, the categorical view holds that “the properties of the categories are assumed” (p. 343), and from there, the scholarly arguments concern “how many categories exist, and what items are assigned to what categories” (p. 343), the concept

of vagueness would apply when boundary theory enters the picture. Because reality is a "continuous substratum" (p. 343), vagueness would seem to be a more forgiving approach when considering linguistic issues. And, because language is intimately linked with experience, and "in the world of experience all boundaries show some degree of vagueness" (p.352), that is, there are often times when there are not discrete, clear-cut, distinctions between members of categories or sometimes, even from category to category, a property of vagueness (if this is even distinct enough to be called a property) is helpful as an application which might be measurable in the examination of language problems. When we attempt to discover the measurement of vagueness in a term, (vagueness, according to Labov, meaning: "the lack of certainty as to whether the term does or does not denote" (p. 353)), we can get closer to the continuum of meaning that exists, as a dynamic process, for each term in its real life usage. When we apply this discovery to the process of the assessment of spatial representation in children who are members of the multicultural population in our North American public schools, the resulting adaptation in the categorizing process might prove beneficial to many of those children.

The following two chapters offer detailed descriptions of the map task used in this study and its historical development through related literature. Described in Chapter 3 is the pilot study upon which the dissertation study is based; this provides a fundamental knowledge base for further discussion and the basis for the generalizability of the results and findings of this study. In Chapter 4, the methodology for the current expanded study is presented.

Chapter 3

The New Mexico Map Task Project:

Background and Pilot Study

The Evolution of the Map Task

The Map Task (Anderson et al., 1991) was designed to be used with partners as a cooperative communication task (Anderson, Brown, Shillcock, & Yule, 1984), and in this project, a close adaptation of the original experimental design was used to enable future comparisons to be made with the fundamental work in this area. The following passage describes the procedure for conducting a map task session between two participants:

> In the Map Task pairs of subjects are presented with copies of a schematic map. One member of the pair is assigned the role of instruction giver (IG) and his task is to describe the route shown only on his copy of the map so that his partner the instruction follower (IF) can reproduce this accurately on her copy of the map. Although the basic map and most of the landmarks are common to both copies, the participants are warned that as the maps have been produced by different explorers, some landmarks differ between the two copies of the maps. By comparing the original route on the instruction giver's map and that drawn on the instruction follower's map we can derive an objective non-linguistic measure of communicative success. (Givon, 1997, p. 7)

An example from the original map task of both giver's and follower's maps appears below.

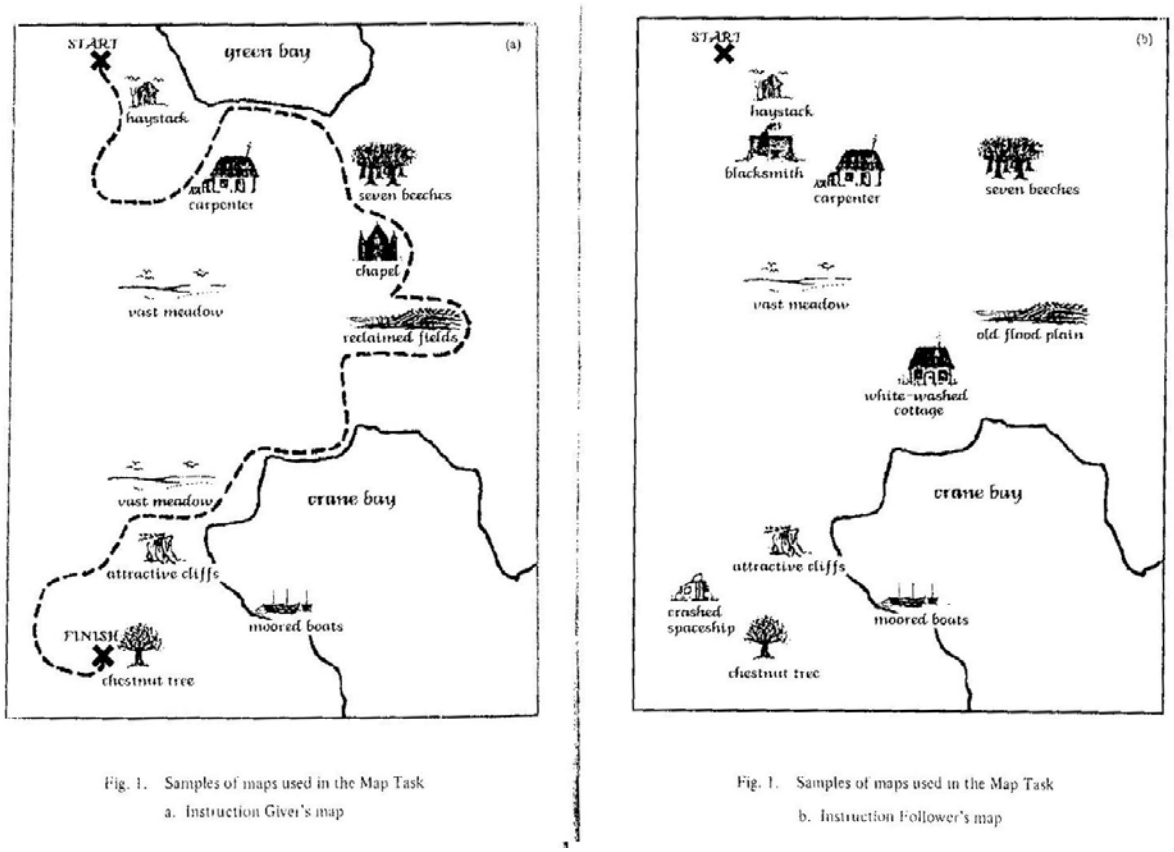


Figure 1. Original Map from HCRC Map Task (1991). Anderson et al., 1991

Map Task History and Publications

The map task has a long history of usage for a cooperative communication activity in eliciting natural discourse data for analysis. Work with the map task crosses disciplinary boundaries, including those of computational linguistics, psycholinguistics, and cognitive science; while the dialogues in the corpus are unscripted, the corpus as a whole comprises a large, carefully controlled elicitation exercise" (Anderson et al., 1991). Since its inception in the late 1980s in Scotland (Anderson et al., 1991), other scholars (Carletta et al., 1994; Bard et al., 1995; Grice & Savino, 2003; Horiuchi et al., 1999; Varges, 2005) have found the task useful for a wide range of articles dealing with work on transaction coding, disfluency coding, gaze coding, referring expressions, and syntax (Bard, Anderson, Sotillo, Aylett,

Doherty-Sneddon, & Newlands , 2000), many of them available from the University of Edinburgh's Human Communication Research Centre (HCRC), one of the world's foremost centers for research into cognitive and computational aspects of communication. My initial work with the Map Task is discussed below.

The New Mexico Map Task Pilot Project / Summary of Pilot Project

For the purposes of the pilot project, I looked into the possible differences in the verbal description of spatial language abilities by noting the specific terms people use when they describe their feelings of being lost or of giving directions as well as their usage of spatial terminology during an elicited map task. For this pilot study, I was examining how the constructions used for spatial descriptions in a speaker's first language carry over into the usage of spatial descriptions in this speaker's second language; in the pilot study, each set of participants (native and non-native English speakers) did one task in English only. Ortigosa and Otheguy (2007) found that in language use, “the speaker’s syntactic knowledge of the source language will shape his/her output in the target language” (p. 77). Linguistic evidence does point out the difficulty of incorporating novel speech patterns into an already stabilized language system, its value being that it is reflective of what is occurring conceptually (Fauconnier & Turner, 2003).

In her recent work on the Map Task Corpus, Davies (2007) says, “task-oriented data is of legitimate interest to linguists, provided their aims fit well with the constraints of the data” (p. 210). Davies emphasizes that the use of transactional data, or data where

> 'participants manage, transfer and negotiate information' when assigned a specific task offers the researcher an opportunity to investigate the participants’ state of knowledge, as well as the ability to control the goal of the verbal interaction. (p. 210)

The analysis of the resulting transactional transcripts from the pilot study of the map task establishes a distinction into categories which overlap the participants' two languages, the one in use and the native language, which may also be in use in the mental, or cognitive, sphere, and therefore might possibly transfer into the usage of the second language. The interpretation of the data proves exemplary of the cognitive framework accrued by the participant; this evidence is documented as instances of morphological and syntactic form, suggesting that the data allow the indirect observation of a cognitive event. Repeating, as Cadierno (2008) suggests, reminding us of Slobin (1996):

> there is a special kind of thinking that is intimately tied to language – namely, the thinking that is carried out, on-line, in the process of speaking… any utterance is a selective schematization of a concept – a schematization that is, in some way, dependent on the grammaticized meanings of the speaker's particular language, recruited for purposes of verbal expression. (p. 246)

Analysis of the transactional texts generated by the pilot study (Metheny, 2007) shows that this on-line speaking is observable in a participant's native "schematizations" of spatial language discourse in the use of spatially related syntactic and morphological constructions, specifically, the usage of prepositions and the verbs accompanying them.

Pilot Study Results

The results of the pilot study are shown in Table 1. Preliminary indications for results involve the distinction between directional and locational usages for prepositions, with the highest proportional number of directional uses lying in the dialogue resulting from the two native English speakers. Languages differ lexically when they distinguish goals of motion from static locations (Nikitina, 2007a). Results of locational vs. directional use were

categorized depending on the verb type (stative or motion), and substantial sections from the first three transcripts follow in order to show examples of the contents of these categories.

Russian is a satellite-framed language (Slobin, 2004). In a satellite-framed language (Talmy, 2000), "the distinction between goals and static locations is marked by a combination of preposition and case, and a number of prepositions, including *v* 'in' and *na* 'on', can take a complement in either locative or accusative case depending on whether they mark a static location or an endpoint of motion" (Nikitina, 2007a, 2-3). English is also a satellite-framed language, and yet the usage of locational turns in the map task for native Russian speakers is significantly higher than it is for native English speakers. Is it possible that the speakers in this exchange are "defaulting" to a locational usage because they are not used to giving directions in a language where this distinction does not exist? In Spanish, traditionally seen as a 'path (or verb-framed) language' (Talmy, 1988), "the manner of motion…can only be specified by an adverbial or gerundive phrase, and an additional non-manner verb must be used as the main verb" (Nikitina, p. 1).

Table 1

New Mexico Map Task Project Pilot Study Results

Participants	Total Turns	Directional	Locational	Total Spatial Turns	%Directional	%Locational
A/B (Nat. RU)	91	14	32	46	30.43%	69.57%
C/D *	39	8(9)	(1)2✦	10	80.00%	20.00%
E/F (Nat. SP)	100	24	11	35	68.57%	31.43%
G/H (Nat.RU)	121	15	28	43	34.88%	65.12%
I/J (Nat. RU)	102	15	15	30	50.00%	50.00%
K/L (Nat. RU)	54	12	12	24	50.00%	50.00%
Non-native Eng.(A/B, E/F, G/H, I/J, K/L) totals	468	80	98	178	44.94%	55.06%

Note: Results of locational vs. directional use were categorized depending on verb type (stative or motion)

* Native English participants were unfamiliar with each other before performing the task. Other participants were very familiar with each other: RU participants were roommates or spouses;
SP participants were spouses.

✦ This number includes an instance where a locational use was re-framed as a directional use within the same turn, so it can also be seen as 1(1), for example, elevating the directional count to 9 and lowering the locational count to 1.

The Spatial Turns are those statements or questions containing either the directional or the locational usage. In the table above, each pair of participants is identified by a letter: the first pair A/B, second pair, C/D, third pair, E/F, and so on. Please note that the percentage of "locational" use differs significantly from the native English participants to all pairs of non-native participants, the Russian pairs and the Spanish pair (overall, the non-native locational usage is at 55.06% while the native English locational usage is less than half of that at 20.00%). Even though the two native English speakers only met each other for the

first time when they both participated in the map task, their exchange was far shorter than either of the non-native English speaker pairs, and their usage of directional (with an endpoint of motion) constructions strongly prevails over the usage of locational, or stative, constructions, with a count of 80.00%.

The three native languages, English, Russian, and Spanish, were chosen because they do not resemble each other in their linguistic structure, and even as the native Spanish speaker pair usage of the directional constructions compares more closely with that of the native English pair at 80% and 68.6% respectively, there remains a notable difference in the usage of locational constructions. Almost a third of the spatial turns were locational for the SP pair, and the 20% of the turns that were classified as locational for the ENG pair contained one instance where a locational was used in a turn, then that clause was re-framed as a directional in the same turn; if this count were adjusted to 9 and 1, then the comparison would be between 31% for the SP pair and around 10% for the ENG pair. Even though this study contains only twelve participants, there is a significant increase in locational usages for the non-native pairs. Examples from each of the transcripts follow, with notes regarding the directional vs. locational usages. The transcript from the native English speaker pair is first to provide the reader with a basis for the native Russian and native Spanish speaker pair comparisons. The turns in the transcripts are identified by numbering the speaker of that particular turn (for example - A1, B1, C2, D3). And, in each sample from the transcripts, the follower and the giver are also specified at the beginning of the transcript.

Transcript excerpts

Transcript 1 -- D (follower) C (giver)

Participant Information		Total Turns	Directional	Locational
1.	English Natives Females Unfamiliar	39	8	1 (1)*

* occurs in same turn with directional usage

C4. So, you are going to, um, on your paper, I'm gonna go, I'm gonna use North, South, East and West, is that okay?

D3. Okay.

C5. So, go South by the dry river bed, go South, not all the way, just kind of keep going u'til you're almost even, or at the same, um, well, actually, you're gonna go about two inches South. Lemme see if I can do it that way.

D4. M'kay.

C6. And, um, you should almost be at, almost be at the same length as the carpenter house…and then you're gonna head East to go towards the carpenter house.

In turn C4 the giver establishes the directional references for the entire dialogue. Turn C5 uses a directional, with an attempted locational usage uncompleted then continued, or reframed, as a directional usage. Turn C6 contains the only locational reference point in the dialogue, but it also resumes the usage of directional references in the final part of the turn.

Transcript 2 -- A (follower) B (giver)

Participant Information		Total Turns	Directional	Locational
2.	Russian Natives Females Familiar	91	14	32

A12. So, so the carpenter's house should be on the right.

B11. On the right.

A13. But the seven pines are on the right, too, so how can they –

B12. Uh, you go straight to seven pines –

A14. From what point, from carpenter's house?

B13. From carpenter house, yes.

A15. But it's on the right…

B14. Uh, on the right hand from you –

A16. Like, this, on the right…

B15. (sighing and laughing slightly) You go –

A17. From dry river's bed –

B16. Past the house and uh, and left, it's on the right –

A18. Yeah, this is right.

In turn A12 the giver establishes a locational reference point, and the follower responds in turn A13 with another locational reference point, asking for clarification. In turn B12 the giver attempts the use of a directional, but follower A requests point of origin, asking for another locational reference. In turn B15, the giver makes another attempt to use a directional, with follower in A17 again supplying a point of origin, then directional usage by the giver continues in B16, with the follower in A18 confirming the location.

Transcript 3 -- F (follower) E (giver)

Participant Information		Total Turns	Directional	Locational
3.	Spanish Natives Female/Male Familiar	100	24	11

E32. Okay, no, just, yeah, right there, okay, right there, to the open space. Then do you see an attractive, attractive cliffs?

F30. Yes, I am here.

E33. Okay, then you're going to go on the left-hand side of the attractive cliffs, gonna make a left turn.

F31. And I go down?

E34. Yes.

F32. Okay, down –

E35. Go down.

F33. Okay, and I am here at the attractive cliff.

In turn E32, the giver offers a reference location, and the follower verifies the location in turn F30. Turn E33 uses a directional, but the first part sounds more locational because it gives a reference point for the side of the cliff the follower should be on. The follower in turn F33 verifies the position.

Phonological Analysis. The pilot study also was analyzed phonologically. Fowler and Housum (1987) suggest that talkers distinguish 'old' words from 'new' words by shortening them. In that experiment, pairs of words were chosen from a recording of *A Prairie Home Companion* as examples of the first and second production, asking if "second productions of words [old] are shorter and lower in the fundamental frequency and amplitude of their stressed vowels than the first [new] production" (p. 491). The pilot study used an examination of the three newly elicited transcripts from the replicated map task study, a partnered performance task, to select words for a similar comparison study of the duration of the phonological form, intending to inform 'oldness' or 'newness' in the discourse. The results showed that shortening, or lenition, definitely occurred, but it also showed a tendency for the strengthening, or fortition, of a small selection of phonological forms; this fortition

had the effect of lengthening the landmark token. Below are small tables illustrating these points.

Table 2

Pilot Study Phonological Analysis Results

	Carpenter House	Sandy Mesa	Cottonwood Tree	Semicircle	Ranch Land	Dry River Bed	Feed Store
Tr. 1	.992 .724	1.233 1.018	.814 .724				
Tr. 2		1.286 .831		1.286 1.179			1.018* 1.152*
Tr. 3	1.487 .864				.562 .589	1.045 .858	

Table 3

Detail of Phonological Results: “sandy mesa”

	‘sandy mesa’	Tr. 1	Tr. 2
Utterance #	1	1.233	1.286
	2	1.018	.831
	3	.938	.831
	4	.884	
	5	.804	

Pilot Study Discussion

The results of the pilot study suggest that the inferences of the grammatical structure of the first language are so strong that they "bleed" into the second language use; as Bybee (2003) says, "When the same pattern of inference occurs frequently with a particular grammatical construction, those inferences can become part of the meaning of the construction" (p. 156). So, in this instance, the frequency with which the L1 constructions are used establishes an accessible and related morphosyntactic pattern that shows up in expressed language even when a different language structure (an L2) is required by the task at hand, in this case, the map task. Bybee also states, "It is widely accepted that an important feature of the communication process is the ability to make inferences: the speaker must be able to judge which details the hearer can supply and formulate his/her utterances accordingly, and the hearer must fill in details not supplied by the speaker" (p. 156). In the pilot study, the speaker pairs who are non-native English speakers are familiar to one another – roommates and spouses, meaning that possibly they have the abilities to judge which details the hearer can supply as they are giving the directions for the route on the map, and in the case of a native Russian or native Spanish speaker, the inferences involved may include adopting the grammatical structure of the L1 in order to make the L2 inferentially interpretable. Also, in the original map task study and in this pilot study, both familiar and unfamiliar speaker pairs were included in the experiments.

Another analytic view offering insight into the extraordinary dependence on the locational constructions by the Russian and Spanish speaker pairs is the method of cognitive analysis. Van Dijk's idea of cognitive analysis "…is an analysis of those properties of discourse that are accounted for in terms of cognitive concepts, such as various types of

mental representation" (2000, p. 6). An extremely useful concept which is part of his (van Dijk's) cognitive discourse analysis is called "local coherence":

> …we usually define coherence in terms of mental models: A text is coherent if [it]… has a mental model; or more psychologically: a text is coherent for A …[if] A is able to assign a mental model to it. In other words, A is able to imagine a situation in/for which the text could be true. In other words, when cognitively analyzing the coherence of a text, we examine the relations between its subsequent propositions, and establish relative to what mental model makes sense. This kind of coherence may also be called 'referential' or 'extensional' because it is defined in terms of the (mental models of the) events the text is about… (van Dijk, pp. 9-10).

The transcript, the product of the performance task, might be viewed as a representation of the speakers' conceptual processes – a sort of model of what they bring with them when encountering the new concept, how they manipulate their current beliefs as they attempt to integrate and relay the new information into an existing cognitive framework, and how they use the newly integrated information when addressing a complex transactional task. The 'coherence' of the text could be the sharing of a previously acquired concept expressed in a novel way through a second language. But work in the area of assessing the discourse involved in map task performance has progressed, and the more recent work (Davies, 2007), emphasizing the importance of analyzing transactional task-based data, explores the mental models in use when speakers are using language purposefully. Observing the mental representations which take the forms of prepositions in use in spatial language discourse provides "local coherence" for the speaker pairs, and like the ability to make inferences discussed above (Traugott 1989), it requires that the speakers make the semantic connections

as they conduct a verbal exchange, particularly important in a transactional situation where information exchange is the goal.

Pilot Project Indications for Dissertation Study

The pilot study that is referred to above is an example of a type of language research that offers the researcher an opportunity to see a deeper dimension of mental activity at work. The results of the pilot study suggest that the native speakers of languages other than English are retaining and employing the grammatical and conceptual features of their native languages while engaged in a partnered goal-centered task. In the expanded project, the communicative levels of non-native English speakers are explored using the map task as a performance-based assessment tool to record their usage of spatial language (particularly as expressed by token repetitions and verb forms). The task allows us to see the language used when two speakers are jointly working out a spatial problem, specifically, giving directions that will allow the interlocutors, both second language speakers, to jointly accomplish re-tracing a route on a map. This type of study and the data it produces offers us a look at how the speaker pairs are conceptualizing the route by examining how they use strategies from both their first and second languages to verbally express that conceptualization. The difficulties of accessing this conceptual level of expressed language for data analysis are well documented (Davies, 2007; Schriefers, Meyer, & Levelt, 1990), and there is an urgent need for a multi-layered analytic framework to expose this conceptual process.

Both phases of this study suggest that what is going on during the transactional process of performing a joint map task is a type of conceptual, and even intonational, code-switching, primarily unintentional, which distinguishes it from purposive code-switching, that involves “a deliberate choice or the strategic negotiations of expected or unexpected

codes" (Swigart, 1992, p. 88). Of significant help is the literature investigating code-switching ["code-switching is the use of two languages simultaneously or interchangeably"] (Valdes-Fallis, 1977)); the explanation of the code-switching process offered by John Gumperz (1982) still rings true:

> Speakers communicate fluently, maintaining an even flow of talk. No hesitation pauses, changes in sentence rhythm, pitch level or intonation contour mark the shift in code. There is nothing in the exchange as a whole to indicate that speakers don't understand each other. Apart from the alternation itself, the passages have all the earmarks of ordinary conversation in a single language. (p. 60)

To focus on the unintentional aspects of conceptual code-switching makes the analysis of motivations and goals of the speaker much more difficult to ascertain (Pandit, 1986, p. 64); these deeper levels of feeling are "less accessible to both the researcher and the speaker (Swigart, 1992, p. 98). And yet, in the course of engaging in this type of partnered task, the underlying conceptual structure is more likely to be revealed by the speakers because of the increased (and as such, distracting) effort required of the task itself (Davies, 2007). The map task, generally outlined and above and described in more detail in Chapter 4, is an example of a transactional partnered task.

The pilot study set out to determine the answer to the question: Do the participants' first, native, languages, have any effects on the usage of spatial terminology when they use it in their second language? From the small amount of data which has been collected so far, it appears as though the answer is yes. Three primary results emerged from the evidence: the higher usage of locational constructions by non-native English speaker pairs; an indication, backed up by a small amount of data, that L2 users were flouting previous research (Fowler

and Housum, 1987) into word repetition (they seemed to be lengthening instead of shortening their repeated tokens); and the fact that familiarity did not seem to alter the difficulty of the task (Anderson et al., 1991).

Regarding the higher use of orientation (locational) phrases, this might be due to the need for frequent locational verification of reference points. Because the locational structures are sometimes inferred from previously given information, is it more likely that it is used when the inferences are less clear? Can it be that locational structures are more useful for spatial language tasks, particularly when the grammatical structure of the language in use is not one's own native language? Familiarity, or participants knowing each other before they performed the task, did not alter the difficulty, or the effort expended (Davies, 2007) during the task. In the pilot study of the NMMTP, unfamiliar participants used very little locational verification – the general orientation framework (usually cardinal directions NSEW) was often established at the outset of the dialog. Even so, the fact that the English native speakers used very few locational references may be due to speaker idiosyncrasies: the two native English participants only met as they performed the task, and it could be that the structure of their native language allowed an increased level of familiarity due to similar cultural experiences. So, continuing on this path of using one's native language structures to establish levels of familiarity in a dyadic task, the pilot study indicated a need to look more deeply into intentional understanding and how it relates to human (and language (and second language)) development. "Intentional understanding is what enables us to discern or "recover" peoples' intentions as we observe the dynamic patterns of motion they exhibit in the course of everyday intentional action" (Baldwin, 2002, p. 285). Baldwin goes further into using

intentional action as facilitating language learning, saying it “is the nexus around which language learning revolves” (p. 288).

The expanded study (for the dissertation) is a replication of the pilot study, but its analysis is viewed through a much broader yet more detailed lens. The reported results from the expanded study form the basis for a reformulation/revisualization of the map task as an assessment instrument to be used with L2/Multilingual language learners and users. Although some analysis follows historical and reported map task work, there is an extended, deeper level that is suggested by the traditional work; as such, it is not simply the replication and reinforcement of previous findings. In this case, the vision of the map task widens to include a method of cultivating an almost natural sense of uncertainty in a dialogic setting: the use of the map task is ideal for facilitating unscripted, less controllable dialogue, and as such, it is subject to deeper levels of discourse analysis. Because the follow-up study involves bilingual speakers using their second language to relay information, this more complex performance task environment makes it much more difficult and unlikely (but not impossible) for the participants to intentionally generate predictable tokens for study; this unpredictability is a good thing, and the data from this type of partnered interaction rarely follows established patterns when performed with second language users of English. Yet, new patterns emerge as the dialogue meanders spontaneously, sometimes dramatically, employing delightfully inventive and idiosyncratically singular grammatical constructions. Below are the details of the procedures followed in the New Mexico Map Task Project, the expanded study.

Chapter 4

Methods

Dissertation Study Design and Methodology

In the following three sub-sections I outline the important features of the New Mexico Map Task Project (NMMTP) and describe the coding and analysis undertaken in this research. Sections for this chapter, the methodology for the expanded study, include the following: the research questions; the rationale and process for the selection of participants; the population of the study; the precise conduct of the dyadic tasks; the instrumentation used; the data collection procedures; and the methods of data analysis.

Research Questions

It was the pilot study that informed the focus for the expanded study and initiated the expanded research questions for this more detailed phase. Recall the research question for the pilot study: How do the constructions used for spatial descriptions in a speaker's first language carry over into the usage of constructions for spatial descriptions in this same speaker's second language? The data analysis from the pilot study showed two very important results: the higher usage of locational constructions by non-native English speaker pairs; and the fact that the participants, native or non-native English speakers, do indeed alter the length of their repetitions.

Research questions for dissertation study. Deepening the syntactic/pragmatic and phonological levels of analysis, there are formative statements that help to suggest the more exact questions of the research study. Looking at the production of language-in-use generated by the map tasks, examining how language is performed level-by-level and step-by-step is viewed by using an approach developed by Nuyts (2000); we can speculate through the use

of analysis on how language production might include advance planning of utterances, and, if this is possible, how does this planning work? And, we can further investigate the potential for automatic or intentional control of linguistic processing and its manifestation in utterance production. The premise for this expanded study is exemplified by the following questions.

Is it possible that a second language learner/user/speaker of English would intentionally choose a syntactic or phonological construction in order to ensure comprehension, even if this choice is asymmetrically aligned with her or his native language system? Does this level of intentional choice coincide with an actual awareness of the process involved, meaning, is there executive cognitive control of language choice? And, where in the data of the NMMTP might this phenomenon be evident?

Participants – Rationale and Process for Selection

This Institutional Review Board approved research project sought participation from adults living in New Mexico. Participants for this study were recruited using the following criteria. Participants came from five different native language backgrounds: English; Navajo; Japanese; Spanish, and Russian. This is the widest range of languages that have been included in a map task study, making it the first truly multilingual map task study ever conducted. The languages were chosen due to their variable grammatical structure; this variation allows the production of the task in their second language, English, to be compared to a variety of grammatical systems of the native languages. The age of the participant pool was from 18 to 60, and each participant qualified as a competent English speaker through one of three ways: by affirming that they successfully completed secondary education in the U.S.; by affirming that they were a second language English speaker because they grew up bilingual in the U.S.; or because they were international students and enrolled in a university

program that required an preliminary exam in English (i.e., TOEFL). Every participant was paid $20 per task; if a participant did two tasks, one in their native language and one in English, they received $40.

Population of the study. In the pilot study, some of the participants were familiar to each other: they knew each other as acquaintances, friends, roommates, or spouses. This was also true in the original map task studies (Anderson et al. 1991). The expanded study limited participation to adults who do not know each other well and who are not married, co-habiting, or related by blood. Participants were not required to be university students, as in the pilot study; in all language groups, participants came from a wide variety of economic circumstances: some were professional academics; some were homemakers; some were from the working class; some were workers at the university. None of this was formally recorded as background information; it was merely noted through conversations that occurred before or after the tasks had been conducted. The gender of the participants is also more balanced; a more concerted attempt was made to ensure that an equal number of females and males participating in order to determine if gender plays a part in the successful completion of the map task. Altogether, 54 dyads (pairs) participated in the New Mexico Map Task Project. The dyads were meant to be divided equally among five languages: English; Navajo; Spanish; Russian; and Japanese. Each set of 12 dyads was to consist of 4 mixed sex dyads, 4 male dyads, and 4 female dyads, but there were only 6 dyads in the Japanese group.

Recruitment challenges. Participants from some language groups were difficult to find. This section describes the process of locating the required number of participants for all languages except English in the New Mexico Map Task Project (NMMTP).

Navajo – First of all, the procedures for locating at least 12 adult participants who spoke Navajo bilingually or as a native language brought in only 4 participants via word-of-mouth and an electronic university call for participation; only some of these participants were university students. This study was not approved by the Navajo Nation, so Navajo participants had to come from the general Navajo population off the reservation. At the time, my sister-in-law was the manager of a food bank in Northern New Mexico, and she allowed me to come one day to offer the opportunity to people there to participate so I was able to open the study up to the patrons. The same procedure was used to describe and conduct the task with these participants, but to be culturally sensitive to the feelings of this group toward scientific studies, I also offered a broader explanation of the study and its applications for use in educational assessment in order to help them to understand the meaning and importance of their participation. A note about the Navajo participants from Northern New Mexico: even though they all had spoken Navajo at home as they were growing up, many of these participants grew up as true bilinguals, using English at school and Navajo at home, with English eventually dominating their language output.

Japanese – Similar to the Navajo task, there was some difficulty in finding enough participants to perform the dual task of Japanese/English. Eventually, word-of-mouth resulted in more participants, but it required going to their homes in order to conduct the tasks. This proved to be an advantage, as mentioned later in the procedures, the participants seemed to feel more comfortable in the familiar environments.

Russian – Finding enough native Russian speakers was much easier. And because the tasks were already being performed in people's homes, this made recruiting these participants a very simple process. One note on the part of the investigator, whose second language is

Russian. This fact was not revealed in advance of any of the Russian/English map task sessions. Only after the tasks were completed were the participants made aware of this, and then, it was mostly an item of interest to them and did not interfere with the conduct of the tasks.

Spanish – Because of the location of the New Mexico Map Task study, there are more than enough native Spanish speakers to participate in such an experiment. It is worth noting that all the participants who spoke Spanish as a native language were university students or university employees. These participants came from a variety of countries and regions of the world: Central America; Mexico; Spain; New Mexico; the United States; and South America. Their only common characteristic and requirement was that they spoke Spanish as their native language.

Interview-questionnaire – Purpose and details. In the New Mexico Map Task follow-up study, the process also involves a short, written interview for those who do two map tasks, one in their native language and one in English; the timing of the interview/questionnaire is alternated between before, during, and after the tasks are performed, i.e., the performance of the cooperative map task takes place either before or after the preliminary interview is completed. This interview is a distractor – it is a device that is used to subvert attention from the task; this came about as a result of the design of the maps. In the original map task (1991), the partners use different maps with different routes; in the NMMTP, because it involves second language learners/speakers of English, the landmarks on the maps are reconfigured, but the routes are almost the same. The reasoning behind the identical routes will be discussed in the section on instruments, but since the route was the same, it was necessary to draw the participants' attention away from the maps for a brief

time, which is why the interviews were inserted. The resulting interviews were not analyzed for purposes of data analysis at this time, but as the work with the study broadens, the interviews will be included in future data analysis. (See Appendix B).

Instrumentation – Maps. The same maps used in the pilot study were used in the expanded study. The participants met in individual pairs, and these meetings took place in various locations: vacant university classrooms, participant homes, workplaces, public areas. The variation in locations was due to the participant availability, but it also served as a way of creating an environment that would be comfortable for the participants. The original map task and its replicated variants were conducted in laboratory settings; this was due to the research design. For this study's purpose, the research design required that participants were accessible to one another in a non-laboratory setting to mimic a normal conversational environment, so the tasks were conducted in places where the participants felt at ease.

Procedure of performance task. The procedure for the conduct of the tasks was exactly as in the pilot study, and this was an adaptation of the procedure from the original map task study. As in this original map task procedure, there was a giver (G) and a follower (F). The participants decided between themselves who would be the giver and who was to be the follower. The researcher sat in the room as an observer and answered any questions that arose during the task. It was pointed out that each map (giver or follower) is different in the landmarks it contained and the placement of these landmarks. There was no barrier between the participants as in the original task, the reason for this being that ninety-six of the participants were second language learners/users/speakers of English; the more casual nature of an open environment encouraged a more conversational exchange between the participants. The giver was not allowed to show his or her map to the follower, but the giver

was permitted to look over at the follower's map to see how the landmarks coincide. The participants were told that they could talk with each other, ask questions of either the researcher or of their partner, and that they were welcome to verbally share what was on their respective maps. The two participants took as much time as they needed to complete the task. The non-native English speaking students who participated decided if they wanted to also perform the map task a second time in their native language; the map for the second task did not deviate drastically from the first map, meaning, it follows a similar orientation(route) and layout, the only difference being that the landmarks are moved into different positions for the second task. Both tasks are conducted in an identical manner, and examples of maps can be found in Appendix C.

Data Collection Procedures

All resulting recordings, hard copies of interviews, forms of agreement to participate, and the maps generated by the tasks were collected, coded numerically to protect participant identity, and categorized before being kept in a locked file cabinet. The recordings from audiotapes were digitized, and a secure digital file was created to ensure the protection of the data. This data is redundantly duplicated, both on external hard drives that were also locked in the file cabinet and in a secure, password-protected cloud storage. The data is still available digitally and in its original hard copy form for further analysis as the study expands in the future.

Linguistic Data Analysis and Educational Assessment

In the course of the task of recording the study participants' thinking processes as they perform the map task, a body of discourse was generated which opens itself to many layers of analysis. The multiple levels of analysis of the map task in an educational setting has the

potential to yield insight to stakeholders in the learning process including: the learner; the learner's peers; the instructors; the administrators; the evaluators; and the researchers. As such, each stakeholder looks at the product of the oral record from a different perspective, for example, the self-reflection of the learner is seen as rudimentary and used for individual improvement as compared to the exacting and complex linguistic analysis of the researcher being used for deeper introspection.

Since the first level of the analysis is a focus on the oral record and its transcriptions, a variety of lenses and/or models are applied for a cognitive linguistic analysis of the results. In these models, an examination of "shared knowledge sets and an intersection of common concerns…[is] based on the premise that the explanation of many discourse phenomena (such as word order) can only be found with reference to the psychological states of the interlocutors" (Grenoble, 2004, p. 23). Frameworks such as these prove helpful in investigating the discourse record to define the "belief systems, [which] are one's world view…One's beliefs can determine how one chooses to approach a problem, which techniques will be used or avoided, how long and how hard one will work on it, and so on" (Schoenfeld, 1985, p. 45), and these beliefs are encoded in one's native language structures.

There are multiple methods designed to reveal the possible differences in the verbal description of spatial language abilities by noting the spatial terms people use when they describe their feelings of being lost or of giving directions. When people describe their experiences of being lost, of finding their way, or of giving directions, they also often use non-linguistic communication, such as eye contact, humorous sounds, and gesture as they are speaking. And again, yes, to exclude this part of the descriptive experience might seem to be "ignoring half of the message out of the brain" (McNeill, as quoted in Beattie, 2004, p. 139),

but these non-linguistic communication efforts are not included in the more rigorous analytic rubric used here. Our interest lies primarily in looking at the sociolinguistic variation in the verbal utterances produced during this short performance task but also in looking at the developmental side of utterance embedded in one's native language system, including "imagery, actional and visual-spatial" (p. 139) aspects. These aspects emerge through a closer study of fundamental components of the verbal expressions, and cognitive discourse analysis (CDA) has as its premise an emphasis on the importance of the examination of critical interrelations between utterances (Grenoble, 2004); CDA also promotes the use of natural language, which is contextually situated and not always "strictly linguistic, but social and/or cultural" (Grenoble, p. 3) in the analysis.

Essentially, learners verbally express their conceptual processes during their engagement with the discourse task, whether they are using their first language or are attempting to learn in a second language. We need to remind ourselves that these methods of analyzing the transcripts uncover speakers' problem-solving processes; these processes emerge when they are engaged in a routine task such as the map task. The multiple levels of analysis of the resulting data cut across cultural boundaries in their applications, offering a way to explore the interaction of more than one language structure when a learner is attempting to solve problems involved in transactional discourse. In the following chapter, after an introductory look at the development of the transcripts for analysis, the actual analysis of this task-based data is reviewed and discussed.

Chapter 5

Data Analysis and Results

Preliminary Remarks

While the interest of policy makers in bilingual education ebbs and flows, linguistic researchers continue to focus on making cross-linguistic work prominent and on providing useful evidence documenting the importance of native language maintenance also emphasizing the advantages of multi-lingual acquisition. Trans-disciplinary research and the requisite trans-disciplinary analytic frameworks needed for this research are both major contributors to the documentation of this body of evidence.

Introduction to Two-Way Data Analysis

At the outset, the analysis of the map task took a very traditional approach, with the correctness of the map being the first level of analysis (Anderson et al, 1984). As more map tasks were performed by bilinguals and by non-native speakers of English, the analysis became more elaborate, moving into the areas of phonological, morphosyntactic, and semantic methods (Bard et al., 2000). By its nature, the task is activity, or performance-based, and as such, the analysis is naturally pragmatic – it involves the investigation of language-in-use. In this case of task-based, or transactional research, linguistic analysis interacts with three other educational analysis areas: assessment; evaluation; and diagnosis. Analyzing the map task, particularly in this study where there are multiple languages in use by multi-lingual speakers, also offers the opportunity for intra-subject analysis: each non-native English speaker performs tasks in both his/her native language and in their second language, so their results can be compared to their own performance, as well as to that of other participants in their native language group.

With such a diverse pool of speakers of English as a Second Language (L2s), the detailed linguistic analysis of a performance task can be used to determine variations in the verbal expression of spatial orientation and how this might predict the level of comprehensive incorporation of translingual spatial concepts in ESL students. Linguistic analysis of the map task performance can reveal cognitive movement in L2s, allowing the investigation of patterns of language acquisition. Since cognitive pragmatics, the study of language in use, is the core of the analysis, the data using this framework shows influence or confluence of native language systems. Pragmatic analysis shows what happens when the usage of the linguistic phenomenon or event is tailored, adjusted, or adapted for purpose-driven evaluation. These linguistic events are very apparent in task-based analysis, and the map task generates detailed data to support its use. This chapter will advance step by step through the investigation frameworks used to appraise the merits of combining linguistic analysis with educational assessment.

Transcription Procedures

The transcripts are transcribed into conversational turns; here a conversational turn is defined according to Goffman's work (1964), where he is speaking of the social organization of shared orientation. Goffman suggests that “the act of speaking must always be referred to the state of talk that is sustained through a particular turn at talking, that cues must be available for requesting the floor and giving it up [and] for informing the speaker as to the stability of the focus of attention he is receiving, [and that this] intimate collaboration must be sustained, for someone's turn must always and exclusively be in progress” (1964, p. 136). Sacks, Schegloff, and Jefferson (1974) base their framework for conversation analysis on examinations of the turn, and mention that this organization structure is also prominent in

other “speech-exchange systems” (p. 696). An example of how the transcripts of the NMMTP reflect this basic turn-taking paradigm follows (each letter and number combination constitute a turn):

E9. Okay. And do you see our carpenter?

F7. Yes, I am here.

E10. Okay, you need to go up the carpenter and below the red lake.

F8. I am going up –

E11. Okay, hold on, not too much up, because you’re going to hit the red lake. Okay, you need to erase a little. Okay. (Metheny, 2004)

In transactional discourse, it is essential that the transcripts are coded to reveal how “participants must synchronise [sic] their knowledge of their own mental state and that of their partner in order to navigate through the maps, and must therefore provide sufficient information to inform each other of their knowledge state” (Lee, 2005, p. 2). The basic coding scheme was developed for the original map task corpus at the Human Communications Research Centre at the University of Edinburgh, and it focused primarily on the correctness or incorrectness of the routes drawn on the maps by the participants and how this related to their language use (Carletta et al., 1997). Lee (2005) retained this framework for his analysis of the map task data, but the expanded study (NMMTP) does not use this coding scheme. An alternative analytic perspective was necessary to apply to a database constructed from the transcription rubric; it was developed to generate facts from the NMMTP for the deeper levels of analysis required in order to expand data interpretation into the area of evaluation and assessment. An example of the HCRC rubric can be reviewed in

Anderson et al. (1991); a general description of the NMMTP analysis and coding scheme follows in the next section.

Coding the NMMTP

The New Mexico Map Task Project includes a bilingual performance task conducted in both the speaker pair's native language and second language, as well as the expansion of the participant pool to all non-native English speakers and additional native English speakers in order to determine the extent of the effects indicated thus far. The careful analysis of the structure of the language used in spatial language tasks is meant to lead to a verbal assessment instrument, which can be adapted for students, teachers, and researchers to evaluate visual-spatial skill levels and spatial language comprehension and use by analyzing the discourse used by students when they are engaged in giving directions to a partner from a map; this study provides the data to develop such an instrument. This study also provides further evidence of and insight into the interrelationship between the acquisition and production components of students' first and second languages, particularly in the area of spatial language acquisition and use. The additional methods of analysis to be used in the expanded study are described after the following brief description of the analysis framework.

The NMMTP is the first multilingual corpus including non-native English speakers using English in the task performance. Since the map task is the type of language task that affects language use, particularly the use of English as a second language, it was proposed that multiple levels of linguistic analysis would reveal the conceptual linguistic frameworks of bilingual speakers involved in a transactional partnered discourse task who interact in the course of the task. A variety of analytic linguistic methods are used to extract meaningful data from the map task experiments. The data generated from a social activity such as a

discourse task, even though it is elicited and does not qualify as entirely natural language data, is fragile and must be carefully addressed to extract information. The methods applied to manipulate and classify the data must be sensitive yet thorough enough to produce a sufficiently exploitable knowledge base, although it is typical for researchers to "construct categories (and values for those categories based on theoretical orientations and research hypotheses, but categories may also emerge from the data themselves)" (Scheibman, 2002, p. 23).

The coding system for this study was loosely based first on the coding scheme that was developed by the originators of the map task experiments (Carletta et al., 1997), secondly, and more importantly, on elements that were suggested by the results of the pilot study, and finally, on the hypotheses generated for the expanded study. The original map tasks products were collected as data for a corpus (Anderson et al., 1991) consisting primarily of the orthographic transcripts of the 64 participants in the study. Further analysis of these results continued for many years; in fact, the corpus is still available for analytic work, and this work is ongoing. In the NMMTP pilot study, an investigation of bilinguals' language use of spatial language (words which reflect the [individual's] immediate [or perceived] surroundings and the organization of the items in these surroundings (adapted from H. Clark,1969)) showed that the type of language task affects the typological language use, particularly in users of second languages.

The coding framework for the NMMTP study was organized in an Excel spreadsheet. The categories for the spreadsheet were as follows:

Native Language Transcript # Root Landmark Landmark Dyad

Sex Speaker Intonation Unit Directional/Locational/Neither Verb

Motion/Stative/Action Adposition or Predicate Nom/Adj Question/Statement

Repeat (word) Y/N Repeat word Landmark Y/N Pitch/Length and Stress

There are a few examples of sections of the spreadsheet to clarify this configuration (see Appendix D).

Analysis framework overview. A variety of analytic linguistic methods have been used to extract meaningful data from map task experiments, as detailed previously in the sections describing publications based on the map task. These methods give a comprehensive picture of the dyadic speech event known as the map task. The analysis of the map task in this study is broadened into multiple layers, which are then cross-referenced in order to reveal a deeper understanding of the mental processes engendered by the participants in the task. The application of cognitive discourse analysis involves typological, morphosyntactic, phonological, all falling under the area of cognitive pragmatics, examining phenomena of language in use.

Nuyts claims the following as the basic tenets of cognitive pragmatics:

> to understand the philosophy of language use and the system behind it, it is essential to acknowledge the nature of language as a dynamic functional system serving and/or interacting intensively with other components of the human mind, and especially the central system of conceptualization (2001, p. XV).

The analysis of the resulting transactional transcripts from this adaptation of the map task thus requires a methodology disclosing both the distinction and cross-linguistic blending of the categories which overlap the participants' two languages, the one in use and the native language, also in use in the mental, or cognitive, sphere, and therefore able to possibly manifest its structure in the usage of the second language. The interpretation of the data

serves as evidence of the cognitive framework accrued by the participant, and although this evidence is documented as instances of morphological and syntactic (lexical) forms, here it is suggested that these instances allow the indirect observation of a cognitive event.

Pragmatic Analysis

> According to the SIL, pragmatics, in the context of linguistic analysis, is defined thus: Pragmatics is the study of the aspects of meaning and language use that are dependent on the speaker, the addressee and other features of the context of utterance, such as the following: the effect that the following have on the speaker's choice of expression and the addressee's interpretation of an utterance: the context of the utterance; generally observed principles of communication; the goals of the speaker or of the listener; programmatic concerns, such as the treatment of given versus new information, including presupposition, deixis, speech acts, especially illocutionary acts, and implicature...the relations of meaning or function between portions of discourse (see interpropositional relation) or turns of conversation (see conversation analysis) (2009, SIL International).

Investigations of the map task literature often rely upon pragmatic analysis in order to detail the functions of the turns in the dialogues, and this analysis is also used to explore the information structure (how new and old information interact in the dialogues). There are many studies that have worked with this type of map task analysis (Cavicchio & Poesio, 2008, 2012; Davies, 2007; Goubanova, 2002; Levit & Roy, 2007); for example, familiarity and unfamiliarity effects (meaning - did the participants know each other before engaging in the map task) can often be determined through the use of a pragmatic framework which details the function of each dialog turn. Also, Goubanova (2002) and Grice & Savino (2004)

analyzed the map task dialogues to determine the effects of how new information was introduced, finding that the challenge of the task caused more ”givers” to introduce new information with a question as opposed to using a non-question format; the analysis for the NMMTP also considers similar factors in its pragmatic analysis.

Often, these cross-modal methods of analysis are used to aid in verifying results from different types of analysis (Koiso, Shimojima, & Katagiri, 1997; Swerts et al., 1997) because, in some studies, multiple types of analysis are used. Each type of analysis is not meant to be comprehensive on its own, and various methodological approaches investigate the interaction of multiple features of speech generated in this transactional task. Among these methodological approaches are those which will be used in this study: morphosyntactic analysis of typological constructions; intonational and phonological segment descriptions; and an investigation into the structure of the information offered and obtained in the course of the task.

Yes, Slobin (1996) describes what he calls “a special kind of thinking that is intimately tied to language – namely, the thinking that is carried out, on-line, in the process of speaking” (p. 75); this idea is crucial and bears repeating. In a task such as the Map Task, the participants are trying to relay information, and, as seen in sample transcripts (below and also attached as Appendix E), there is a high potential for confusion in this particular task. In the sample transcripts, for example, the confusion over ‘left’ and ‘right’ peaks at around lines B12 – B18, and A12 – A20, when the participants finally work out which way on their maps is ‘left’ and which is ‘right.’ And the confusion continues all the way until the end, where even the final point is reached by making a ‘right,’ no, a ‘left’ turn. There is much on-line thinking here; as the participants are attempting to commonly understand a pre-existing

pathway; the “giver” is responsible for helping the “follower” reproduce this pathway, yet, all the while, both speakers must communicate in a language that is not their first language.

A11. Okay.

B10. Okay, you see seven pines.

A12. So, so the carpenter’s house should be on the right.

B11. On the right.

A13. But the seven pines are on the right, too, so how can they –

B12. Uh, you go straight to seven pines –

A14. From what point, from carpenter’s house?

B13. From carpenter house, yes.

A15. But it’s on the right…

B14. Uh, on the right hand from you –

A16. Like, this, on the right…

B15. (sighing and laughing slightly) You go –

A17. From dry river’s bed –

B16. Past the house and uh, and left, it’s on the right –

A18. Yeah, this is right.

B17. You go –

A19. But it’s left, then – it’s my left…

B18. (talking to herself in Russian, but inaudible) – (laughs) right (XXX), right.

A20. Please – (XXX) –

B19. Go past the seven pines, the seven pines, and pass it on the left –

A21. Oh, yeah, wait, wait -- then?

B20. This seven pines left, on the r-, left, left hand –

A22. This one?

Looking at the data from this seemingly simple spatial language task reveals complexity, but with true insight, and considering a viewpoint developed by Barber (2005), is very useful. Barber came up with a way of interpreting direction-giving activity by extending the evaluation and analysis to the spatial areas surrounding the body, which are also used while the speaker is giving directions. She linked the spaces in the transcript by including the time-coded spatial movements along with the transcribed verbal data. Below, you can see from Barber's diagram how the different parts of the direction giving exchange might be plotted. This complex setup could not be accomplished with the current project; videotaping could not be made available for transcription purposes for either the small pilot study or for the follow-up study. But it is shown here in order to offer some insight into even more possible interpolations of this type of data, which is amazingly endowed with analyzable information on multiple levels.

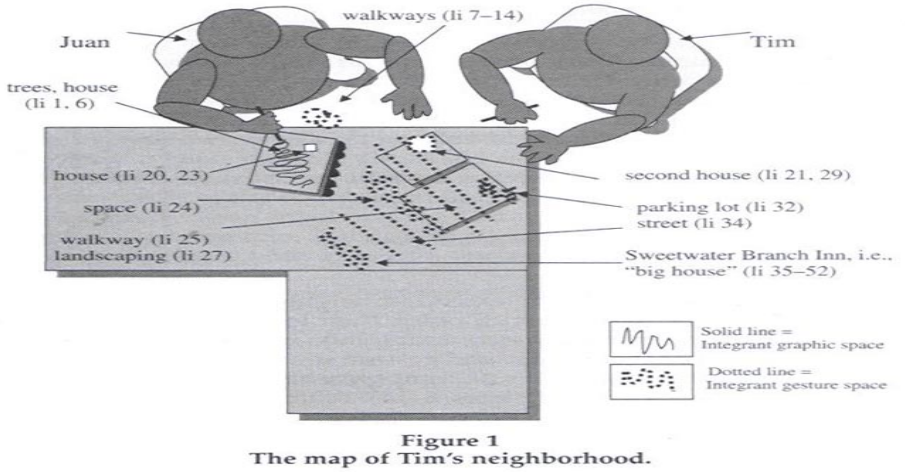


Figure 1
The map of Tim's neighborhood.

Figure 2. Map of Tim's Neighborhood/Experimental Setup for Davies' Transactional Dyadic Task.

Even so, there are thorough and appropriate methods for analysis of the NMMTP. In this next part of this chapter, a sample of three different types of pragmatic analysis that can be performed on the New Mexico Map Task corpus is offered: Typological; Morphosyntactic; Phonological (Intonational), assembled from the data and transcripts of the NMMTP. Each of the types of analysis will present a brief description of the pilot study results, then, the analytic framework will, in each case, be expanded and applied to the results of the follow-up study. Examples of this type of this analysis and explanations of the general analysis procedures are below.

Typological Analysis

To review from earlier, a popular method that is used to explore the spatial expressions in languages is to study the adpositions that are used in the language to indicate spatial location and/or direction (Bennett, 1968; Levinson et al., 2003; Tyler & Evans, 2003; Vandeloise, 1991, among others). Talmy (1988) emphasizes in his work the adpositions, the prepositions and post-positions of a language that are members of what he calls a closed-class system; the open-class contains the more frequent lexical items in a language system, meaning, nouns, verbs, and adjectives, but the closed-class system, of which the grammatical system is a part, contains inflectional forms and "prepositions and conjunctions, as well as grammatical relations, lexical categories, and syntactic structures" (Talmy, p. 1). According to Talmy, the open- and closed-class forms complement each other: the open-class carries the content of the concept, and the closed-class is used to structure the conceptualization (p. 2) for expressive purposes. However, the data of the NMMTP shows that these two classes may be more intertwined than previously imagined.

Prepositions, being part of the closed-class and serving to structure the conceptualization, are immensely useful to examine, particularly cross-linguistically; once the prepositions (or the adpositional processes of location and orientation) are delineated per the language being studied, a comparison can be made of the prepositions used in the spatial language task. In the expanded study, this examination was found to be even more productive if attention is focused on the verbal constructions used with the prepositions. Significantly, these prepositions are connected with what is categorized as either "directional" or "locational" verb forms (or "neither", a category added in the follow-up study), as well as further explicated according to either "motion, stative, or active" verb constructions, or "no verb" (expanded study category) if it is a partial phrase. In the pilot study, analyses of these types of phenomena were conducted in order to answer the question: Why do some individuals from typologically similar and/or different language systems both default to the use of a locative construction in order to perform the map task skillfully in a second language? In the expanded study, the investigation takes a deeper analytic turn; with the addition of more native languages, bringing the total of non-English languages to four (Russian, Spanish, Navajo, and Japanese), and increasing the participant pool by over 100, the increased data allows for a closer look at the following question: Does the data from the NMMTP show a tendency for dyads to default to a particular verbal construction in their L2 (English) in order to guarantee the transfer of critical facts when two non-native English speakers are engaged in a dyadic performance task?

In order to respond to this question, I am first suggesting a process I call cross-linguistically "stativizing" – by this term, I am attempting to show how a speaker of a non-English language may, if under instruction to ensure the relay of correct information, use the

stative construction as a fundamental, even universally grounded construction in order to make it possible for two people who are communicating using an unfamiliar language system to share crucial information correctly. So, as we look at the data generated by the follow-up study, does it mean that the participants intentionally stativize, using a universally accessible form that crosses "language lines" in order to be understood? Is this process a way to conceptually stativize by possibly and simply defaulting to a more familiar form? Or is it because the construction in their native language is stative and they are merely "translating" or "transforming" it so that the English construction matches their more stable native cognitive/linguistic system – and in the process, ensuring comprehension on the part of the follower who shares this native system? These questions serve as the basis for thoughtful discussion and the later synthesis section of all three types of linguistic analysis.

Topological linguistic structure. In order to attempt to determine variation in these syntactic functions, looking a little more closely at the topology of the structure is helpful. In general, topology is the study of "geometrical properties that remain constant under transformation or 'deformation,'…thus a sphere and a cube are topologically equivalent, and together are both distinct from a doughnut or a bicycle tyre (sic)" (Levinson, 2003, p. 71). When applied to linguistic structure, the term "topology" attempts to elucidate the relationships of "propinquity, contact, and containment" (Levinson & Wilkins, 2006, p. 4), indicating that in English we might be concerned with, for example, adpositional phrases which include "at," "on," or "in" when we use topological investigation. When looking closely at the second language acquisition of English, this concern extends into the use and mis-use of adpositions and their accompanying verbal constructions. Is there a natural order for the acquisition of this topological skill set that re-ignites when a second language enters

the cognitive and conceptual picture? How do these topological qualities connect with spatial language acquisition and language-in-use? Bowerman (1996) suggested that the acquisition of locative morphemes follows a standard order:

First of all, she says, we acquire “words for functional and topological notions of:

- containment (in)
- support and contiguity (on)
- occlusion (under)” (p. 388)

Secondly, we acquire “notions for proximity” (p. 388)...(next to, beside, between) and thirdly, we acquire the words used to describe “relationships involving projective order (in front of, in back of, behind)”(p. 388).This order of acquisition can be questioned and challenged by pointing out that every human does not grow up in a similar environment. It's not correct to assume that all [physical object] configurations are construed, or even conceptualized, “as spatial – languages in fact differ not only in how they classify spatial configurations, but also in the likelihood that they will treat certain configurations as spatial at all”(p. 398).

As we address and elucidate the acquisition process of divergent language systems, that is, systems that are not similar to one’s own native language system, into this type of linguistic analysis, it is helpful to consider the fundamental nature of human understanding of spatial relationships. “Learners clearly have an extensive practical understanding of space long before language acquisition begins, and they apply this knowledge actively to the task of figuring out what spatial words mean” (Bowerman & Choi, 2001, p. 505), even more so when they are involved in the transfer of this meaning across languages during their

acquisition and implementation of words with similar meanings in a second language. In the following section, the actual analysis of the data is described.

Method for typological analysis of NMMTP. For both the pilot study and the follow-up study, the turns are separated into spatial and non-spatial turns that included the mention of a landmark. Here is a list of landmarks from the maps used in both the pilot study and the follow-up study of the map task (examples of the maps, as stated before, are in Appendix C): dry river bed; red lake; feed store; carpenter; seven pines; chapel; ranch land; sandy mesa; old adobe house; roadrunner river; attractive cliffs; rabbit's burrow; crashed spaceship; and cottonwood tree. The spatial turns are those containing either the directional or the locational usage of verbs and their accompanying arguments (noun phrases and particles and the landmark that is referred to in each turn). An example of each is below:

A13. But the seven pines are on the right, too, so how can they –

B12. Uh, you go straight to seven pines –

A13 contains an example of a locational usage: the actual spatial location is being queried in this turn; B12 contains a directional usage: a motion verb (*go*) is used to direct the follower's attention to where she needs to move to next. Additionally, results of locational vs. directional use were categorized depending on verb type (stative or motion[1]) per the previously identified categories on the spreadsheet. The category of "active" was added for the follow-up study; "active" is a drastic simplification of verb classes that Levin(1993) calls "verbs of contact" and "verbs of searching," "build verbs," "verbs of performance," ; these verb types show up occasionally in the NMMTP dialogues, and their constructions differ

1 A stative verb is a verb that expresses a state of affairs or being rather than action Crystal, 2001, p. 326). A motion verb in this case is exemplified by *enter*, which expresses not only the fact of Motion, as is the case of *moved into the room*', but also the Path information such as "into an enclosure" (Nakazawa, 2006, p. 1).

significantly from the stative or motion verb types. Some of these verbs are: 'draw' 'make' 'find' 'hit' 'touch' 'see' 'look' and 'know,' And these verbs have been categorized as “Act(ive)” in the NMMTP spreadsheet data.

The results of the NMMTP pilot study showed that speakers of both similar and different typological (Talmy, 2000) languages show a preference for locational constructions. The participant speakers describe aspects of a static scene in which movement took place, leaving the detailed description of path to be inferred (Cadierno & Lund, 2004) in the course of a transactional (where participants manage, transfer, and negotiate information (Davies, 2007) discourse task, regardless of whether their native language is a Satellite-framed (S) or Verb-framed (V) language (Talmy, as below).[2] These categories form the first section of the analysis rubric indicate whether the turn (intonation unit), or Move[3], defined below, is directional or locational or neither, and identifies the verb used, according to the Talmy framework, and which adposition is used if one is present. Several sections of the spreadsheet are included in Appendix D for examination. Below find a copy of the data for the pilot study and the results of the expanded study.

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2 According to Talmy (2000), the two most useful typological patterns for this type of study are: (a) **S-languages**, such as Chinese and all branches of the Indo-European family except Romance Languages, where the verb expresses both the fact of Motion and a Co-event, typically the Manner or Cause of motion, and the Path is expressed separately by means of a satellite, i.e., verb particles (e.g.,*down, up, out*) and prefixes (e.g., *mis* as in *misfire*).Two examples in English would be: *Smoke swirled/rushed through the openin*g (Motion + Manner); and *The water boiled down to the midline of the pot* (Motion + Cause) [and] (b) **V-languages**, such as Romance, Semitic and Polynesian languages, where the verb expresses both the fact of Motion and the Path; if a Co-event of Manner and Cause is expressed in the same sentence, it is coded in a separate constituent, usually by means of an adverbial or a gerund. An example in Spanish would be: El globo subió por la chimenea(flotando)

(The balloon moved-up through the chimney (floating), ‘The balloon floated up the chimney’)” (Cadierno & Ruiz, 2006, p. 185).

3 Move, as defined by Davies (2007), is one of the basic units of analysis designed for the map task (Carletti et al., 1996), and in this study is seen to be “different kinds of initiations and responses classified according to their purposes” (p. 3).

Table 1

New Mexico Map Task Project Pilot Study Results

Participants	Total Turns	Directional	Locational	Total Spatial Turns	%Directional	%Locational
A/B (Nat. RU)	91	14	32	46	30.43%	69.57%
C/D *	39	8(9)	(1)2✦	10	80.00%	20.00%
E/F (Nat. SP)	100	24	11	35	68.57%	31.43%
G/H (Nat.RU)	121	15	28	43	34.88%	65.12%
I/J (Nat. RU)	102	15	15	30	50.00%	50.00%
K/L (Nat. RU)	54	12	12	24	50.00%	50.00%
Non-native Eng.(A/B, E/F, G/H, I/J, K/L) totals	468	80	98	178	44.94%	55.06%

Note: Results of locational vs. directional use were categorized depending on verb type (stative or motion)

* Native English participants were unfamiliar with each other before performing the task. Other participants were very familiar with each other: RU participants were roommates or spouses;
SP participants were spouses.

✦ This number includes an instance where a locational use was re-framed as a directional use within the same turn, so it can also be seen as 1(1), for example, elevating the directional count to 9 and lowering the locational count to 1.

Table 4

New Mexico Map Task Project – Expanded Study Results

Row Labels	Sum of Directional	Sum of Locational	Sum of Neither	Count of Verb	%Directional	%Locational	%Neither
English	211	95	37	343	61.52%	27.70%	10.79%
Japanese	168	104	38	310	54.19%	33.55%	12.26%
Navajo	152	66	26	244	62.30%	27.05%	10.66%
Russian	245	168	33	446	54.93%	37.67%	7.40%
Spanish	148	43	26	217	68.20%	19.82%	11.98%
Non-English	713	381	123	1215	58.59%	31.30%	10.11%
Grand Total	924	476	160	1560	59.23%	30.51%	10.26%

Again, spatial turns (pilot study) are those containing either the directional or the locational usage. This compares to the table for the follow-up study, where instead, the count of verbal turns is used. In the pilot study, there was a total of 178 spatial turns; in the follow-up study, there are 1560 verbal turns. In comparing the two studies, there is one distinction that becomes apparent once the participant pool is increased: the percentage of "locational" use differs significantly. Overall, in the pilot study, the non-native locational usage is at 55.06% while the native English locational usage is less than half of that at 20.00%; in the follow-up study, once the pool of native English speakers rises, the percentages even out, with the percentage of usage of locational constructions more closely approximating the percentages of the non-native English speakers.

Discussion. In the expanded study, there were a total of 1560 turns examined. The native languages, English, Russian, Japanese, Navajo, and Spanish, do not resemble each other in their linguistic structure of motion verb encoding, and yet, the percentages in the pilot study calculated from the non-English tasks do not deviate too drastically from the native English task performance even when these speakers use their second language. There is a notable increase in locational constructions by native Russian speakers (English 27.70% vs. Russian 37.67%) and a notable decrease, specifically, the native Spanish speakers usage of the directional constructions is even higher than that of the native English dyads (61.52%) at 68.2%; their (Spanish) usage of locational constructions is the lowest of all of the languages at 19.82%.

Major differences between the pilot study and the expanded study should be acknowledged: the participant pool (approximately 50 dyads) came from speakers of five native languages (English, Navajo, Spanish, Russian, and Japanese); and the inclusion of the

category for Active verbal constructions in the expanded study database complicates the interpretation of the data. This complication is crucial to the interpretation of this data. Some of the examples of the Active category describe activities that the giver, typically in the map task, is asking the follower to complete – drawing, making a circle – but these actions also entail that the follower is aware of the location of the place where the action is to take place. This awareness of location is an awareness of place, hence the potential inclusion of the members of the Active category as part of the Locational count. In Pragmatic Typology, importance focuses on the typology of systems of language use and the principles that shape them. The speaker, sensing a problem in the conversational exchange, known as "trouble," begins employing other techniques including repetition to point to the "trouble" source item itself: participant understanding and taking "responsibility" for conveying the meaning (Dingemanse et al., 2014). Because there is a high level of responsibility placed on the speaker/giver to convey accurate information and to ensure comprehension, here, a more detailed pragmatic typological analysis reveals a cross-linguistic tendency to make a first attempt at relaying information via a directional construction, then, a reversion to locational constructions in order to take full responsibility for ensuring comprehension. This is not considered to be a repetition; instead, a reformulation of the construction as locational may serve as a default device to clarify the information being relayed. Looking at the data once more, the reformulations of lexical constructions from locational to directional is significant in that these reformulations show up primarily in the task-based performances of non-native English speakers.

Morphosyntactic Analysis

Scrutinizing task-based performances of non-native English speakers by inspecting the usage of a single lexical item (word/token) by non-native speakers in their native and non-native languages is an example of morphosyntactic analysis; this form of analysis is explained below.

Method for morphosyntactic analysis. The act of performing functional syntactic exploration is similar to reading human minds; simply listing the examples one uncovers in either natural, elicited, or textual discourse gets one to thinking of searching for treasure or breaking a code. In particular, taking a look at the spatial terminology particles and constructions occurring both in natural discourse and as part of an elicited task of spatial language discourse offers an often intimate glimpse of how the tokens of the language-in-use reflect the intention and even the linguistic competence of the speaker. This next section provides a comparative look at the usage of the lexical item 'straight' as it occurs in both a natural discourse environment and in the elicited map task. Talmy's cognitive semantics (2000) is the most useful overarching framework for NMMTP analysis of this particular method of looking at what is happening conceptually when an L2 speaker of English; he discusses the fundamental pieces of spatial language as "spatial closed-class forms...[stating that] there is an approximately closed inventory of conceptual elements that are basic -- perhaps primitive -- that recombine in various patterns to constitute the schemas represented by most of the closed-class spatial forms found across languages" (p. 210).

Token selection for analysis. In looking at constructions that include the word "straight" when studying direction and spatial language data, the type generated by the map task studies, the "straight" tokens in the resulting discourse texts seem to connect with both

spatial and temporal functions. Before looking at examples from both the HCRC Map Task Corpus and the NMMTP study results, it is helpful to see general data from a larger corpus: the British National Corpus (BNC – 2009 - 2015) is a good source because the HCRC data is also from the UK, so it makes a useful comparison and a solid foundation for looking at a lexical item in a cross-linguistic analysis.

Altogether, in a corpus-wide search (BNC) of for the occurrence of the lexical item 'straight + X'– a general search bringing 8797 tokens; however, not all of these are of use in this exploration. (Data cited herein have been extracted from the British National Corpus Online service, managed by Oxford University Computing Services on behalf of the BNC Consortium. All rights in the texts cited are reserved.) So, the following limited searches were performed with the general search results, which are listed parenthetically: ‘straight ahead’ (188 tokens); ‘straight away’ (8 tokens); ‘straight over’ (90 tokens); ‘straight up’ (262 tokens); ‘straight down’ (165 tokens); ‘straight back’ (292 tokens); ‘straight to’ (721 tokens); ‘straight on’ (262 tokens); ‘straight in’ (292 tokens – of which 43 are ‘straight in the eye’); ‘straight at’ (237 tokens). This is not meant to be a comprehensive list of all possible uses of ‘straight + X’; indeed, in many of these examples, the ‘straight + X’ constructions are functioning as particles and not solely as a member of a prepositional phrase. Looking at how “straight” attaches itself to these items, they are used with prepositions, as particles, or even modifiers in some cases.

From the British National Corpus (2005):

(1) …look straight ahead and smile…

(1a) ?…look ahead and smile…

(2) Go straight ahead on the route…

(2a) ? Go ahead on the route…

(3) …straight ahead at 12 o'clock…

(3a) ?…ahead at 12 o'clock…

In the above examples (1 – 3), "straight" is part of the construction 'straight ahead', and so it is later included diagrammatically as spatial and directional only. The decision to combine these two lexical items is based on (1a, 2a, 3a), which are questionable phrases if the meaning concerns intended direction.

(4) …goes straight over to her door…

In example (4), "straight" is used as a modifier for "go over," and as such, it is emphasizing the motion; here, "straight" is serving as an intensifying modifier focusing the performer of the action more directly on her target.

(5) …lead straight to economic disaster…

As in (4), the "straight" in (5) is indicating that a more direct motion towards economic disaster is being predicted. It is also temporal, suggesting an imminent event.

(6) …talk straight on both sides…

In (6), "straight" is indicating how the 'talk' should be proceeding; it is attaching to the verb in this example, not the preposition after it, and it indicates a spatial-directional metaphorical path for the information relayed by the action.

(7) …if they say no straight away, he moves on…

When 'straight' modifies 'away' as it does here, it becomes a compound adverb, indicating an immediate temporal event.

(8) …don't pull strips straight up…

The verb here can be reconstructed as ‘pull up’, leaving ‘straight’ as the adverbial modifier indicating the spatial direction for the intended activity.

(9) …one of the men came straight up to me…

Here, as in (4) and (5), a more direct and intense motion is indicated by the use of ‘straight’ before the second part of the verb ‘came up,' but it is also showing an increased focusing of the motion, both spatially and temporally.

(10) …towing it straight back to the launch point…

Although ‘straight’ here is combining with ‘tow back’ and serving as a modifier, emphasizing the directional nature of the action, there is also a slight temporal feel to the phrase – the use of 'straight' here implies a sense of urgency.

(11) …came straight back down…

Here, ‘straight’ is also implying a temporal characteristic, that the ‘coming down’ occurred in an immediate fashion, but the spatial side of the motion is also preserved by ‘straight’ modifying ‘back.’

(12) …puts the weight straight back on…

Again, as in (11), the ‘straight’ works with ‘back’ to emphasize the embedded motion in ‘putting weight on’; but it is also indicating an immediate, or co-occurrence of the action.

(13) …right out of the blue, it had gone straight down the drain…

This example is particularly interesting, since it contains the item ‘right’ as well as ‘straight.’ It appears as if the ‘right’ is indicating a temporal emphasis, but the ‘straight’ is used to indicate a directional focus (spatial). And yet, ‘right’ might be substituted for ‘straight’ in the second phrase with no specific meaning loss, except that there might be a slight confusion as

to the spatial emphasis on ‘down the drain.’ Here, ‘straight’ also carries a hint of the temporal insistence of the act.

(14) Go straight down, then go…

In (14), ‘straight’ is used as a spatial intensifier for the direction ‘down.’

HCRC Map Task Corpus selection. From the Map Task Corpus (1991):

(15) …straight up about four…inches…

(16) …straight up between the…

(17) …head straight up about…

All the above examples contain ‘straight’ as a spatial directional intensifier, as do the four examples listed below. These examples of ‘straight’ are part of the elicited spatial language task called the map task, and it is likely that the usages are entirely contextual to the task. As participants are asked to give directions to a partner, the situation evokes spatial terms, such as the ones below, as responses.

(18) …head straight down…

(19) …turn straight back round…

(20) …then straight back up again…

(21) …continue straight along…

Displaying a variety of tokens from each source, samples of each type are now categorized for comparison:

“straight” – 8797 tokens

One night I'm in bed --; just sort of lying there, thinking about stuff and that when Marie walks in and goes straight over to her door.

Similarly, once state socialism is abandoned, there is no third way around the market that does not lead straight to economic disaster.

It is good for old men to talk straight; talk straight on both sides and take care of one another.

“straight away” -- 8 tokens

If they say no straight away, he moves on.

So straight away he said, that's it I I'll condemn it.

And they did come out more or less straight away and well I say drop a bit in…

“straight up” – 262 tokens

Without any fuss they were setting up a machine-gun while a party came straight up the hill towards the ambush positions.

Don't pull strips straight up or you may irritate skin and break off hair.

One of the men came straight up to me and grabbed the kids.

“straight down” – 165 tokens

Then suddenly, right out of the blue, it had gone straight down the drain.

Go straight down, collect the gem, then go to the builder block marked 2.

“straight ahead” – 188 tokens

Just look straight ahead and smile.

Go straight ahead on the route signed Silverdale and Arnside Tower.

Taking third exit (d) straight ahead at 12 o'clock

“straight back” – 292 tokens

If a break does occur the wire tends to coil up, and it is easy to make the mistake of just tying the broken ends together and towing it straight back to the launch point for the next launch.

They came straight back down in 1969, and on a record 14 occasions have owed continued League status to the old block vote system of re-election.

If you have really strong will-power and become slim, reverting back to your old eating habits often puts the weight straight back on again.

Here is a larger selection of the data from the HCRC Map Task corpus (Anderson et al., 1991):

#
just a small curve and then a straight line. Are you at the
bottom ... Are you at the bottom left-hand corner of the banana trees
or {ab|slight} ... or just at the

#
head up {fp|erm}, straight up about four {ab|in} ... no about three
inches.

#
so ... On my drawing, we'll be heading straight up between the
waterfall and the lost steps. On

#
No, just ... just a straight line

#
{fp|erm}, or slightly to the left of it, head straight up about three inches.

#
Just straight up from the {ab|s} ... the ... the ruined city,

#
Right. If you head straight down

#
I imagine we'll just be going up in a straight line from where you are now about four inches until you're horizontally level with the fallen pillars.

NMMTP selection. Finally, here is some data from the NMMTP – organized according to native language:

English 1 AB

A: You wanna go straight down along the dry river bed but not past it.

English 1 A EF

E: So up is straight up, straight up, okay?

E: Okay, now curve down, round down, and over to the left straightway towards the edge.

English 1 A GH

G: Um, and then, not really abruptly, but kind of turns gradually to West and goes straight west above the rab- yeah, North of the rabbit's burrow, North of the attractive cliffs, and then it turns South on the West side of the attractive cliffs and goes South along the cliffs and then turns West.

Russian 1 B KL

L: You go straight to seven pines -

Russian 6 A OP

O: Just straight down off seven pines, yeah.

O: You need go straight to, mmm, you straight to west, straight to the west part of your paper from this point.

O: Yeah, but you didn't – you kind of need to cross, just go straight – go straight to the west, yeah, you are right, more, yeah, okay, stop.

Japanese 7 A IJ

I: I'd say diagonally, not directly up, but diagonally. Diagonal is not straight up, but -

Russian 6 B ST

S. Yeah, yeah – okay. Now, you go straight down, like you have in beginning, go down, down, stop right there.

S. So, keep going straight.

Russian 6 B UV

U: It's gonna be between those two...it's pretty much goes to the right, straight to the right to the roadrunner river.

Russian 10 B UV

V: Straight down? (M)

U. Straight, yes, straight down. Straight down, then, we're going continue down to south.

V: Just straight.

U. Yes, almost straight. No, not very straight, just a little –

V: Straight, straight back?

V: Okay. Here, just straight?

Russian 10 B WX

W. Correct. So, one just below the other, so there is also is one is almost straight south of the other.

X: You mean, after this point, I go straight?

W. Uh-huh. Now you go straight, straight to, to west.

Russian 11 A AB

A: From the river, then you go, go close with river, you go right, straight right.

Spanish 1 B MN

M: And then you head straight west to go in between the open space and attractive cliffs, trying to go between those. And, and, uh, then you're gonna head straight south to the finish.

Spanish 1 A CD

C: In the same way, straight, straight, straight, left, okay. Surround the feed store -

Navajo 2 A CD

C: Keep going towards the roadrunner river,... just for like, just a little way, you just go along the river, and then you start going away from the river to your left away – there's gonna be rabbit's burrow along the river down below, so just keep driving straight to your left.

Navajo 9 B IJ

I: And then go up to the open space, or just go straight across.

Navajo 12 A CD

C: Then from there you go straight across to, uh, open space. Then you come back down to attractive cliffs.

In order to suggest the beginnings of an explanation of these instances of "straight" it is instrumental to examine a theory of abstract places called "Abstract Loci Theory" (Declés, Gwiaxdecka, and Montes-Rendon, 2001), which might help to separate some of the uses of 'straight' – in this theory, a net is formed which contains an anchor for the preposition, and there is a connection established to relate the prepositional usage to a preverbal usage. Please see an exemplar diagram (Figure 3) from Declés et al. (2001); the example given is 'sur' from French, meaning 'on.' It is also possible to use the work of Joost Zwarts (2000), who developed an explanation of modified prepositions as a subset of what he calls vectors – meaning, that these forms represent positions relative to the reference point. This is called "vector space semantics," and it can be used to describe the composition of a phrase containing a modifier attached to a preposition.

Here again are examples of 'straight' attaching to prepositions from the data (BNC) above

(a)…Marie walks in and goes straight over to her door.

(b)…there is no third way around the market that does not lead straight to economic disaster.

(c)…a party came straight up the hill towards the ambush positions.

(d)… it had gone straight down the drain.

Importantly, tokens of 'straight up' and 'straight down' also occur in the corpus data below:

(e)… head straight up about three inches.

(f)… we'll be heading straight up between the waterfall and the lost steps

(g)… straight up from the {ab|s} ... the ... the ruined city…

(h)… If you head straight down…

The most obvious factor is that ‘straight’ is used both with prepositions and as a modifier, and these instances are difficult to distinguish.

Above it was stated, and here it is repeated that Talmy (1988) emphasizes conceptualization in his work that the prepositions lexical items from a language into what he calls closed-class and open-class systems. Open-classes contain the more frequent lexical items in a language system, meaning, nouns, verbs, and adjectives, and the closed-classes, of which the grammatical system is a part, contains inflectional forms and “prepositions and conjunctions, as well as grammatical relations, lexical categories, and syntactic structures” (Talmy, p. 1). And again, restating how the open- and closed-class forms complement each other – the open-class carrying the content of the concept, and the closed-class being used to structure the conceptualization (p. 2) for expressive purposes.

What is happening when a member of the open-class joins a member of the closed-class? Most specifically, what occurs when we visit an expression, which looks like:

(a) *Marie walks in and goes straight over to her door…*

What type of construction are we seeing as ‘straight’ attaches itself first to the verb, which in this case might be seen as “goes over,” then further influences the prepositional phrase beginning with ‘to’? What function is ‘straight’ performing in this sentence? And how does it differ from the usage of ‘straight’ in the following phrase:

(i) *And they did come out more or less straight away…*

‘Straight’ is not a member of the closed-class; in fact, it is a member of all of the open-classes. According to the Oxford English Dictionary Online (2006), ‘straight’ is a noun, a verbal root, an adjective, and an adverb, making it a very good representative of the open-classes. In this discussion it is suggested that the “trace” (Cienki, 1998) of the “conceptual archetype” of the lexical item ‘straight’ is spilling over into its modified elements, the prepositions and particles, members of the closed-class which are aiding in the conceptual structuring of the open-class content. So, an analysis of the modifier + X, ‘straight + X,’ specifically, is outlined in this section of the analysis.

For this type of analysis, it is helpful to have a visual method for understanding how the meanings network conceptually. Declés et al. (2001) use just such an approach to investigate the semantic analysis of spatial prepositions. As stated above, and as an example, they constructed a diagram that was indicative of the diachronic movement of the French preposition *sur* to a preverb *sur-* (on), comparing them to the Polish preposition, *przez* and preverb, *prze-* (across), by showing the similarities of the phrasal usages of each lexical item in various contexts. The nets they built are based on the work of “stratificational grammar” of David Bennett (1968) and of Viggo Brøndal (1950), a European linguist who utilized a strong background in logic and mathematics in order to design representations of the linguistic processes of prepositions.

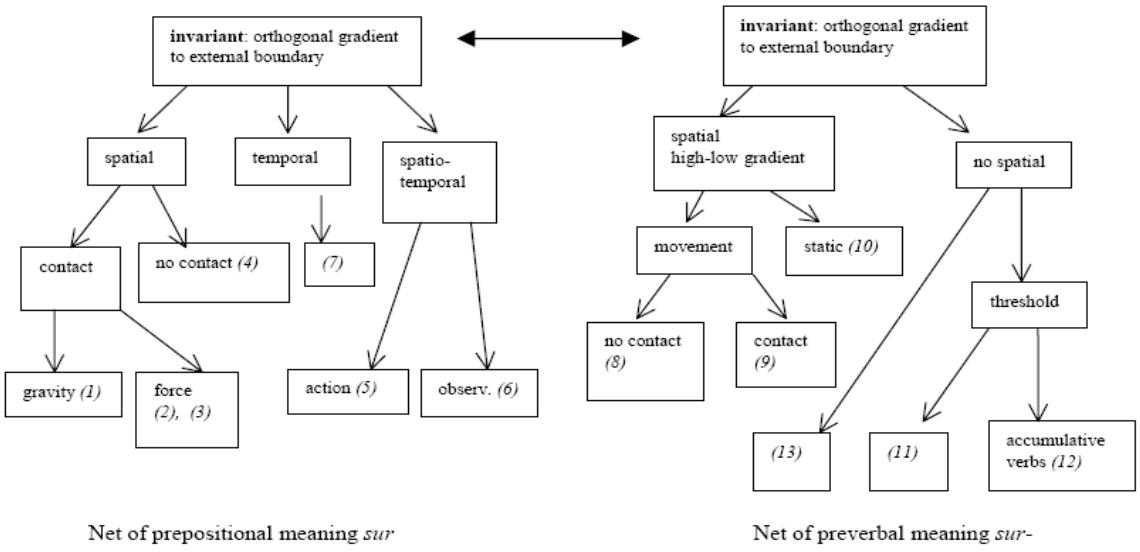


Figure 3. Meaning Net Diagram of Spatial Preposition 'sur' (on). Declés et al., 2001, p. 4.

Above, see the diagram as Declés et al. constructed it to offer the comparison between the two uses of *sur* (note: The top categories of "invariant orthogonal gradient" are meant to refer to the stable semantic base usage of *sur* in both nets.) In the diagram, the "nets of meanings" (p. 4) are used to show the relationships of the different uses of *sur* in various phrases. The small numbers in the boxes indicate the example numbers of the examples used which contain the characteristics listed in the box. Although the diagram itself seems to be a bit mechanical as far as describing the process of diachronic movement, it is useful to clarify the characteristics each phrasal usage entails. And even though Declés' diagram is meant to inform a closed-class member, the preposition *sur*, this type of diagrammatic representation can be extended to include an open-class member associating with closed-class members.

I propose the construction of a diagram similar to the one above, showing how the use of 'straight' as a modifier to a preposition relates to 'straight' as an adjectival modifier, and in the process, how 'straight' migrates from spatial to temporal once it has arrived at its

adjectival form. And, according to Zwarts (2000), 'straight' is, at its heart, an adjective, but retains a close association between place and orientation; his work with vector space semantics “helps us to understand the underlying unity of the terminologies of place, size, orientation, and spatial parts. Most orientation terms are interpreted relative to the framework of the vertical directions and the horizontal plane orthogonal to them” (Zwarts, 2000, p. 9).

Before attempting to build a diagram, we can review the various uses of 'straight,' and try to understand how this lexical item can occur in both natural and elicited discursive data. We looked at both examples where 'straight' is attached to a preposition and, for clarification purposes, to some examples of ‘straight’ in more questionable contexts. It is often these unresolved contexts which offer the best insight into the prototypical use of a lexical item; as Vandeloise (1991) says, the status of “questionable examples is unclear…[,but] in the spatial domain particularly we find cases where analogy with a representative use allows us to interpret a more questionable use” (p. 47). The first group of examples (1 – 14) is taken from natural language excerpts from the British National Corpus (BNC); the second group of examples (15 – 21) comes from the results of an elicited task (they are from the HCRC Map Task Corpus); the third group is a selection of results from the expanded study of the NMMTP.

As proposed above, a diagram similar to the one Declés used in his explanation for the diachronic shift of the preposition sur to the preverb *sur* can now be assembled. This diagram will be slightly different, in that it represents the usages of ‘straight’ as a modifier for the closed-classes of prepositions and particles, and the open class of verbs. Svorou (1994) warns against working with adverbial uses since they require knowledge of the linguistic frames in order to provide for “interpretation and understanding of spatial

relations" (p. 51), but if great care is taken in the attempt to record the gradual movement of the phrasal usages, some insight can be gained by trying to construct such a diagram.

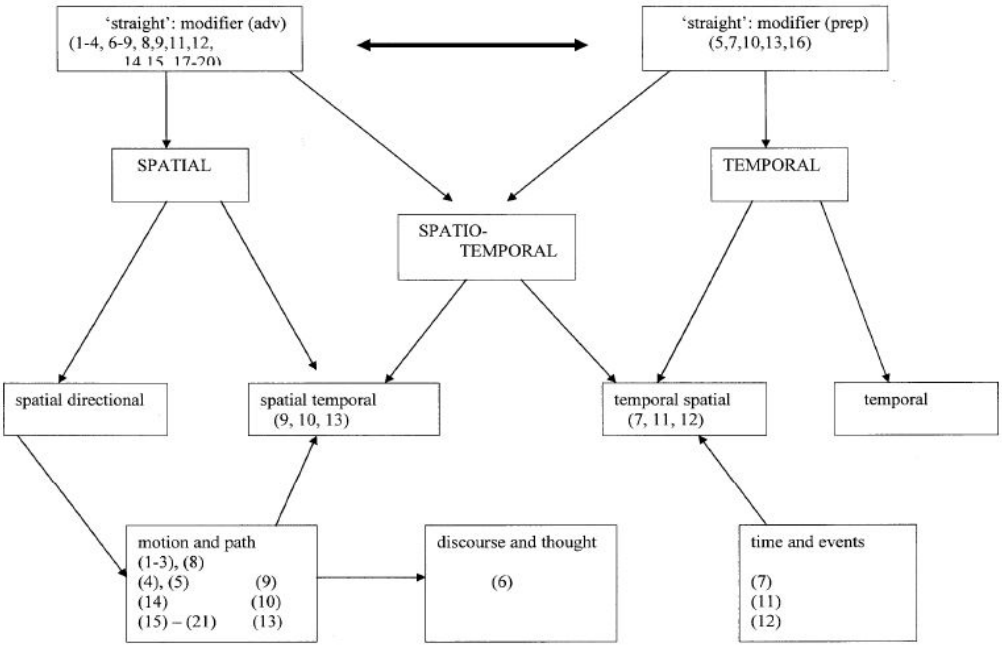


Figure 4. Meaning Net Diagram for Spatial Adverb/Adjective 'straight'.

Discussion. Bowerman and Choi (2001) recommend looking at the interaction between perceptual dispositions for space and the semantic structure of the language, in their case, the language being acquired by children. They further suggest a "framework that stresses usage-based, dynamic properties of language" (p. 505), and the diagram above might qualify as just such a framework, supported by Talmy's cognitive semantics (2000), discussed above and below. If we look closely at the movement between the examples of the usage of 'straight,' we can see the connections that are formed contextually, in the interaction between perceptual disposition and the semantic structure of the English language, are formed during use. The distinction between the post-position of either an adverb or a

preposition is made clear at the first level, but as can be seen in the following levels, the progression of use is dynamically affected by the actual phrasal context.

Combining an even larger and more comprehensively organized collection of examples from both the BNC and the MTC with the added tokens from the NMMTP follow-up study, the movement of the usage becomes more apparent as it flows between the poles of spatial and temporal characteristics, with the balance being weighted symmetrically at some times, then asymmetrically at others. A synchronic look at ‘straight’ can only hint at the deeper insights that can be gained with the inclusion of multi-lingual research. The inclusion of data from native speakers of multiple languages proves helpful in this illustration; with a broader look at the behavior of ‘straight’ cross-linguistically, there may even be an opportunity to explore the possible “syntactic frame” construction (Goldberg, 1998) of ‘straight +X’ in a more functional, diachronic study.

Again, it is Leonard Talmy and his framework of cognitive semantics (2000) that helps most to clarify the conceptual underpinnings of the data here; because he focuses on the basic conceptualization of meaning through lexical expression, his deeply insightful work on closed and open-class comparisons in spatial language-in-use (pragmatics) offer a unique perspective on cross-linguistic spatial term usage.

The expanded study for the NMMTP provides an opportunity to do precisely this type of exploration. Significantly, 14 out of 48 transcripts (>25%) from non-native English-speaking dyads contained samples of 'straight + X' constructions. As a result, this multi-lingual performance task allows a glimpse into the asymmetrical nature of the usage of “straight” as it is acquired functionally for cross-linguistic use, and in the process of this explication, the task furnishes adequate evidence of the intellectual struggle present when a

second language user of English (L2) attempts to successfully employ metaphorical usages in her or his L2. The difficulty in employing the embodied semantic representation becomes apparent in the slight cognitive missteps inherent in task-based usage; even if the word itself translates directly across the language systems in a similar metaphor, only advanced L2 users are capable of the smooth incorporation of the L2 term. Not only does this effort require a deep understanding of the nature of the conceptual archetype embedded in the metaphor, but correct grammatical insertion and lexical appropriateness must also be mastered; in the course of a challenging performance task, this mastery is rarely present (Cienki, 1998). Below are the samples of asymmetricality, or a mis-match, when an L2 user of English attempts to use 'straight':

Russian

U. Yes, almost straight. No, not very straight, just a little –

V: Straight, straight back?

U. Then, um, go back to the left again. Make a circle.

***

W. Correct. So, one just below the other, so there is also is one is almost straight south of the other.

***

A: From the river, then you go, go close with river, you go right, straight right.

***

Spanish

M: And then you head straight west to go in between the open space and attractive cliffs, trying to go between those. And, and, uh, then you're gonna head straight south to the finish.

These examples are subtle, and they are open to interpretation. And, notably, with the subtlety, the meaning of the L2 use of 'straight' remains questionable. As such, as a sidebar, the transcribed record of the performance task might be very useful in the assessment of lexical semantic integration among L2 users of English. Again, a targeted inquiry using specific metaphorical tokens could form the basis for an evaluative tool, particularly if the transcript is used in a self-reflective way to aid L2 users to assess their own conceptual progress in their second language.

Phonological and Intonational Analysis

Method for phonological analysis. In their 1987 paper, Fowler and Housum suggest that talkers and listeners enjoy a symbiotic relationship during the production of words in discourse, seemingly signaling the information value and status of a word by either maintaining an unreduced production of the word or by deploying a reduction of the word, or a lenition, to provide insight into this information status (pp. 501-502). Both the pilot and the follow-up study use data generated by a replication of the Map Task experiments (Anderson et al., 1991) as outlined above. Because this task is an elicited performance task with an assigned goal of relaying given (mostly new) information between giver and follower, this study is better suited to evaluate the informativeness of the signal offered by the giver to the follower, hopefully providing additional evidence for the use of the analysis of the acoustic signal for a word in turn-taking discourse. In the pilot study, at least 20 pairs of words were

selected from the three transcripts, and 7 of these pairs were used for the comparison in the smaller study, with one pair examined for multiple repetitions. “Criteria for selection [is]…that a word occur at least twice in the passage and that, if relevant, it refer to the same object or event in both productions…” (Fowler & Housum, p. 491) This criteria was used both to evaluate the NMMTP pilot study and the expanded study, where all of the repeated and selected landmark words were measured for every occurrence, allowing for multiple comparisons of repetitions of each word to be used for evaluation.

In both the pilot and the expanded study, the repetition of terms is understood to be inherent to the goal-related task, which is why, in multiple cases, many more than two samples of a selected word are compared for increased length or reduction. Consideration of the nature of the task is also necessary when the comparison targets are selected; notably, because there are multi-word landmarks involved in this performance task, the selection list includes terms of more than one word which identify landmarks. Additionally, in both phases of this study, between 75% - 85% of the transcripts are the result of elicited natural speech of non-native English speakers, and this variable was also considered in the discussion of the results of both studies.

Also, in both cases, the results of the replicated map task were culled for appropriate pairs of words, and, since the task involves using landmarks to relay directions, some of the chosen tokens are two words, which constitute the name for a particular landmark. Overall, this performance task is designed to reflect the ability of speakers and listeners to co-construct accurate representations of a given path; as such, it requires repetition of terms for clarification purposes and the use of specific directional words to aid the listener (follower) in reproducing a pathway similar to the one on the giver’s map. These directional words

occur with regularity in both the native and non-native English speakers' exchanges, and since these frequent words are associated with specific landmarks, each instance of association (occurrence of the landmark) can be measured for reduction or enlargement by monitoring the maintenance of the acoustic signal of the word.

The word durations were calculated according to the general method used by Fowler and Housum (1987); the digitized waveforms for each occurrence were examined visually and auditorially using the Audacity program to determine the onset and release of each selected token. The measuring process involved starting from the onset of the first landmark word to the completion of the second landmark word, for example, from the beginning of 'sandy' in 'sandy mesa,' until the completion of 'mesa.'

Fowler and Housum (1987) maintain that the duration measurement of each word is the most reliable for showing differences on whether the word was being used for the first or for the second time (p. 493), and the evaluation of this study relies on the duration measurement alone. Future work might involve more exact and elaborate measurements of the measurements of average fundamental frequency of the lexically stressed vowel and the peak amplitude measurement of that same vowel to determine their significance. In both phases of this study, the measurements were taken from the map task "giver's" and "follower's" turns, and in all cases, repetitions are by the same speaker.

According to the functionalist perspective, differences in word order, article use, ellipsis, and so on are not arbitrary formal facts…rather, they reflect fundamental differences in the kinds of points the speaker is trying to make" (MacWhinney, 1984, p. 323). Fowler and Housum (1987) add to this list of notable differences, suggesting that talkers "distinguish old words by shortening them" (p. 493); their study was designed to determine how

systematic reduction (or, on the other hand, careful articulation) “can provide information to a listener that a word [either] relates back to something said earlier (or does not)” (p. 502).

The results of the pilot study from the NMMTP validated the previous studies in that most of the repeated mentions of the selected words were shortened. The results of the expanded study show a drastic difference: the measurement of the complete set of tokens make a strong statement for what I am calling “emphatic lengthening,” a type of fortition; most (90%) successive mentions show some lengthening when compared to previous shorter mentions. Earlier, in the pilot study, from the fact that the majority of the second mentions were shortened, it was inferred that the speakers were shortening their word productions when they realized that they would not be sacrificing the efficacy of their communication; regarding this shortening, it was predicted that the speakers reduced words that were repeated, since the listener had heard the words before and could therefore benefit from the priming advantage that the previous production provided (Fowler & Housum, p. 489). Even so, Fowler would agree with the proposal that different productions are used for different purposes; she even suggested “that duration can be manipulated by the speaker to signal information value to the hearer” (Fowler 1988, cited in Gregory et al., 1999, p. 11).
In the expanded study, many more of the sampled second (third, fourth, and fifth, etc.,) mentions lengthened, and this differs significantly from the Fowler and Housum’s 1987 study. Pagliuca and Mowrey (1987) recommend a reexamination of the phonological construction when fortitions, or, in this case, lengthenings, of the phonological gestures occurred (p. 468). The definitive evidence in this expanded study clearly shows that the lengthening of a word implies some sort of speaker manipulation in order to convey a need for enhanced information.

An explanation for the emphatic lengthening in the repeated mentions might be found in Chafe's 1980 work on the topicality of word pairs. Chafe felt that the shortening of a word could be the result of the speaker's belief that the concept related to the word – for example, the most frequent token on our pilot study list, 'sandy mesa,' can be seen as a focal point of the listener's attention (Fowler & Housum, 1987, p. 493). This categorization as a focal point is an attempt to explain shortening, but Chafe continues by suggesting that the words which are least likely to be shortened are those that are the most important words in the passage (p. 493); since our two lengthened samples in the pilot study represent two turns in which the follower was seeking clarification from the giver on the map task, this request for clarification can be viewed as an instance of placing importance on the landmark name in question. In Gregory et al., 1999, evidence is presented that shows that no matter if the high probability of a word's occurrence is based on frequency, collocation with neighboring words, repetition of the word in the conversation, or the semantic association of the word with its conversation context," less informative words are more reduced in conversational speech" (p. 1), implying that the reduction of more unexpected and more informative words, such as those used to identify the landmarks in the map task, might not occur, but instead that these words can be lengthened. Fowler and Housum found no evidence to support this correlation of topicality with word length, but the many samples in the expanded NMMTP study indicate that this research with a complex performance task and non-native English speakers does provide just such a correlation specific to this population.

Below is an example of the expanded study results for one landmark, 'attractive cliffs,' in three different languages: Russian, Japanese, and Spanish.

Table 5

Russian 'attractive cliffs' – Progressive Movement of Lenition and Fortition in Native and Non-Native Map Tasks.

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit or Move	Token Length	Task 1/2
Russian	11 A AB	attractive cliffs	95	G	1	1.37	1
Russian	11 A AB	attractive cliffs	97	G	3	0.967	1
Russian	11 A AB	attractive cliffs	1631	G	A62	1.533	1
Russian	11 A AB	attractive cliffs	1632	G	A63	1.451	1
Russian	11 A AB	attractive cliffs	1633	G	A64	1.387	1
Russian	11 A AB	attractive cliffs	1634	G	A64	1.358	1
Russian	11 A AB	attractive cliffs	1636	G	A65	0.929	1
Russian	11 A AB	attractive cliffs	1638	G	A68	1.173	1
Russian	11 A AB	attractive cliffs	1648	G	A73	1.277	1
Russian	11 A AB	attractive cliffs	1650	G	A76	1.242	1
Russian	11 A AB	attractive cliffs	1651	G	A80	2.09	1
Russian	11 A AB	attractive cliffs	96	F	2	1.115	1
Russian	11 A AB	attractive cliffs	98	F	4	1.483	1
Russian	11 A AB	attractive cliffs	1630	F	B61	1.535	1
Russian	11 A AB	attractive cliffs	1635	F	B64	0.801	1
Russian	11 A AB	attractive cliffs	1637	F	B67	0.848	1
Russian	11 A AB	attractive cliffs	1639	F	B68	0.952	1
Russian	11 A AB	attractive cliffs	1649	F	B75	0.975	1

Table 6

Japanese 'attractive cliffs' – Progressive Movement of Lenition and Fortition in Native and Non-Native Map Tasks.

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit or Move	Token Length	Task 1/2
Japanese	7 A EF	attractive cliffs	55	F	4	1.544	1
Japanese	7 A EF	attractive cliffs	1059	F	F62	0.935	1
Japanese	7 A EF	attractive cliffs	1068	F	F69	0.987	1
Japanese	7 A EF	attractive cliffs	1073	F	F73	1.08	1
Japanese	7 A EF	attractive cliffs	1074	F	F73	1.387	1
Japanese	7 A EF	attractive cliffs	1076	F	F74	1.176	1
Japanese	7 A EF	attractive cliffs	52	G	1	1.811	1
Japanese	7 A EF	attractive cliffs	53	G	2	1.898	1
Japanese	7 A EF	attractive cliffs	54	G	3	1.86	1
Japanese	7 A EF	attractive cliffs	1065	G	E66	0.931	1
Japanese	7 A EF	attractive cliffs	1067	G	E69	1.283	1
Japanese	7 A EF	attractive cliffs	1069	G	E70	1.115	1
Japanese	7 A EF	attractive cliffs	1070	G	E70	1.08	1
Japanese	7 A EF	attractive cliffs	1071	G	E71	1.265	1
Japanese	7 A EF	attractive cliffs	1081	G	E76	1.062	1

Table 7

Spanish 'attractive cliffs' – Progressive Movement of Lenition and Fortition in Native and Non-Native Map Tasks.

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit or Move	Token Length	Task 1/2
Spanish	5 A AB	attractive cliffs	801	G	B16	1.718	2
Spanish	5 A AB	attractive cliffs	805	G	B17	0.894	2
Spanish	5 A AB	attractive cliffs	30	G	1	0.72	2
Spanish	5 A AB	attractive cliffs	31	G	2	0.975	2
Spanish	5 A AB	attractive cliffs	33	G	4	0.998	2

Discussion. Do the participants in this expanded map task study reduce the duration of repeated phonological forms, old information, in comparison to the duration of the forms when they appear as new information? The data from the NMMTP shows that the reverse is true. In fact, 90% of the landmarks in the selection contain lengthening of one or more of their repetitions. The evidence presented here confirms that the participants, who are all non-native English speakers, do indeed alter the length of their repetitions, but because there is an overwhelming number of tokens that are lengthened, it also suggests that the lengthening of the repetitions serves some discourse function. The lengthening of a word might be the result of a combination of factors. Perhaps the phonotactic patterns – "the configuration of the speech sounds within the syllables" (Vitevich Luce, Pisoni, & Auer, 1999, p. 47) – can account for the lengthening of these words; in fact, Bybee states that" phonotactic generalizations are based on frequency distributions in the existing lexicon" (2001, p. 94). For non-native speakers of English, their existing lexicon does not always include English phonotactic generalizations. The NMMTP is not using nonsense (nonce) words in the study, but there may be a similarity between the attempted pronunciation of a nonsense word and

the attempted pronunciation of an unfamiliar word in a second language when they are new to the non-native participant.

Vitevich et al. (1999) claimed that when they presented new words alongside known words so that the new words and the known words were mixed, the "participants would focus their processing on the one level common to all of the stimuli" (p. 309). In the case of this map task study, the "common level" could be the context of a direction giving framework, and the commonality of the landmarks used in the accomplishment of the task. This task is a guided, partnered performance task and an experiment where the participants are instructed in how to perform the task, but giving directions might seem to be part of a routinized activity, a frame (Fillmore, 1976) in which this task can be located. If the activity is routine, this assumption, if made, would indicate a level of cultural ignorance on the part of the investigator. To compare the routine of using spatial language, or giving directions, and expect that this activity is comparatively conducted by groups as different as native Russian speakers and native Navajo speakers borders on the ridiculous. In fact, once this additional level of a possibly unfamiliar task being performed in a second language using novel words (and concepts) is added, the common level of a direction giving framework does not compare with the sublexical level that Vitevich and Luce were referring to. Instead, it suggests a deeper level of psychological association where possibly, with an unfamiliar word residing in a unfamiliar frame but performed by two second language users having the same native language system to rely upon and access, this increasingly complex task might indeed lead to an alteration of repeated mentions of these unfamiliar landmarks, forming a deeper level of mutual information sharing. Gregory et al. (1999) found that mutual information was a significant factor in "their analysis, which argues that it is a good predictor of shortening" (p.

11). If this is true, what if this deeper level of mutuality of information sharing does not exist? Could it imply that lengthening, or fortition, might then be predicted? And even more so, that this fortition is intentional? Data supporting this claim from the NMMTP strongly suggests that this could be the case.

The pilot study originally included participants who use English as their native language as a sort of control group for map task study, with the goal of establishing parameters for the analysis, including word shortening or lengthening. When the expanded study results were calculated, showing that even native English speakers lengthen their repetitions of the landmarks, the idea of a "control group" was discarded. Both the pilot study and the expanded study were meant to pave the way for generating evidence from speakers of English as a Second Language to participate in the map task as a way of determining the level of acquisition at which typical word shortening or lengthening might stabilize, assuming that this level might possibly correlate with a mastery level of the language for the student. Instead, the two phases of the study now firmly establish that multiple factors need to be considered and included for such a correlation to even be advanced, much less established. Simply recording the lenition and/or fortition of a designated token is not enough; the motivation for this action needs to be determined by adding more intense analytic lenses to provide potential explanations for these proposals to be suggested. Fowler and Housum (1987) end their article with a sort of wish, that

> possibly, this instance of a behavioral systematicity that is beneficial for different reasons both to talkers and to listeners is not unique to the production and perception of new and old words in speech…Indeed, possibly the confluence of mutual benefits

> may promote the perpetuation of various systematic behaviors in a language or across languages (p. 502).

Conclusions from Discussions

In this chapter, we viewed samples of three different types of analysis performed on the results of the NMMTP expanded study; the results came from 54 dyads, 48 of which were tasks in both native and second languages, and this resulted in 108 total transcripts. Above just a few of the statistics generated by these results were discussed, and in Appendix D can be found some more samples of the results. Below is a review the primary results of the study.

The study involves three broad areas of analysis: pragmatic and typological analysis, morphosyntactic analysis, and phonological analysis. The pragmatic and typological analysis revealed a potential cross-linguistic tendency to relay new information via a directional construction, then, possibly intentionally, to choose to use a locational construction in order to ensure comprehension.

The morphosyntactic findings emphasize how the semantics of English is increased in range by second language learners, highlighting a crucial point for second language teaching: to not neglect the specialized instructional patterns of acquired lexical items in grammatical collocations. This analytic level provides evidence that connections are formed contextually in the interaction between perceptual disposition and the semantic structure of the English language, that they are formed during language use, and that a performance-based task aids in this incorporation of novel concepts and/or distinct cross-linguistic constructions.

The phonological analysis of the NMMTP data has the remarkable finding that there is a phenomenon of “emphatic lengthening,” a type of fortition; in a selection, most (90%)

successive mentions show some lengthening when compared to previous shorter mentions. Another important finding discussed is that the data indicate that there is some level of intention and volition involved with language choice and landmark word length variation when second language learners and users are engaged in a complex task.

In the next chapter, there is a review and expansion of applications of the data, potentially correlating the results of the intonational analysis with multi-lingual acquisition, and, in this process, merging the dual pathways that form the final focus of this study, linguistic analysis and educational assessment.

Chapter 6

Synthesis and the Nature of Assessment

Background Redux

The follow-up study intended to delve more deeply into the actual process that goes into performing a dyadic task in one's second language – in this case, in English. The research questions were as follows: Is it possible that a second language learner/user/speaker of English would intentionally choose a syntactic or phonological construction in order to ensure comprehension, even if this choice is asymmetrically aligned with her or his native language system? Does this level of intentional choice coincide with an actual awareness of the process involved, meaning, is there executive cognitive control of language choice? And, where in the data of the NMMTP might this phenomenon be evident?

The linguistic analyses performed on the resulting data indicate that there is some level of intention and volition involved with language choice and landmark word length variation when second language learners and users are engaged in a complex task. Before answering the research questions, an introduction of the basis for the eventual association between the results of this study and educational assessment is necessary.

Contiguous to the actual research questions is the projected use of the map task in an adapted format as part of an assessment instrument in multilingual settings, so this synthesis reinforces the strong emphasis on the need for alternative assessment procedures for students who are identified as immigrants or refugees as a primary issue indicated by two phenomena present not only in the K-12 and college level school systems in the United States, but also in global educational systems for primary, secondary and post-secondary education. Alternative and culturally pliant assessment and evaluation procedures would be a good first step to help

address the increase in the so -called “achievement gap” or “opportunity gap” (Flores, 2007) between English Language Learners and their counterparts in schools, colleges, and universities.

The increase of second language learners of English worldwide who are eligible for entry into public education systems has increased at an exponential rate; “children below the age of 18 years comprised 50% of the world's refugees, many of them coming from areas of sustained conflict, and “English-speaking countries are among the world's top 10 resettlement countries” (United Nations Human Commissioner for Refugees [UNHCR], 2014). As of 2016, there were no studies that specifically identified refugee children or refugee adults as a vulnerable population where cognitive functioning might be impaired due to experience with traumatic events in need of advanced assessment frameworks and instruments (Kaplan et al., 2016, p. 81). For the citizens of English-speaking countries where these refugees are residing, prioritizing the successful inclusion and empathetic embrace of our immigrant brothers and sisters would provide evidence of true openheartedness, a quality that seldom enters the lexicon of governmental policy and/or education, let alone that of educational assessment.

Let's begin by looking at some alternative forms of assessment. Once we understand how these forms work, we can look more closely at the relationship between language use, linguistic analysis, and educational assessment, and finally, at how the map task might be adapted for this use.

Categorizing Students by Verbal Assessment

The categorization of students for the purposes of grade level assignment or for identifying students with special needs in the public school system is accomplished by

several competing methods: traditional classroom assessment generated by standardized testing and/or individualized student production; referential observation by the child's instructor; one on one evaluation procedures by ancillary staff members; parental input; and the student's thoughts on his or her own performance. Most testing is done through computer applications or via "pencil and paper." It is now a common belief that students who test below average in visual-spatial abilities have less success in academic skills acquisition (Zera & Lucian, 2001), and "visual-spatial ability is becoming increasingly important with the development and proliferation of new technologies such as imaging, computer graphics, data visualization, and supercomputing" (JHU CTY, 2019). Members of the predicted "less successful" populations which test lower in visual-spatial abilities are often overwhelmingly pinpointed in minority student groups (Cummins, 1989).

The link between visual-spatial abilities and academic skills is historically entrenched, particularly when it comes to group assessment of children in public school settings, but recent experimental evidence shows that this link is more complex than a simple correlation between an indexing and categorization processing expertise and skill presentation through practice (Pon-Barry, Schultz, Bratt, Clark, & Peters, 2006). For example, the acquisition of what Dehaene (1997) calls a "number sense" incorporates and interfaces skill sets from different parts of the brain, some of which are also activated in language acquisition and during general content problem-solving activities as well as during numerical operations. Even though this body of experimental evidence continues to accumulate in larger and larger quantities, our standardized testing rubric remains stagnant in its approach to more flexible and trans-content assessment. With the evidence that various skills and abilities have a more global application to learning, one might expect that the

interpretations of standardized tests be reconfigured to reflect the overview of a wider range of abilities which may be emerging from the testing process.

A continuum which represents a feedback movement from visual-spatial literacy to content literacy requires revamping the policy of testing in the public schools to take this continuum into account as testing has become a more and more integral part of the daily routine of the U.S. public school student (Dwyer, 1998; Romberg, 2001). Within the testing framework in the public schools and regarding the students who enter school as emerging bilinguals, primary interest focuses on their verbal abilities. And yet, there is sound evidence that the second language is acquired differently than the first (Mahon & Crutchley, 2006), and there are also foundational studies that show the relationship between the acquisition of language and the acquisition of visual-spatial reasoning (Brannon, 2002, 2005; Feigenson, Carey, & Spelke, 2002; Varley, Klessinger, Romanowski, & Siegal, 2005). If this mounting evidence remains consistent, the testing of verbal abilities might be shown to be inadequate for assessing both language and other important content skills (visual-spatial) in emergent bilinguals, and yet the emphasis on testing students in verbal areas to determine learning disabilities continues. In the future, we must look to a more broad-based yet individualized assessment framework to find out how our children are learning and how best to help them acquire the skills they'll need to be part of their world.

Currently, assessment in the United States often assumes the form of specter, or a monster out of control, and the issues concerning standardized testing seem to occupy most of the "assessment" discussion. Additionally, the term evaluation, frequently used in the context of Special Education, carries with it a negative implication of locating the problem within the identity of the child, and not within the system (Cummins, 2015). The result of

evaluation is often placement in a special education program, sometimes even in a special school, and this placement includes the design of an individual education plan (IEP) for the child. For the purposes of this overview, we will include evaluation for special education services under the umbrella for general academic assessment, discussing the forms of assessment of children that determine skill levels intended to predict future academic success and lifetime achievement potential.

Format of General Assessment

Traditional assessment, or summative assessment, "takes place after a period of instruction and requires making a judgment about the learning that has occurred" (Boston, C., 2002, p. 1). There are many problems that are identified with norm-referenced tests (NRT), and these problems have been known for over twenty-five years (Frechtling, 1991). Some of the problems with NRTs that have been proposed are:

1. NRTs measure a student's behavior relative to his or her peers, not to established criteria of knowledge or behavior.
2. The multiple-choice format of NRTs corrals the items into concrete questions, covering lower cognitive levels.
3. When used to ensure accountability, the NRT format limits, and may even drive curriculum.
4. NRTs tend to be culturally and linguistically inequitable (Stevens, 2000, p. 51).

This final and fourth point is where the concerns lie; with the current influx of students from countries outside of the United States, the test score gap between English language learners

and other students grows larger with each passing year (Bielenberg & Wong Fillmore, 2004-2005).

Alternative assessment. Some newer methodologies of assessment that might be helpful come from the current research into culture-fair assessment (Fagan, 1992, 2000; Fagan & Haiken-Vasen, 1997; Verney et al., 2005) and formative assessment (Boston, 2002; Wolfendale, 2004). Culture-fair assessments include information processing and psychophysiological assessments to "reduce cultural biases in standardized assessment" (Verney et al., p. 316), and this topic will be combined with the notion of dynamic assessment, coined by Lev Vygotsky (1934/1986), to be discussed later.

Formative assessment. In the interest of evaluating the evaluation process, a "meta-evaluation," if you will, there is a field called formative assessment (Black & Wiliam, 1998), which enables the parties involved in the assessment, evaluation, and instruction process to observe themselves and each other as the process evolves. Formative assessment is "the diagnostic use of assessment to provide feedback to teachers and students over the course of instruction…teachers assess how students are learning and then use this information to make beneficial changes in instruction" (Boston, p. 1). Can formative assessment be continuous without interfering in the developmental process or becoming invasive in the child's and in the family's lives? And can this assessment process become more inclusive of children's psychological and emotional development, so that the child, the teacher, and the child's family learn how to observe the ongoing processes of growth and development? To begin to answer these questions, we can look at Black and Wiliam's (1998) work in the area of formative assessment, which includes:

- teacher observation, classroom discussion, analysis of student work

- adjustment to instructional strategies, reteaching, opportunities for practice of skills
- feedback which focuses on improvement as a result of effort, counteracting the cycle of blaming poor performance on lack of ability
- learners also learn to evaluate by self-monitoring

Formative assessment is ongoing in the classroom, so it becomes part of the child's school daily routine. In this way, assessment becomes normalized, and the child begins to see it as part of a daily routine. If we extend the framework for formative assessment into the areas of self-monitoring of a child's acquisition of visual-spatial and academic skills, potential problems might be identified much earlier.

Some of the strategies designed for the formative assessment of students' understanding can be adapted by teachers for use in determining social and psychological development. For instance, instructional units on spatial sense development can be used even with the youngest of students. Talking about how spatial language activities play a part in daily life is sometimes part of the school day, so why not use it as part of the curriculum? Here are some of the ways for teachers to encourage a classroom environment of understanding about this (or any) topic:

- invite students to discuss their thinking about a question or topic in pairs or small groups, then ask a representative to share the thinking with the larger group (sometimes called think-pair-share)
- present several possible answers to a question, then ask students to vote on them
- interview students individually or in groups about their thinking as they solve problems

- ask students to summarize the main ideas they've taken away from a discussion

Boston, 2002, p. 3

The concepts of formative assessment in the areas of educational and psychological development are now often included as part of the professional training for teachers (Matang and Owens, 2004) for other professionals working with children, and for parents. But once these concepts are learned by parents and professionals, implementing them will come to pass only if they receive the proper support from their schools and communities. Matang and Owens (2004), in discussing the implementation of major curricular changes, emphasize three points in their quest for dramatic change in the curriculum:

1. teacher beliefs and values must align with the rationale for curricular changes
2. proper training programs and subsequent support must be in place to allow teachers to do an in-depth investigative study of culture-specific content knowledge (including discovering the cultural context of the students)
3. they (both parents and teachers) need to become aware of their new role – they change from being an authority and transmitter of novel culturally specific knowledge to a facilitator of the teaching-learning process

Dynamic assessment. Because this third type of assessment connects closely with our final topic, we should emphasize the concept of dynamic assessment, which emerged from the work of Lev Vygotsky, a Russian scholar who developed psychological theories following the onset of the Russian Revolution. This revolution and its ensuing disorder orphaned hundreds of thousands of children who then lived on the streets of the cities, and it has been proposed that Vygotsky began his work on assessing children who had emotional and intellectual problems as a response to the plight of these orphans (Metheny, 2004). As

Vygotsky envisioned the assessment of children who had experienced disruptions during cognitive development, his theory of dynamic assessment presents a framework within which the child's environmental influences are gauged by a comparison of his or her current level of development with the future level of development for the child, their potential development, and where they are in the process of realizing this potential (Poehner & Lantolf, 2005). If the true tenets for dynamic assessment are followed, this form of assessment is "tuned to the abilities that are maturing," and this tuning "is continually renegotiated" (p. 29). Dynamic assessment is inseparable from the instruction; together "they form a unity necessary for learner development" (p.29). Similar to a dance choreographed to music, the interaction between learner and teacher ebb and flow as assessment and instruction intertwine, an ongoing feedback loop where knowledge is consistently presented, then checked, re-circulated and discussed by the student among other students and the instructor, and correctly re-presented if needed. Poehner and Lantolf (2005) compare dynamic assessment to a perspective in which assessment and instruction "are seen as two sides of the same coin…true assessment is not possible unless it entails instruction, and vice-versa" (p. 30).

Culture-fair assessment. The two sides of a coin can also refer to the last topic we will cover, the culture-fair assessment work of Stephen Verney of the University of New Mexico. In his doctoral work with diverse populations, Verney looked at underlying biases in psychometric assessment, including intelligence testing, which typically includes visual-spatial capacity measurement and, as such, offers predictions of specific content area performance. Because the assessment of visual-spatial abilities in diverse populations often includes a look at how each language system differs from culture to culture (Echevarria &

Graves, 1998; Krause, 2000; Perkins & Flores, 2002; Ron, 1999; Tevebaugh, 1998; Torres-Velasquesz & Lobo, 2005), the development of additional measures to show the learning capacities of these diverse populations is essential. Verney et al. (2005) shows that the ethnic backgrounds of diverse cultures do not affect their learning abilities, as so many of the standardized tests have suggested (MacMillan, Gresham, & Siperstein, 1993); he uses psychophysical measures (pupil response data to light) as proof that this "…unique information about an individual's cognitive processing can be obtained by recording psychophysical measures during cognitive task performances while simultaneously gathering more traditional behavioral response (e.g., correct response, reaction time)" (p. 305) data. It's work such as this, combined with measures that can be used to detect possible stages of student confusion during instruction, that paves the way for reform in the assessment arena.

Assessment and pedagogy in second language learners. The need for alternative assessment procedures is one of the issues indicated by this increase in the gap between English Language Learners (ELLs) and their counterparts in our schools. A suggested parallel practice is the use of 'diagnostic teaching,' a concept that helps to identify children's strengths and weaknesses; along with assessment, 'diagnostic teaching' is designed to help teachers adjust their teaching styles to the needed instructional areas (Misailidou & Williams, 2003). Diagnostic teaching involves the exposition of difficulties that the student is encountering by drawing attention to the areas of possible confusion, thus clarifying the essential characteristics of the problems that the students are given to solve (Bell, 1993, p. 27). In mathematics instruction, for example, the presence of misconceptions often causes problems for the instructors and the learners; in multicultural classrooms, the instructors

strive to facilitate mathematics understanding, and for this they must be bilingual in the academic register, the vocabulary, of both languages (Ron, 1999).

Because language acquisition is part of the learner's cognitive skill development, in a learning environment "…cultural differences emerge against a backdrop of universal skeletal principles of conceptual development" (Medin, Ross, Atran, Burnett, & Blok, 2002, p. 10). For the purposes of assessing the linguistic development of one's second language, we might agree that the basic process of language acquisition is tied to the ability to acquire then employ morphological and even syntactic patterns in the course of language use (Givon & Malle, 2002). This ability of the learner to predict the pattern of and employ a form while acquiring and using new lexical items in previously acquired patterns may also be linked to the ability to estimate either the solution to a visual-spatial problem or to guess at how a solution should be arrived at (Dehaene, 2008), further connecting the language acquisition process through the developing skill of categorization.

Data that emerge from studies of multicultural representations of academic concepts contain hard evidence that although there may be a difference in the way cultures describe these or similar concepts linguistically (Levinson, 2003), this difference does not extend to the ability of the people of that culture to perform visual-spatial operations (Zaslavsky, 1996). In linguistics, we might say that this ability to navigate a specific content area through an alternative cultural lens means that we are employing a schema: a *schema* is sometimes defined as a situational environment that contains its own set of matching concepts (Tomasello, 2005). Schemas have also been described as "cognitive constructs which allow for the organization of information in long-term memory (Singhal, 1998; Widdowson, 1983), and Cook (1989) states, "the mind, stimulated by key words or phrases in the text or by the

context, activates a knowledge schema" (Cook, 1989, p. 69). For example, there is a “restaurant schema” in which conceptual ideas of -- waiters, menus, tables and chairs, maybe even, candlelit tables, and those sorts of things -- occupy that mental representations in space typically evoked when the word 'restaurant' occurs in language use; further, when someone talks about ordering food and leaving a tip, we generally know that they are conversing about a restaurant experience. Linguistic schemas and their accompanying experiential realms often transcend language boundaries, meaning, there are similar concepts in many different languages. But, since schemas also alter from environment to environment and not only from culture to culture, the fact that a student is bilingual does not necessarily mean that they understand the schemas that are present in both their first and their second language system.

Sometimes, elementary level bilingual teachers do not always know the specialized language in every content area they teach, and this is an even bigger problem when there are students from a variety of cultures and language systems in their classes. The everyday language of these students, which includes daily experiences and processes in a multilingual environment, needs to be used in both languages (or all languages) in order for the students to understand the examples offered. The students need to be involved in producing the language of instruction in the classroom, and there should also be opportunities for the students to share the different ways they have of expressing routine and academic concepts in their first language; more often than not, this involvement leads to a deeper understanding of the concepts for <u>all</u> of the students (Perkins & Flores, 2002).

The teachers can ensure that the children are exposed to multiple ways of expressing the same concept whenever possible. A teacher might, for example, outline a problem one way then also explain it in a more graphic way (Ron, 1999). Students may have varying

levels of cognitive ability, but this does not prevent them from acquiring some level of steady competence in any content area (Echevarria & Graves, 1998). Whether it is the language of shopping or the language of a religious interaction, it is important to realize that it is not universal just because the instructional wording is translated from one culture's language into another language. People have different ways of lexical choice and usage that relate to their own unique everyday cultural or ethnic experiences (Tevebaugh, 1998), and diverse students also learn about these daily, and often, culturally specific, activities in different ways.

"For learning to occur…," says, Jane Watson, "students must feel some dissatisfaction with current ideas and the new ones must be intelligible and appear plausible" (2002, p. 1). The presentation of new information is bound to exert additional stress on the learner's ability to process new knowledge, but the careful and consistent introduction of new concepts can have a positive effect on conceptual change, and the assessment of the learner's processing and integrating efforts can be assured with careful collaborative efforts involving all the participants in a learner's multiple environments. Sheila Wolfendale (2004, 2005) has written extensively on the triangular partnership model of assessment for use with professionals, students, and with parents (or caregivers). She believes that "an ethical assessment code of practice could ensure that the rights of all involved are respected and exercised" (2004, p.6). In fact, the activity of introducing new information which conflicts with one's existing conceptual framework (and, in turn, the assessment of this activity) might provide a basis for a student to begin to experience dissatisfaction and turn to seeking out alternative, positive means of making sense of a problem and solving it in other ways.

Conflict as Learning Motivation

The discomfort that accompanies the cognitive conflict (cf., "dissatisfaction) that occurs during learning attempts can be used to instigate learning; the motivating power of conflict or paradox in the course of content instruction is well documented (Shaughnessy, 1977; Movshovits-Hadar & Hadass, 1990; Wilensky, 1995; Lesser, 1998). To repeat an important point, this motivation may be accounted for by considering the selective attention brought to bear in "Slobin's (1996, 2003) *thinking-for-speaking* hypothesis, which states that linguistic influences occur when language is used during a task. The idea is that, in speaking, we are induced by the language we use to attend to certain aspects of the world while disregarding or de-emphasizing others" (Feist & Gentner, 2007, p. 283). So, the attention that we are directing at the task occupying us is influenced not only by the language used in the course of the current task, but also by the language used in earlier experiences with similar tasks. Because so much of schooling is new information (whether the instruction is in one's first or in one's second language), the stage where new information is compared to the already present set of information is often more of a contrasting than a comparing stage, presenting a conflict between the existing and the new information. A learner can reorient herself by employing a self-awareness of the process. If these languages differ, the conflicting information may be too challenging for learners to resolve, and yet, if a learner is able to gain an awareness of the conflict as it occurs, the intentional and voluntary attention activated during the conscious awareness of learning of higher level concepts will override the conflict and use it to provoke the integration of a novel concept.

The more natural human process of integrating new information – of learning – would seem to provide a description for the possible continuous acceptance of alternate

explanations to be inserted and tried out in the learner's categorical/conceptual framework; however, the unusual resistance of the learner's self and co-constructed 'naïve' views of the world (Christou et al., 2007) is problematic. The stabilization of a learner's conceptual framework, of her preconceived (well-conceived) notions of how her world operates are very resistant to the introduction of novel concepts; Vosniadou (2008) refers to a child's conception of the world and how it works as 'naïve physics,' reinforcing her self-initiated explanations of the forces at work in her world. Because young learners organize information into an approximately coherent (for them) framework, the new information presented as input to learners does conflict with their self- and co-constructed frameworks. But rather than assume that the learner continues to <u>believe</u> her 'naïve' world view – might it not also be possible that a student who is an immigrant encounters alternative explanations presented in classes that are simply so divergent in their form of presentation from the learner's more native process of knowledge acquisition of her 'naïve' framework that the newer approach or information doesn't stand a chance when pitted against the entrenched, recursive network of existing and self-and co-constructed explanations?

Tall (2004) mentions the issue of conflict in the mind of content learners as early as 1977, suggesting that the teachers look for "confusion, annoyance, fear, or just a dull lost look in the eyes" (p. 11) to help them recognize the occurrence of conflict during instruction and redirect or resolve it. Including methodologies which aid the accommodation of new ideas in a classroom setting in order to formulate a way to encourage clear and productive discussions to allow self-correction of "unsatisfying" (and possibly mistaken) concepts is now commonly used in everyday curricula (Watson, 2007). But it might also be possible for learners to embrace and to make use of their own cognitive conflict.

Self-reflection as a Way to Assess Conflict during Learning

Visual-spatial learning (i.e., learning how to give directions, for example) is comparable to building a structure step-by-step (similar to telling a story), each step can be checked and evaluated (Lin, Yang & Chen, 2004) before the next step is put into place. The main point of this analogy is its broad application: even if the step-by-step process differs from learner to learner, the process of an extra self-checking step will still be valid because it is accomplished by means of self-reflection. Self-reflection is a way to evaluate: 1) one's present stance in a knowledge base; 2) the content of a knowledge category as it stands; and 3) the organization of its constituting members. Educators can encourage learners into a self-awareness of the way they conceptualize, and this awareness of how one represents one's own thinking helps a learner to locate conflicting thinking patterns, which, particularly in academic skill acquisition, have often been constructed in order to accomplish problem solving. If these conceptual methods of problem solving are constructed by the learner before formal content area learning takes place, say, in the situation of learning how to use spatial language (prepositions) to describe one's location or how to follow directions, the persistence of these "home-made" methods for solving problems can create difficulties for the learner when she attempts to integrate a formal problem solving framework (Yang & Lin, 2008) into her existing native language system.

This awareness is cultivated through the ability to question; "…it is important for teachers to challenge [learners]…by asking why they think a particular result is true" (Christou, Vosniadou, & Vamkoussi, 2004, p. 217). Utilizing the incorporation of controversial topics across content area lessons can be very beneficial for the learners: it inspires a "greater mastery and retention of subject matter, higher quality decisions and

solutions to complex problems and more frequent creative insights" (Lesser & Blake, 2007, p. 5). Not only do these methods allow the learner to see that the answers in academic study are fallible, they allow their cognitive framework to accept that the integration of conflicting novel concepts is a more naturally occurring process. The learner becomes self-reflective in her learning, and in the course of practicing the metacognitive act of thinking about how she is thinking, she is able to "take control of [her]…own learning by defining goals and monitoring the progress toward [her]…achievement" (Katz, Sutherland, & Earl, 2005, p. 4). The issue of self-monitoring matures when students learn what to look for in themselves as they develop. Drawing, writing, and sharing in groups are ways for students to become aware of how they are feeling about the topics they cover during the school day (Evans & Reilly, 1996). Portfolios, or collections of student work, can be used formatively, and the development of problem solving in a variety of content areas can be included in this portfolio. With careful annotation of the entries by either the teachers or the students, development over time can be observed (Duschl & Gitomer, 1997); instructors can use interactive discussion or self-mediated reasoning to realign the characteristics of the membership of a category, in the process, re-determining its constituent membership.

In order to help students to discover the conflict between their own long-held 'naïve ' cultural and/or previously acquired beliefs and newly presented material, a method of analysis that allows the student to take account of her own thought process was developed by Laburu and Niaz (2002); in the course of their study, a student recorded his thought process throughout introductory work with a new concept, and the simple fact that this student could refer to his own thought process as he worked through his own 'hard-core' concepts then gradually began to integrate new concepts enhanced the student's ability to reform or adjust

his basic beliefs. This methodology "…provided a glimpse of how a particular student grappled with conflicts in order to facilitate progressive transition in understanding" (p. 211); the record of the student's problem-solving attempts throughout the new concept acquisition process allowed the student to self-reflect. Pursuing the analysis of the language used by learners in the course of their acquisition of academic skills can help to uncover the relationship between a learner's 'hard-core' beliefs, which students are often unwilling to question, and the introduction of new material, which contains the potential to alter those beliefs and enhance skill development. And when the learners themselves are analysts of their own problem-solving methods, this gives them a powerful tool to begin to explore their own conceptual framework. But, how can we refine this process of self-reflection into a framework that can be used by learners at multiple levels of education?

Modeling the Self-Reflective Process

In order to implement a framework of self-reflection into the process of learning new concepts, it's important to introduce the modeling perspective on learning; modeling is a cyclic process which contains the following steps:

> A problem situation is interpreted;
>
> Initial ideas (initial models…) for solving the problem are brought to bear;
>
> A promising idea is selected and expressed in a testable form;
>
> The idea is tested and information from the test is analyzed and used to revise (or reject) the idea
>
> The revised (or a new) idea is expressed in testable form; etc.
>
> (Zawojewski et al., 2008, p. 6)

Additionally, “a modeling perspective on learning is based on the assumption that students *do* have relevant ideas to bring to bear on most problem situations” (p. 6), and by extension, that this perspective enhances the ability of students who are learning in a second language to contribute their own beliefs to the learning process. In the course of modeling, the self-assessment that is required “helps students develop their capability and comfort with approximations and estimates that are often needed in the early stages of problem solving” (p. 6).

Modeling might be seen as a self-reflective self-assessment – a learner’s construction or representation of how she is understanding or working at understanding a problem helps everyone involved: the learner records an internally visualized process for her own benefit and for the benefit of co-learners; she is also showing her level of skill acquisition to her instructor. Another advantage of modeling one’s own visual-spatial thinking is the revelation of misconceptions through language usage. The second language learner can look at the record of her problem-solving processes in multiple ways:

1. through an examination of the language she is using to describe her thinking, she can compare her own usage with that of the instructor or of the text to check to see if she is assimilating the information;
2. she can work with her classmates in a group to locate patterns of similarity in both their own ‘hard-core’ beliefs and their combined description and gradual integration of the newer concepts;
3. the record of a student’s problem-solving process can be both oral and written: the opportunity to record oneself in the process of explaining, listen to the recording,

> then reading a transcript of that process as described will allow further exploration of the student's reasoning process.

In order to accommodate varying levels of student visual-spatial skill acquisition, the transcription need not be done by the student (although older students would certainly be capable of transcribing their own oral records); being able to refer to an ongoing record of how her thought processes are altering throughout instruction offers insight into the learning process itself, which can benefit the student across disciplines. The transcript, the product of the oral record in the case of the map task, would be viewed as a representation of the learner's conceptual processes – a sort of model of what she brings with her when encountering the new concept, how she manipulates her current beliefs as she attempts to integrate the new information into her cognitive framework, and how she attempts to use the newly integrated information as she addresses a problem.

In his work, Vygotsky (1978) discusses a methodology called, in English, "double stimulation"; he uses this method, for example, in order "to trace the development of skills in young children by making them manipulate objects and apply methods either suggested to them or 'invented' by them…" (pp. 74-75). Relating this concept of "double stimulation" to the self-reflective method discussed above, the learner, in the course of orally recording her problem solving processes prior to, during, and after she has received instruction introducing a new concept offers herself the possibility for self-exploration into her previous and potential beliefs through the method of recording. In a description of the method, Sakharov (1930) lays out the procedure of "double stimulation":

> …the principle of the experiment is that the series of objects is given to the child immediately as a whole, but the series of words is given gradually, and the nature of

> the double stimulation continually varies. After each such change we obtain the child's free response, which enables us to assess the changes that have taken place in the child's psychological operations as a consequence of the fact that the series of objects now contains a new element from the verbal series. This enables us to assess the degree to which the child makes use of words. Of course, the task can be accomplished correctly only if the experimental concepts that underlie the test words have been formed. (p. 32)

Although the method of self-reflection differs in many ways from psychological experiments using "double stimulation," it is possible to draw several parallels between this activity and the commission of the map task by L2 participants.

Considering the experimental step where a child receives the entire series of objects, this first step might be compared to the set of beliefs about, for example, spatial operations, that a student brings to the activity of learning spatial language vocabulary and concepts. Secondly, the introduction of the new concepts containing the framework of these spatial-type operations is similar to the gradual introduction of the usage of the words which correlate with the landmarks as the "objects" (the previously held beliefs about similar concepts in one's native language system). Looking for free-form responses related to the introduction of a novel landmark or spatial language term can be associated with the learner's recorded descriptions of her thinking processes as she acquires and attempts to use these new concepts.

This student-kept record of self-reflection, similar to a dialogue journal that is used in ESL and in language arts courses to record personal reflections (Mahn, 1997), also lends itself to further analysis by the instructor and even by more detached analysts, i.e.,

researchers, administrators, evaluators, and parents, who will be able to view the record, the model, through their own theoretical frameworks, organized evaluation rubrics, or personal interest. The modeling activity of self-reflective assessment then forms the basis, the foundation, for transforming the map task into an extremely useful, ongoing evaluative tool for the stakeholders involved, especially for the student. In particular, the educational assessment side of self-reflection, combined with the linguistic analysis of the novel language used in the course of learner acquisition of spatial skills, helps to focus on the conceptual reorganization that is taking place during this difficult but important process.

Incorporating Linguistic Analysis into Assessment

Cognitive linguistic analysis is used in this study to explore the linguistic representation of human conceptualization processes in order to reveal the connections and interactions of thinking and speaking. In both linguistic analysis and in academic assessment, we are attempting to gain insight into human conceptualization and its manifestation in the course of communication; as a basis for this investigation, we can agree that "…conceptual space is universal, although it may be influenced by linguistic conventions…" (Croft, 2001, p. 2).The analysis framework of cognitive linguistics offers advantages when we examine human speech as a potential output of conceptualization processes, since our idiosyncratic usage of conceptual space is undoubtedly diverse, and yet, human conceptual space is fundamentally the same (Janda, 2004).

Concluding the Connection – Linguistics and Education

In this study, adding cognitive linguistic analysis provides an interdisciplinary dimension to the investigation of individually and contextually based analyses of student belief systems and their effects upon the competent acquisition of novel spatial language and

the implementation of the skills involving this language. This study also suggests that focusing on the manifestation of cognitive conflict during language acquisitions might be examined through a growing self-awareness of how one's own thinking and learning processes function, and that this awareness, assessed and accessed through self-reflection, is helpful to learners acquiring concepts. Reconciling the retention of long-held beliefs while opening up to alternative views may indeed be part of the process of cognitive maturity, but the early encouragement of ELL and multi-lingual students to engage in creative attempts to observe their own learning processes accustoms them to the frequent encounter of new concepts in academic areas. Where an instructor may not succeed, or may succeed very slowly, in altering a 'hard core' belief, the learner herself may have better results in intentionally, with volition, replacing a long held belief with a novel one, given the opportunity to discover on her own that the old belief does not yield the correct meaning and/or interpretation required and that alternative approaches work better. Recall from our earlier discussion that the process of first language acquisition involves the incorporation of new concepts (as words or groups of words) into one's mental lexicon, where the frequent introduction of new information has no doubt accustomed the learner's mind to almost constant conflict (in the form of these newly encountered and experienced concepts), leading to a willingness to pursue multiple paths to a solution and an acceptance that sometimes being in error is merely part of learning.

The activities of a performance task and its potential for the modeling of problems and the oral record of the learner's attempts while engaging in the "activities involved in the process can lead the…[student] to understand a situation or context and get to know the language that permits him or her to *describe, represent* and *solve* a real-life situation or

context and to interpret/validate the result within this same context" (Biembengut, 2007, p. 452). The methods described here would be of use most importantly to the learner herself; as a process of self-reflection, these methods offer insight into the way in which "[c]ognition exploits repeated interaction with the environment, not only using the world as its own best model, but creating structures which advance and simplify cognitive tasks" (Anderson, 2003, p. 126). The successful implementation of such an innovative method to be used with ELLs depends primarily on the teachers; "[a] key issue in fostering such innovations is teachers' commitment to understanding students and their cognitive processes as well as the curricula they teach" (Dwyer, 1998, p. 138).

Review of Research Questions

It is now time for us to look back at the questions that fueled this study and this attempt at integrating the two analytic frameworks of linguistic analysis and educational assessment. The integration of these frameworks is apparent through an adaptation of cognitive discourse analysis, the framework described earlier; Van Dijk (2001) calls his model as[sic] socio-cognitive discourse analysis, and for him, it is cognition which plays the mediating role. Van Dijk (2000) also introduced "cognitive micro-structures which shed light on macro-cognitive structures" (Kashkuli, Ghanbari, & Abbasi, 2016, p. 822). Incorporating performance-based tasks into educational assessment exposes these 'micro-structures,' allowing them to be a dynamic component in evaluation, combining linguistic analysis and educational assessment. Thus, the responses to the research questions also offer cognitive bases for how different aspects of linguistic analyses of the map task can be included in existing pedagogical perspectives as part of an adaptive instructional framework for ELL

students, and in the long term, this framework will apply to both typical ESL students and to those who are refugees and/or who have migrated from post-conflict areas.

Now, the questions. Question 1 concerns intentional choice of a specific lexical construction by a speaker, which implies the cognitive process driving volition. In fact, it "is the first-person aspect of volition that is uniquely human. We can only study this aspect of volition because people can describe their experiences" (Frith, 2013, p. 296). Question 2 involves executive control of intonation, where "speech prosody can also convey information about linguistic meaning; prosody and semantics are well connected" (Orsucci et al., 2016, p. 1). In Question 3, task-based analysis lends itself well to examining this experience. Basing the response on the belief that speakers are typically sharing information that is active in their minds (Levelt, 1989), more than sufficient prosodic and intonational evidence is available from the sound files of the NMMTP to serve as micro-structures of cognition for the purposes of linguistic analysis.

Questions: 1) Is it possible that a second language learner/user/speaker of English would intentionally choose a syntactic or phonological construction in order to ensure comprehension, even if this choice is asymmetrically aligned with her or his native language system? 2) Does the level of intentional choice coincide with an actual awareness of the process involved, meaning, is there executive cognitive control of language choice? 3) Where in the data of the NMMTP might this phenomenon be evident?

First question*: Think before you speak.* Is it possible that a second language learner/user/speaker of English would intentionally choose a syntactic or phonological construction in order to ensure comprehension? To respond, even if this choice is asymmetrically aligned with the speaker's native language system, we can consider two

options: When we use the word “intention” we are affirming that the speaker either is or is not making a conscious choice to use a particular way to say a particular thing. In the course of orally recording one’s thinking processes during a performance-based task, the map task, the body of discourse generated opens itself to many layers of analysis. This task creates “ ‘metacognitive,’ or reflective, opportunities [that] can help individuals take control of their own learning by defining goals and monitoring the progress toward their achievement” (Katz, Sutherland, & Earl, 2005, p. 2326). Each participant looks at the product of the oral record in a different way, from the rudimentary self-reflection of the learner to the exacting and often complex linguistic analysis, which can take the form, in this case, of discourse analysis.

Although the less technical analysis of classroom discourse encountered in the transcribed records of the learning process of spatial skills offers valuable insight to the learners and to their peers and instructors, there have also been attempts to perform a more elaborate linguistic analysis on the records of individual learners’ visual-spatial skill acquisition, often with the goal of showing the speaker's conscious (aware) decisions. Pederson (1995) came up with the concept of “language as means, [where] tasks are inherently linguistic and that language, as the medium, rather than the 'influencer,' of cognition, directly determines the strategies used in these tasks. If indeed subjects solved tasks by using language as their basic means of encoding, language becomes essential or even identical with such non-linguistic reasoning and would suggest a closer dependence of thought on language” (pp. 52-53). And, the fact that the subjects are using a way of encoding their language use is definitively evident in the pragmatic effort put forth as the participants strive to use their newly acquired L2 successfully during their performance in the NMMTP.

As further examination is enacted on the NMMTP data, an even closer relationship may emerge; the development of the software program, Pepite, in France in 2004 had as one of its goals the analysis of "…the language created by students that combines [specific content] language with natural language…[hoping that it would] demonstrate an early comprehension of [newly acquired] notions" (Normand-Assadi, 2004, p. 381). The software records the language used by students when they try to explain how a content-based procedure is accomplished, but the analysis has not been successful in assessing the "correctness of justification in [the newly acquired] language" (p. 388). The authors suggest a categorization framework that would allow the diagnosis of incorrect usage, and a broader, deeper linguistic analysis lends insight into what is going on conceptually with the learners' attempts, and a future application of this type of framework to the NMMTP data might be productive and instructive.

Second question*:* 2) Does this level of intentional choice coincide with an actual awareness of the process involved, meaning, is there executive cognitive control of language choice? The study of intonation, in which computer software is used to measure the sound waves of the individual units and constructions in discourse, are examined in this type of analysis (Grenoble, 2004, p. 24). "Intonation has been studied from two essentially different views: the acoustic approach measures intonation units in terms of changes in fundamental frequency (F_0) while the perceptual approach relies on auditory perception, and intonation can be defined in terms of pitch" (p. 24). A standard framework useful in discourse analysis is that of information structure; "information structure examines how information is 'packaged,' or linguistically encoded, and why one or another structure might be selected to convey a given chunk of propositional knowledge" (p. 25), and

> …much of information structure is territory shared with cognitive linguistics and cognitive science. In fact, the two disciplines (cognitive science and discourse analysis [, the areas which this paper seeks to invoke in its attempted investigation into how best to observe the acquisition and subsequent expression of spatial language]) may approach the same issues in language data but from different angles, and the results from each approach inform the other. (Grenoble, 2004, p. 26)

Recall that these methods of analyzing the products learners offer by making oral recordings of their problem-solving processes are methods that are useful to learners at all levels of assessment, and particularly effective is the method of the self-reflective approach. This type of analysis also cuts across cultural boundaries in its applications: it offers a way to explore the interaction of more than one language structure when a learner attempts to solve linguistic problems during a performance-based task, and also a way for the speaker to see what she is doing. Kita, Danziger, & Stolz' work (2001) proposes the view that an individual's dominant spatial linguistic frame is reflected even in the performance of a simple non-linguistic task. This view is challenged by Li and Gleitman (2002) who claimed that changing the context of the task would cause even monolingual English speakers to employ a variety of descriptive strategies. These within-language efforts were then shown to be “not inconsistent with substantial cross-linguistic differences in default patterns of usage” (Feist & Gentner, 2007, p. 283).

In this respect, learners reveal their conceptual processes for analysis, whether they are using their first language or are attempting to learn in a second language. In the body of research informing the structure of student beliefs in the area of language acquisition, “a coherent theoretical framework that identifies the different categories of students’ beliefs in

relation to each other is lacking" (Op'Eynde et al., 2006, p. 86). Because of its alternative analytic approaches, cognitive discourse analysis ably fills this void. Under this overarching framework, the more intense scrutiny of the phonological analysis provides the most substantial evidence for the multi-lingual revelation of speakers' intentions during conceptual processes.

Third question*: Intonational analysis for educational assessment:* 3) Where in the data of the NMMTP might this phenomenon be evident? Much of the work of analyzing map task dialogs has taken place in the area of prosodical and intonational studies (Flecha et al., 2013; Grice & Savino, 2004; Grønnum, 2006; Louwerse, Jeuniaux, Zhang, Wu, & Hoque, 2008; Vella & Farrugia, 2006). In an intonational analysis, the "sound files are segmented into prosodic phrases, words, and syllables"; these segments are analyzed using a phonemic notation and a symbolic representation of the pitch relations between syllables to determine the pitch contours of the segments (Grønnum, 2008). Embedded in the distinction of intonation units is the intonation contour, or pitch contour, which is defined using a "convergence of prosodic cues, such as anacrusis (a pattern of acceleration-deceleration), pauses preceding and following linguistic material, an overall decline in pitch level, and a terminal pitch contour at the end of each intonation unit (e.g. falling, rising)" (Chafe, 1980; Chafe, 1994, cited in Scheibman, 2002, p. 20). Additionally, for the analysis of the NMMTP, a more relative notation is used: while the collected data addresses the terminal pitch contour, it also records whether the clause containing the landmark is a question, a statement, or a comment, suggesting a correlation of the pitch contour with the clause construction type.

Prosody reflected in language acquisition. We have spoken before of prosody as part of intonation, but a more extensive definition is helpful here:

> While speaking, speakers express the temporarily active contents of their mind. Under the assumption that speech production is incremental in nature, the information to be expressed is displayed in an ordered and cumulative sequence of content fragments. The fragments are verbalized one after the other. They are processed from top to bottom by various components of the processing system working in parallel (from the message component to the articulatory component via the grammatical and phonological components). (Bock, 2011; Levelt, 1989)

Because prosody can and has been identified with the occurrence of given/new information (Talmy, 2000), it is easily mapped onto these characteristics when they manifest cross-linguistically. Retention of a typical native language prosodic curve with the intention of intonational comprehension may potentially be viewed in the sound files generated from the performance of dual language performance tasks. In the analysis for word lengthening, strengthening, or fortition, the "level of effort" can be determined by fortition and/or by repetition – re-stating the landmarks using multiple lexical constructions. The lenition/fortition of the landmark words can be used to do pragmatic analysis; the simple employment of emphatic lengthening (fortition) is useful for suggesting volition, or intentional functions. For example, in the performance of the map task, the "giver" might use this method of fortition to direct the "follower" in a firmer way, bringing attention to a novel word or concept.

The analysis of the lengthening of the words can indeed be associated with educational assessment. In cases of instruction, where it can be shown that students are lengthening and strengthening their words, especially with new concept words in literary/textual analysis, it becomes more obvious that there is a hesitation about using this

new word because the conceptualization has not been fully integrated. Because the phenomenon of fortition, or emphatic lengthening, occurs with such regularity in the results of the expanded study of the NMMTP, this performance task shows promise as an instrument which evokes descriptive instructional methods, and the map task can easily be worked into daily classroom activities, offering a comprehensive view of a student's spatial orientation vocabulary and perceptual framework. This fortition is often readily noticeable – it does not require exacting linguistic recording or analysis to perceive. Once the fortition is noted (and possible explanations are explored), alternative instructional approaches can be implemented, or more traditional instructional methods can be enhanced. To further strengthen the connection between assessment and linguistic analysis and to further extend the response to Question 3, a closer look at the basic process of linguistic acquisition of novel concepts through induction is useful here.

Induction and intentionality. Inductive reasoning is the skill (or set of skills) that makes it possible for us to establish an association between two experiences, whether they are novel or previously encountered, or as Medin et al. (2002), says, "given that one object or class exhibits some property, how do we decide whether other related objects or classes also have that property" (p. 1)? But recall that the presentation of novel concepts, objects, or experiences is also connected with learning; "for learning to occur," says Strike & Posner (1992), "…students must feel some sense of dissatisfaction with current ideas and the new ones must be intelligible and appear plausible" (cited in Watson, 2007, p. 1). Whereas categorization is closer to the direct assimilation of information and with the organization of that informational input, inductive reasoning is more associated with knowledge building in

that it treats new knowledge as something that needs to be explained (Chan, Burtis, & Bereiter, 1997), and this connects inductive reasoning with learning.

The connection of inductive reasoning with both the encounter of novel experiences and some sort of discomfort with the current state of one's "idea bank" suggests a further association, namely, that of conceptual conflict, or as Piaget described it, accommodation (Wadsworth, 2004). Accommodation is a more positive term for this process of acquiring and incorporating uncomfortable encounters than conceptual conflict, but when the term includes 'conflict,' it does describe more clearly what is happening intellectually during the process of novel concept presentation. A learner must actively participate in resolving a conceptual conflict by employing "cognitive control...overcom[ing] the automatic response [which is comfortable, or typical] in favor of a less salient or more novel answer" (Fernandez-Duque & Knight, 2008, p. 340). The employment of voluntary attention, often activated during conscious awareness of conceptualization, can help a learner to overcome the automatic (the already known or assumed, and possibly misconceived), but voluntary attention only develops in children once their language has stabilized at a mature level (Seifert, 2002). We know this because in learners who have not reached this expert level, the maintenance and usage of memorized patterns occurs in novel environments or when trying to use novel concepts in more familiar situations (Metheny, 2004); Ortigosa and Otheguy (2007) also found that in language use, "the speaker's syntactic knowledge of the source language will shape his/her output in the target language" (p. 77). For example it helps to offer students a deeper explication of the novel concept or new word, and this expands their ability to understand where the concept originated and where the word came from etymologically. This deeper explication enables the novel concept to be more readily

categorized, or assimilated, into a student's linguistic system, particularly if comparisons are made between the student's native language system and the system being acquired. Although this evidence is linguistic, it does point out a method of assuaging the difficulty of incorporating novel speech patterns into an already stabilized framework of categories.

The fact that the usage of the wrong word will, in most cases, still allow the intended underlying thought to be comprehended is potential intonational evidence – solid scientific evidence (when it can be shown) – of cognition in action. Tone and pause – implicatures (the embedded tonal sharing of information) of intonation (Coderre, Smith, van Heuven, & Horwitz, 2016) and the use of native language information structure (Morales, Calvo, & Bialystok, 2013) – all of these things and more (eye gaze, small gestures, facial movements, (Shao, Roelofs, & Meyer, 2014)), enable the communication event to be enacted successfully, and allow the transfer of meaning to be fulfilled (Watzlawick et al., *Pragmatics of Human Communication*). The idea of 'adaptational intonation,' or intonation that is idiosyncratically adjusted to ensure consistent levels of comprehension, can be fine-tuned to achieve a measurement forming part of future data analysis work, showing the intrinsic value of the linguistic intonational evidence that is reflective of what is occurring conceptually.

Chapter 7

What Might Map Tasking in an Educational Setting Look Like?

This final section will discuss the format of the map task as it would appear for use as a rubric for the evaluation and/or assessment of multilingual speakers. For the most part, the structure of the map and of the task itself would change very little in its application for the environment of a classroom. The procedures discussed in the section on methods are easily adapted to a classroom situation. Below is an example of a simple map task from the IELTS exam.

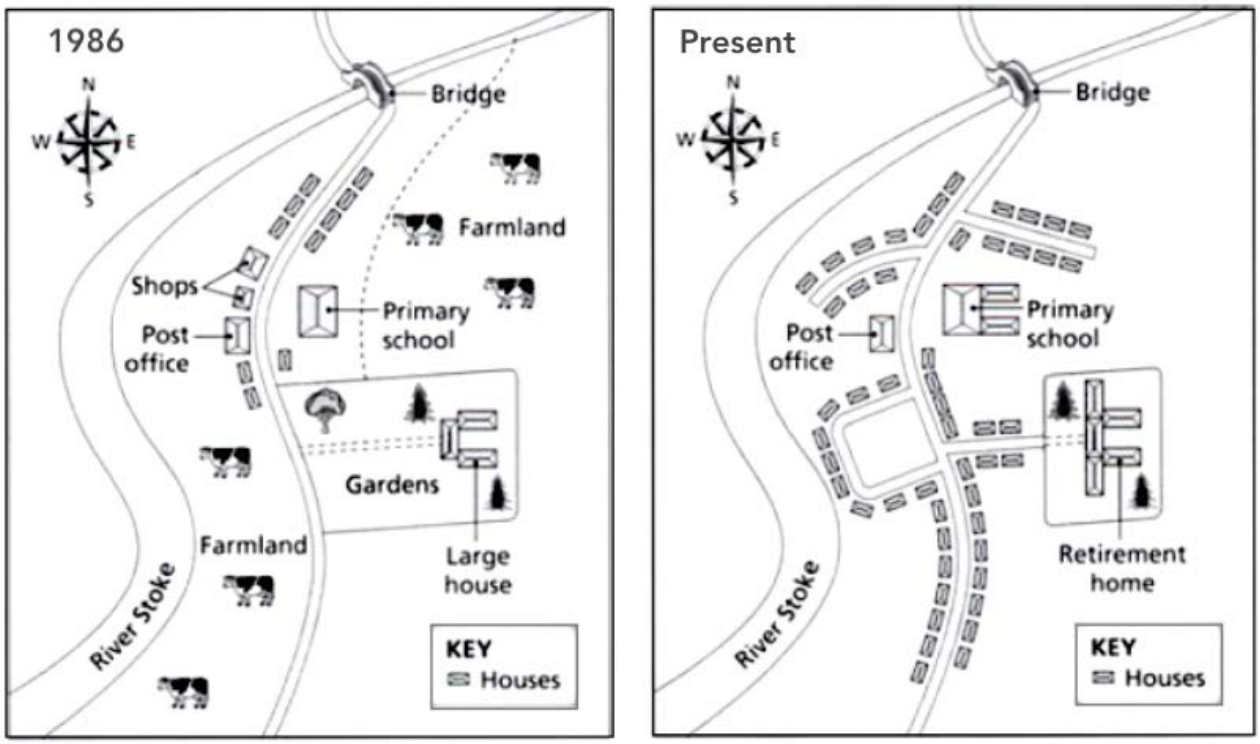


Figure 5. Sample Map for IELTS Writing Task 2017. (https://ieltsfocus.com/2017/10/12/ielts-writing-task-1-maps/)

Here are the directions that are used when presenting this task:

"You will need to use specific vocabulary in this task, the grammar needed in this task

below would be **the past tense (was / were)**, **the present perfect passive** to describe change, and **prepositions**. You also have to use specific language that shows location and change."

A simple map such as this might be used – or, ideally, a set of maps might be constructed for daily or weekly classroom use. The construction of the maps themselves might be part of the project, with students working together to make maps then exchanging them with other students for "map tasking." The concept of making maps can also be explored trans-culturally. Earlier work (Metheny, 2007) on spatial language use for people who speak English as a second language showed that this task was sometimes difficult for the speakers, but despite the difficulties, they seemed to have a very good time while they were performing the task. Multiple repetitions of the task by participants also makes it more comfortable for the speakers, and each time, they improve their methods of explaining how to get "from here to there."

From the late 1980s on, work on using "dynamic performance tasks" (Anderson et. al., 1984) has been promoted to help students learn how to share information clearly. In the 1984 book *Teaching Talk,* Anne Anderson and her colleagues discuss a multitude of performance tasks: static tasks; dynamic narrative tasks; dynamic tasks; co-operative tasks; and summary tasks. Each of these tasks was used in the pursuit of improving spoken language information sharing. The assessment of these tasks is loose and flexible; primarily, because many of the tasks involve more than one participant, assessment per se, i.e., grading, is nearly impossible. From the point of view of the current map task work (NMMTP), the term "assessment" itself may require adjustment, re-framing, or redefining. Renewing our focus on what makes these tasks so pivotal is the fact that the students themselves, along with

their teachers, learn how manipulate the tasks to achieve the optimum performance for information sharing, often in a cooperative manner. Much of what can be called "assessment" is accomplished by the participants themselves as they critique their own performance and modify it in order to successfully relay data to their partner. The primacy of acquiring spatial information sharing skills cannot be denied; as Becker and Carroll (1997) say, "spatial relations as a research area is very rewarding for teasing out the influence of the various factors determining acquisition, as space is a fundamental cognitive and perceptual category, and as any speaker has constantly to encode such relations whatever the specific linguistic activity s/he is engaged in" (p. ix). The constancy of locating oneself in one's environment, in one's world, is a defining human need; it's a sort of "cognitive sonar."

When you don't have an awareness of the boundaries between you and the space you occupy in the world, motion is meaningless (a change of position with no point of reference) and location is undefined. A sense of identity and intent are required in order to give purpose (reason) to movement and stasis. This sense of urgency might explain why it is that people whose minds cannot orient themselves in the space they occupy make every effort to construct an organized space for themselves around them, or at least they try to do this. In this way they do their best to give meaning to the surfaces, objects, and obstacles they sense around them. Our, or their, intention motivates the decision to move, to change position, to make contact, and, most importantly, to connect an individual's cognitive point of view with that of another person – the fact that we desire and achieve this connection is the reason we are able to and decide to communicate.

One of my colleagues put it this way: "When someone uses a word across languages, it is not just translating; because he is trying to convey the same idea with a different word in

a new language, he often uses a completely asymmetrical approach to restate his idea – a speaker might do this when he offers culturally appropriate examples – it is helpful for him to do this because he thinks that way. But, also, by doing it this way, he is giving new perspective and insight to the idea or event. Words themselves – more specifically, words stemming from the language of origin for the event – the words used to describe the event – often carry an embedded emotional core of the experience – if the event is re-experienced or re-viewed with a new language system, there exists a potential for detaching from this event; the detachment carries with it the act of re-framing, which carries the distancing then cognitive re-incorporation of the event to take place, possibly initiating resolution and healing from the trauma attached to the event" (M.A. Fawaz, personal communication, February 2019).

The skills employed in learning and implementing a novel symbolic system, for example, a new language system that is distinct in its grammatical structure from the native system, then using this system to re-configure events and experiences, may also allay the long-term effects of sustained psychological trauma. There are programs already applying this re-framing of negative experiences in order to aid in the adaptation of a migrant to her new environment in an adopted country; an example is *Language for Resilience: Cross-disciplinary perspectives on the role of language in enhancing the resilience of refugees and host communities*, edited by Dr. Tony Capstick (2018). These programs offer substantial data on the connection between language-learning and its effect on the relief of psychological trauma in adults.

In addition to these programs, in the future, a method of analysis can be systematized from a performance task such as the map task, then simplified for daily/weekly applications

for classroom evaluation; this simplified system can then be used for both self-analysis and self-reflection by both teachers and students. In the course of the process of regularizing the activity of assessment, re-valuing the individual effort put forth by the student and re-focusing on the student her/himself comes to the forefront. The emphasis centers on the individual and not on observing and evaluating academic performance; by employing this re-valuation, it is possible to engage in more human activities during assessment and evaluation, activities such as potentially healing the fissure of cognitive displacement caused by forced migration.

Epilogue: From Here to There and Back Again –
What Will International Education Look Like in the Future?

Earlier in this document, there were many discussions about the current state of affairs regarding the education of students who are migrating throughout the world. The statistics related to students who have been affected and traumatized by the conflict in their home countries reflect the increasing numbers of students who have had to leave school, from K-12 populations to adult populations of university students. In the past two years, the statistics describing OOSC (out-of-school children) have risen to unprecedented degrees. "Armed conflict poses a major barrier to education. Globally, 35% of all out-of-school children of primary age (22 million), 25% of all out-of-school adolescents of lower secondary age (15 million), and 18% of all out-of-school youth of upper secondary age live in conflict-affected areas (26 million)" (UNESCO, 2016). This is a total of 63 million K-12 students worldwide who are out-of-school AND who live in conflict-affected areas; the actual global total of K-12 children out-of-school is over 263 million. Expanding this age group into the adult arena adds an additional 7 million students from university programs who were also forced to leave their studies. Due to this situation, there are major efforts taking place in the international educational sphere to restore educational services to these young people, an entire generation of young people whose rights to education are not being met, many of whom are not only survivors of conflict-affected areas, but who are also displaced due to migration. Non-governmental organizations are working towards the protection and education of children under age 18, numbering close to one hundred organizations or more (www.raptim.org). UNICEF is one of the most prominent, and they are active throughout the world. Unfortunately, there are still not enough success stories to

provide a basis for evaluating existing and creating even more optimal programs for these children, these students.

In the past few years, some small work (Kangas, 2017) has been done on addressing the needs of English Language Learners in the U.S., pinpointing the fact that many of them also have special needs due to experiences they and their families have encountered as they, often with great difficulty, made their way here. The stories of their movement, their migrations, around the globe are horrific and inspiring; these stories echo the deep trauma they have faced in their lives. For those of us who have never been forced to leave our homes due to war or conflict, our ability to understand fails time and time again, and yet, it's necessary and important for us to keep making the attempt to understand our new neighbors and students. A recent report from UNICEF displays some stark statistics:

> 58 per cent of the migrant and refugee poll respondents aged 14–24 said they had lost one or more years of education. For children and young people forced to leave their home countries for any reason, 68 per cent said they lost one or more years of education. Shockingly, this proportion increased to 80 per cent for those who left their home countries because of war, conflict or violence. Some 40 per cent of these children and young people said they had lost four or more years of education.
>
> Further, boys and young men were more likely to miss years of school than girls and young women, according to the poll. Though the right to education is often recognized on paper, it is not always realized in schoolrooms. For example, in the two years since the landmark New York Declaration for Refugees and Migrants in 2016, refugees have missed 1.5 billion days of school.

> For uprooted children, the loss of education can be profound for individuals and nations. Without education, children lack the skills and knowledge they need to build their adult lives, support their families and provide for the future. Without the skilled workforce and engaged citizenry that high quality education helps create, communities and economies falter.
>
> There are multiple reasons for the feelings of desperation expressed by young migrants and refugees. For some, a lack of information about their rights and support services may leave them feeling vulnerable. Barriers such as language, culture and lack of income also make it hard to fit in. Fear of detection, detention and deportation can also keep children and young people from seeking protection against violence and taking advantage of basic social services. And the extraordinarily difficult circumstances of their journeys can compound all of these feelings. (UNICEF, December 2018)

Of primary consideration is working to re-enroll students who have been out of school for often, more than 4 years. The most frequent frameworks used to work with these students come under the category of Non-formal Education (NFE):

> Non-formal education is...education that is institutionalized, intentional, and planned by an education provider. The defining characteristic of non-formal education is that it is an addition, alternative and/or complement to formal education within the process of the lifelong learning of individuals. It is often provided to guarantee the right of access to education for all. [...]Non formal education mostly leads to qualifications that are not recognised as formal or equivalent to formal qualifications

> by the relevant national or subnational education authorities or to no qualifications at all. (UNESCO, 2011)

It is likely that there is a basic understanding of formal education, but to clarify this concept according to the International Standards for the Classification of Education:

> Formal education is 'education that is institutionalised, intentionalised, and planned through public organizations and recognized private bodies, and – in [its] totality, [it] constitutes the formal education system of a country...recognised as such by the relevant national education or equivalent authorities, e.g., any other institution in cooperation with national or subnational education authorities.' (UNESCO, 2011)

Relying on NFE to aid in the re-introduction to or re-enrollment of students in school has one very important drawback: there are no universally accepted rubrics for assessing or evaluating NFE activities that allows them to be compared and graded as with the activities of formal education. Including performance tasks and other dynamic activities offers a bridge between formal and non-formal education, and these activities do indeed work to help students to regain life skills and to instill confidence to help them to persevere regardless of the difficulties involved in re-entering school (UNHCR and UNDP, 2018).

Working to re-invent our idea of education to include NFE as a mainstay and a "gradable" system should be a high priority, emphasizing the crucial point that the results of NFE are not compatible with the grading frameworks of more traditional formal education programs. A reliance on only traditional assessment paradigms excludes the efforts of para-educators worldwide who are working hard to help these students to regain a footing in more formal educational settings. Developing a bridge between formal and non-formal assessment would aid in the re-integration of these students into formal educational programs. The

alternative is that we ignore the needs and the abilities and the basic rights of over 263 million students – this number, as previously stated, does not include students older than 18 – if we include this group, it brings the actual numbers up well over 270 million (and those statistics are over two years old). The research done on learning in conflict situations can be combined with the results of the current study under discussion (NMMTP) as part of a future project, to further test the use of the map task as a method included in programs that work to aid in the amelioration of trauma in the population of refugees from post-conflict areas. The project described in the preceding chapters has not yet yielded evidence for the healing use of the map task per se, but it has led me to hypothesize its value in that respect. The next expansion of this project intends to provide firm justification for a further study including the map task into the area of educational assessment, and this effort will directly examine the use of this task with students who have experienced trauma.

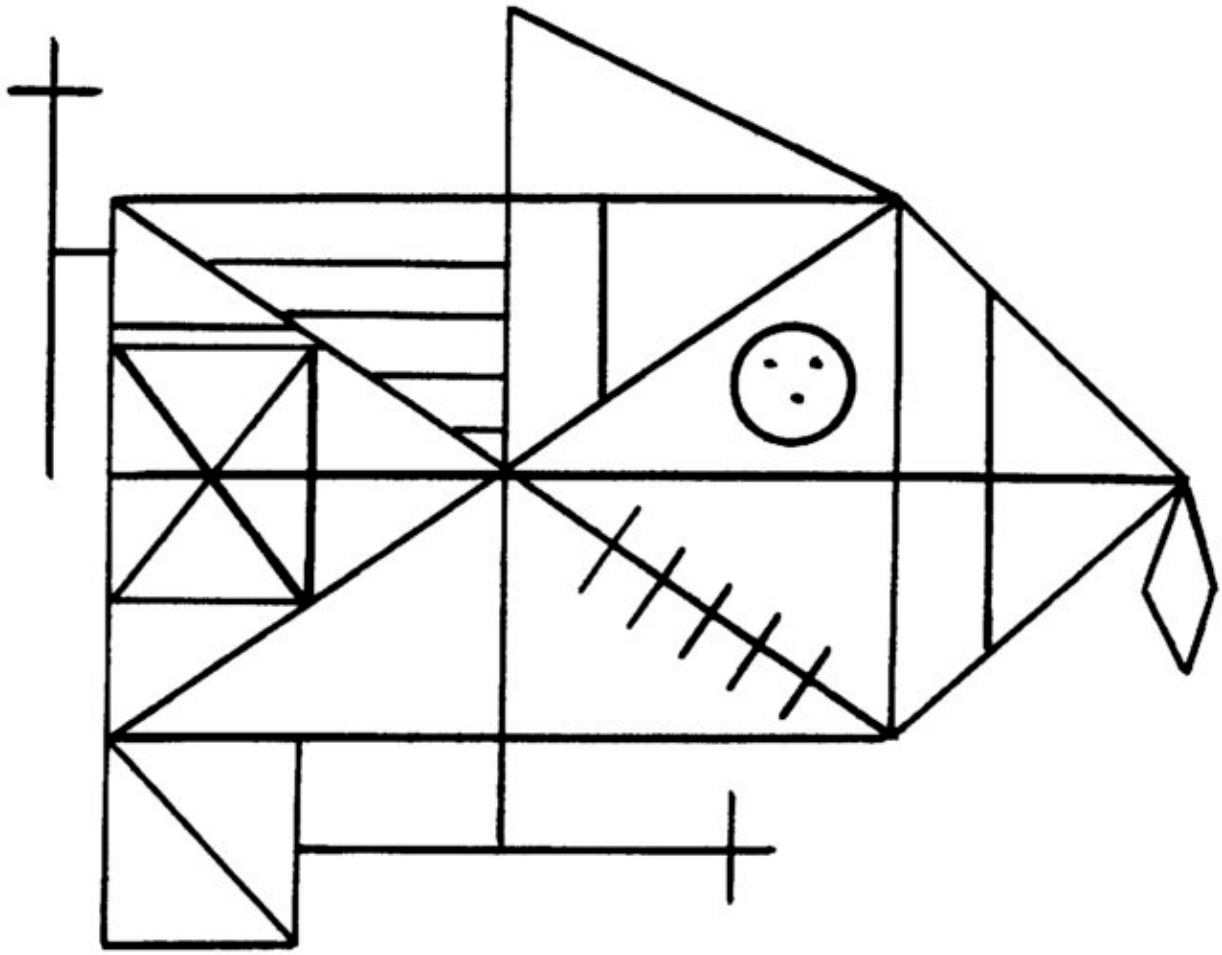
The connection between the cognitive assessment of students from post-conflict areas and the implications for a potential assessment of the effects of trauma in the linguistic analysis of a performance task are supported by international programs already in place. In Appendix F, there materials offering information on alternative educational programs, and the inclusion of performance activities such as the map task that can be part of these alternative frameworks. There is a choice to be made – allow anywhere from between 60 and 270 million students to languish without educational services and in doing so, suffer the global consequences of their failure or, join in the hard work of addressing the problem of out-of-school-children. Creating an acceptable trans-cultural framework of standards that assesses NFE, interfacing the value of non-formal educational activities with traditional

formal educational evaluative tools, is a crucial step for these students, and for all people who care deeply about education – and for the world in which we all live.

Appendices

Appendix A: ROCF Test Figure

"Although the Rey-Osterrieth Complex Figure (ROCF) was originally developed to assess cognitive functions in adults (Rey, 1941), its potential value in the assessment of children was soon recognized (Osterrieth, 1944)" (Kirkwood et al., 2001, p. 345).



Appendix B: NMMTP Distraction Questionnaire

Questionnaire for Distraction Purposes

This questionnaire was given either before, between, or after the dyad completed two map tasks.
It was intended as a device to distract the giver/follower pair from noticing that the route on the map they used for both tasks was identical.

1 If you are walking, how do you know you are lost? Is this feeling different when you are driving?

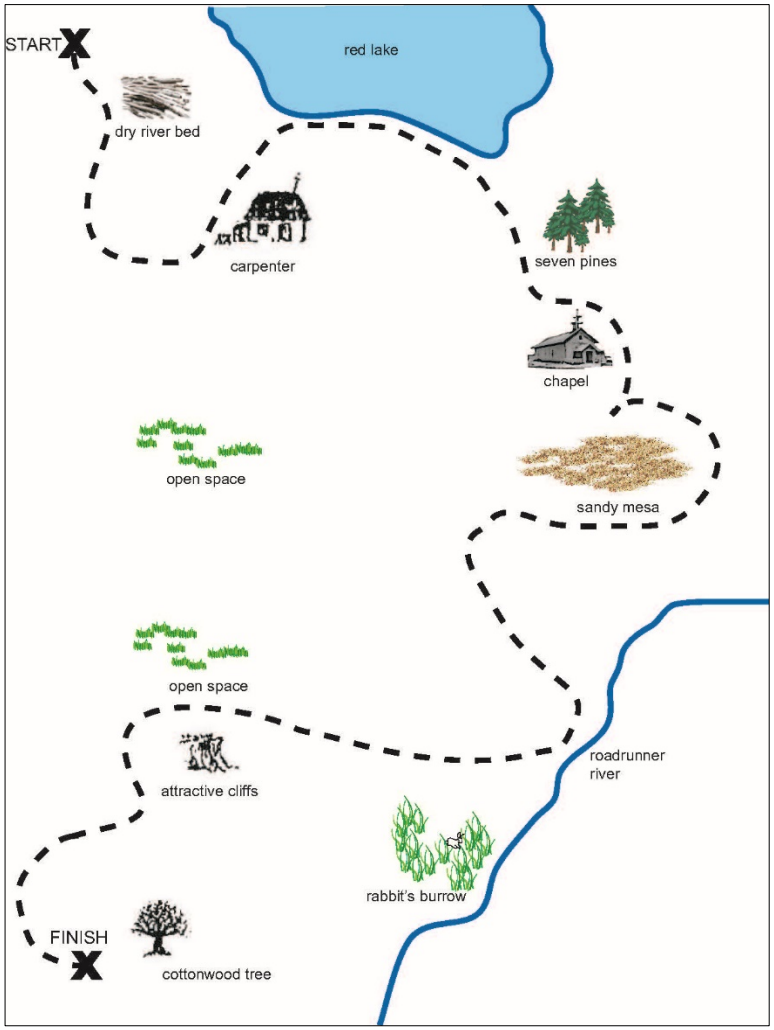
How do you attempt to find your way if you are lost?

What makes you decide when to ask for help or for directions?

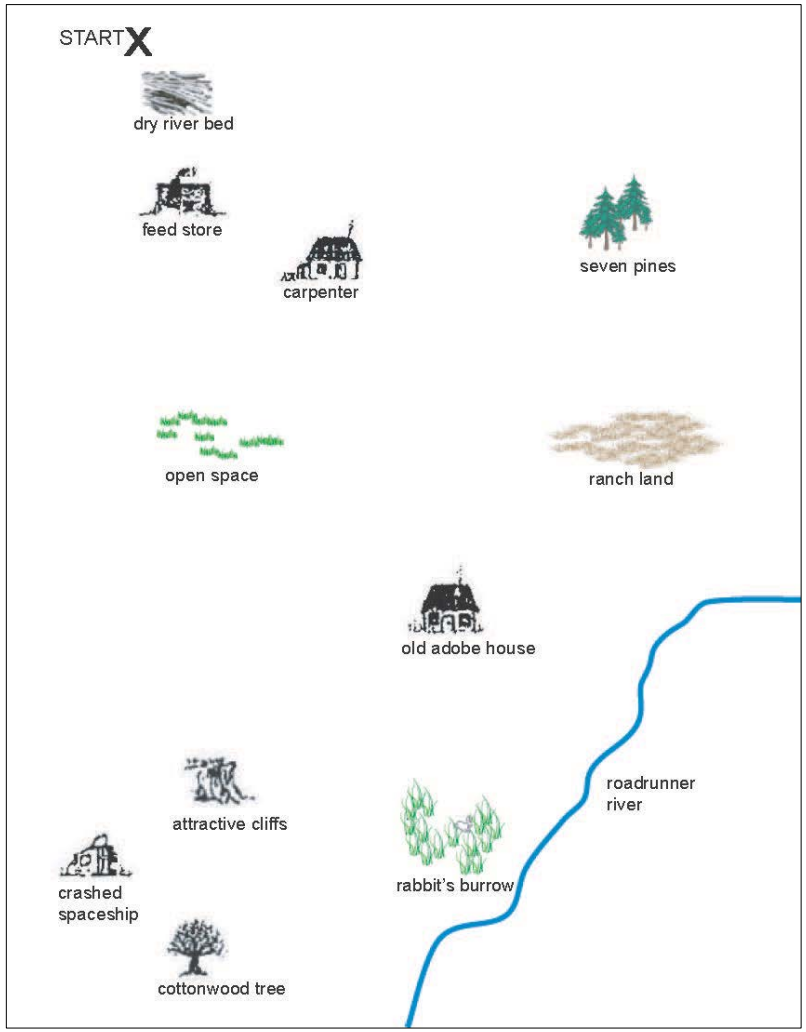
How do you feel when you are in a classroom and the teacher is talking about something that you are unfamiliar with?

Is the feeling of being lost in a classroom topic situation similar to the feeling of being lost when you are walking or driving? How?

Appendix C: NMMTP Maps



Map Task Giver



Map Task Follower

Appendix D: NMMTP Sample Data Tables

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit	Token Length	Task 1/2
Spanish	1 A CD	dry river bed	63	G	C1	1.212	2
Spanish	1 A CD	carpenter	64	G	C2	0.858	2
Spanish	1 A CD	carpenter	65	G	C2	0.551	2
Spanish	1 A CD	carpenter	66	G	C2	0.758	2
Spanish	1 A CD	carpenter	67	G	C2	1.013	2
Spanish	1 A CD	carpenter	70	G	C3	0.691	2
Spanish	1 A CD	carpenter	71	G	C4	0.644	2
Spanish	1 A CD	carpenter	72	G	C4	0.561	2
Spanish	1 A CD	dry river bed	73	G	C4	1.074	2
Spanish	1 A CD	cottonwood tree	85	G	C7	1.312 (whole)	2
Spanish	1 A CD	cottonwood tree	86	G	C7	1.231	2
Spanish	1 A CD	carpenter	6	G	1	0.702	2
Spanish	1 A CD	sandy mesa	7	G	1	1.08	2
Spanish	1 A CD	old adobe house	8	G	1	1.509	2
Spanish	1 A CD	attractive cliffs	9	G	1	1.225	2
Spanish	1 A CD	attractive cliffs	10	G	2	0.975	2
Spanish	1 A CD	cottonwood tree	11	G	1	3.553	2
Spanish	5 A AB	dry river bed	782	G	B3	0.784	2
Spanish	5 A AB	dry river bed	784	G	B3	1.498	2
Spanish	5 A AB	sandy mesa	791	G	B8	0.633	2
Spanish	5 A AB	sandy mesa	792	G	B8	0.61	2
Spanish	5 A AB	ranch land	794	G	B10	0.58	2
Spanish	5 A AB	ranch land	795	G	B10	0.682	2
Spanish	5 A AB	attractive cliffs	801	G	B16	1.718	2
Spanish	5 A AB	attractive cliffs	805	G	B17	0.894	2
Spanish	5 A AB	cottonwood tree	806	G	B17	0.737	2
Spanish	5 A AB	cottonwood tree	807	G	B17	0.737	2
Spanish	5 A AB	attractive cliffs	30	G	1	0.72	2
Spanish	5 A AB	attractive cliffs	31	G	2	0.975	2
Spanish	5 A AB	attractive cliffs	32	F	3	0.598	2
Spanish	5 A AB	attractive cliffs	33	G	4	0.998	2
Spanish	5 A AB	cottonwood tree	34	G	1	0.54	2
Spanish	5 A AB	cottonwood tree	35	G	2	0.673	2

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit	Token Length	Task 1/2
Russian	6 A OP	sandy mesa	874	G	O11	1.533	1
Russian	6 A OP	sandy mesa	879	G	O13	2.032	1
Russian	6 A OP	roadrunner river	881	G	O15	1.149	1
Russian	6 A OP	roadrunner river	882	G	O16	0.906	1
Russian	6 A OP	roadrunner river	883	G	P16/O18	0.998	1
Russian	6 A OP	roadrunner river	885	G	O19	0.981	1
Russian	6 A OP	cottonwood tree	891	G	O24	2.043	1
Russian	6 A OP	cottonwood tree	892	G	O25	0.624	1
Russian	6 A OP	roadrunner river	36	G	1	0.819	1
Russian	6 A OP	roadrunner river	37	G	2	0.743	1
Russian	6 A OP	cottonwood tree	38	G	1	0.795	1
Russian	10 A ST	dry river bed	1452	F	S2	1.544	2
Russian	10 A ST	dry river bed	1453	G	T2	1.277	2
Russian	10 A ST	dry river bed	1455	G	T3	1.149	2
Russian	10 A ST	dry river bed	1460	F	S7	0.92	2
Russian	10 A ST	carpenter	1461	F	S7	0.633	2
Russian	10 A ST	dry river bed	1464	F	S10	1.387	2
Russian	10 A ST	carpenter	1479	F	S20	0.737	2
Russian	10 A ST	cottonwood tree	1489	G	T25	0.894	2
Russian	10 A ST	cottonwood tree	1491	G	T27	0.778	2
Russian	10 A ST	dry river bed	77	G	1	1.045	2
Russian	10 A ST	dry river bed	78	G	2	1.033	2
Russian	10 A ST	dry river bed	79	G	3	0.702	2
Russian	10 A ST	carpenter	80	F	1	1.608	2
Russian	10 A ST	cottonwood tree	81	G	1	0.81	2
Russian	10 B UV	attractive cliffs	1524	G	U33	1.062	2
Russian	10 B WX	dry river bed	1529	G	W1	0.72	2
Russian	10 B WX	dry river bed	1530	G	W5	0.691	2
Russian	10 B WX	sandy mesa	1541	G	W28	1.045	2
Russian	10 B WX	sandy mesa	1542	G	W28	0.743	2
Russian	10 B WX	ranch land	1544	F	X26	0.517	2
Russian	10 B WX	sandy mesa	1545	G	W30	0.708	2
Russian	10 B WX	ranch land	1546	F	X27	0.598	2
Russian	10 B WX	ranch land	1547	G	W31	0.538	2
Russian	10 B WX	ranch land	1548	G	W31	0.737	2
Russian	10 B WX	sandy mesa	1549	G	W31	0.557	2
Russian	10 B WX	attractive cliffs	1556	G	W40	0.964	2
Russian	10 B WX	attractive cliffs	1557	G	W43	1.12	2
Russian	10 B WX	attractive cliffs	1558	G	W43	.499 (no cliffs)	2
Russian	10 B WX	attractive cliffs	1559	G	W47	1.312	2
Russian	10 B WX	dry river bed	84	G	1	0.882	2
Russian	10 B WX	dry river bed	85	G	2	0.807	2
Russian	10 B WX	attractive cliffs	86	G	1	1.091	2
Russian	10 B WX	attractive cliffs	87	G	2	0.987	2
Russian	10 B WX	attractive cliffs	88	G	3	0.72	2

Russian	11 A AB	dry river bed	1581	F	B4	1.602	1
Russian	11 A AB	dry river bed	1604	F	B22	0.877	1
Russian	11 A AB	ranch land	1609	F	B31	1.103	1
Russian	11 A AB	ranch land	1610	F	B31	0.569	1
Russian	11 A AB	sandy mesa	1617	G	A38	1.451	1
Russian	11 A AB	sandy mesa	1618	G	A38	0.917	1
Russian	11 A AB	ranch land	1623	F	B49	0.668	1
Russian	11 A AB	attractive cliffs	1630	F	B61	1.535	1
Russian	11 A AB	attractive cliffs	1631	G	A62	1.533	1
Russian	11 A AB	attractive cliffs	1632	G	A63	1.451	1
Russian	11 A AB	attractive cliffs	1633	G	A64	1.387	1
Russian	11 A AB	attractive cliffs	1634	G	A64	1.358	1
Russian	11 A AB	attractive cliffs	1635	F	B64	0.801	1
Russian	11 A AB	attractive cliffs	1636	G	A65	0.929	1
Russian	11 A AB	attractive cliffs	1637	F	B67	0.848	1
Russian	11 A AB	attractive cliffs	1638	G	A68	1.173	1
Russian	11 A AB	attractive cliffs	1639	F	B68	0.952	1
Russian	11 A AB	attractive cliffs	1648	G	A73	1.277	1
Russian	11 A AB	attractive cliffs	1649	F	B75	0.975	1
Russian	11 A AB	attractive cliffs	1650	G	A76	1.242	1
Russian	11 A AB	attractive cliffs	1651	G	A80	2.09	1
Russian	11 A AB	dry river bed	90	G	1	1.649	1
Russian	11 A AB	dry river bed	91	G	2	0.906	1
Russian	11 A AB	dry river bed	92	G	3	0.859	1
Russian	11 A AB	dry river bed	93	G	4	0.784	1
Russian	11 A AB	carpenter	94	F	1	0.784	1
Russian	11 A AB	attractive cliffs	95	G	1	1.37	1
Russian	11 A AB	attractive cliffs	96	F	2	1.115	1
Russian	11 A AB	attractive cliffs	97	G	3	0.967	1
Russian	11 A AB	attractive cliffs	98	F	4	1.483	1

Native Lang	Transcript #	Root Landmark	MP Line	Speaker G/F	Intonation Unit	Token Length	Task 1/2
Japanese	2 A AB	dry river bed	339	G	A2	2.322	2
Japanese	2 A AB	dry river bed	341	G	A3	1.196	2
Japanese	2 A AB	dry river bed	343	F	B4	1.173	2
Japanese	2 A AB	dry river bed	346	G	A7	0.975	2
Japanese	2 A AB	dry river bed	347	F	B7	1.033	2
Japanese	2 A AB	dry river bed	348	F	B7	1.048	2
Japanese	2 A AB	dry river bed	351	F	B8	1.242	2
Japanese	2 A AB	dry river bed	353	F	B9	0.848	2
Japanese	2 A AB	sandy mesa	365	G	A13	1.631	2
Japanese	2 A AB	ranch land	368	G	A14	1.138	2
Japanese	2 A AB	old adobe house	370	F	B14	1.161	2
Japanese	2 A AB	old adobe house	371	F	B14	1.856	2
Japanese	2 A AB	old adobe house	372	G	A15	1.181	2
Japanese	2 A AB	ranch land	376	G	A16	1.486	2
Japanese	2 A AB	ranch land	377	G	A16	1.567	2
Japanese	2 A AB	ranch land	378	G	A16	0.639	2
Japanese	2 A AB	sandy mesa	380	G	A16	0.778	2
Japanese	2 A AB	ranch land	381	G	A17	0.685	2
Japanese	2 A AB	sandy mesa	383	G	A17	0.853	2
Japanese	2 A AB	sandy mesa	386	G	A17	1.045	2
Japanese	2 A AB	ranch land	387	G	A17	0.743	2
Japanese	2 A AB	ranch land	391	F	B17	0.627	2
Japanese	2 A AB	sandy mesa	392	G	A19	1.004	2
Japanese	2 A AB	sandy mesa	404	G	A26/27	1.042	2
Japanese	2 A AB	sandy mesa	406	G	A28	0.859	2
Japanese	2 A AB	ranch land	408	G	A28	1.172	2
Japanese	2 A AB	ranch land	409	G	A29	0.783	2
Japanese	2 A AB	old adobe house	410	G	A30/31	1.991	2
Japanese	2 A AB	old adobe house	411	G	A30/31	1.289	2
Japanese	2 A AB	old adobe house	412	G	A31	1.161	2
Japanese	2 A AB	old adobe house	414	F	B30	1.081	2
Japanese	2 A AB	attractive cliffs	423	G	A34	1.312	2
Japanese	2 A AB	attractive cliffs	424	G	A34	1.319	2
Japanese	2 A AB	cottonwood tree	436	G	A35	1.001	2
Japanese	2 A AB	cottonwood tree	438	G	A38	2.153	2
Japanese	2 A AB	cottonwood tree	439	G	A37-45	0.915	2
Japanese	2 A AB	dry river bed	12	G	1	0.975	2
Japanese	2 A AB	dry river bed	13	G	2	0.929	2
Japanese	2 A AB	sandy mesa	14	G	1	0.946	2
Japanese	2 A AB	sandy mesa	15	G	2	0.871	2
Japanese	2 A AB	sandy mesa	16	G	3	0.72	2
Japanese	2 A AB	ranch land	17	G	1	0.882	2
Japanese	2 A AB	old adobe house	18	G	1	1.37	2
Japanese	2 A AB	old adobe house	19	G	2	1.405	2
Japanese	2 A AB	old adobe house	20	F	3	0.911	2
Japanese	2 A AB	attractive cliffs	21	G	1	0.978	2
Japanese	2 A AB	attractive cliffs	22	G	2	1.312	2
Japanese	2 A AB	cottonwood tree	23	G	1	1.173	2
Japanese	2 A AB	cottonwood tree	24	G	2	1.335	2

Japanese	7 A EF	dry river bed	955	F	F2	1.039	1
Japanese	7 A EF	dry river bed	956	G	E2	1.428	1
Japanese	7 A EF	carpenter	959	F	F6	0.72	1
Japanese	7 A EF	carpenter	962	G	E10	0.476	1
Japanese	7 A EF	carpenter	963	G	E10	0.731	1
Japanese	7 A EF	dry river bed	964	G	E11	0.906	1
Japanese	7 A EF	dry river bed	965	F	F11	0.795	1
Japanese	7 A EF	carpenter	970	G	E13	0.917	1
Japanese	7 A EF	carpenter	972	F	F13	0.789	1
Japanese	7 A EF	carpenter	983	F	E20	0.72	1
Japanese	7 A EF	ranch land	988	F	F22	0.691	1
Japanese	7 A EF	ranch land	989	F	F22	0.717	1
Japanese	7 A EF	ranch land	992	F	F24	0.9	1
Japanese	7 A EF	ranch land	993	F	F25	0.656	1
Japanese	7 A EF	roadrunner river	996	G	E27	1.355	1
Japanese	7 A EF	ranch land	998	F	F28	0.685	1
Japanese	7 A EF	ranch land	999	F	F29	0.871	1
Japanese	7 A EF	roadrunner river	1000	F	F29	1.149	1
Japanese	7 A EF	ranch land	1004	F	F30	0.639	1
Japanese	7 A EF	ranch land	1006	G	E31	0.495	1
Japanese	7 A EF	ranch land	1010	F	F32	0.813	1
Japanese	7 A EF	ranch land	1011	G	E33	0.575	1
Japanese	7 A EF	ranch land	1012	G	E33	0.772	1
Japanese	7 A EF	ranch land	1013	G	E35	0.76	1
Japanese	7 A EF	roadrunner river	1014	F	F35	0.9	1
Japanese	7 A EF	ranch land	1015	F	F36	1.277	1
Japanese	7 A EF	old adobe house	1016	F	F36	0.743	1
Japanese	7 A EF	old adobe house	1017	G	E37	1.306	1
Japanese	7 A EF	ranch land	1018	F	F37	1.66	1
Japanese	7 A EF	ranch land	1020	G	E38	0.714	1
Japanese	7 A EF	roadrunner river	1021	G	E38	0.656	1
Japanese	7 A EF	ranch land	1022	F	F39	0.998	1
Japanese	7 A EF	old adobe house	1024	F	F39	0.691	1
Japanese	7 A EF	ranch land	1026	F	F39	1.405	1
Japanese	7 A EF	ranch land	1028	F	F40	0.964	1
Japanese	7 A EF	roadrunner river	1029	F	F41	0.824	1
Japanese	7 A EF	old adobe house	1030	G	E43	1.161	1
Japanese	7 A EF	ranch land	1031	F	F45	1.695	1
Japanese	7 A EF	ranch land	1032	G	E46	0.65	1
Japanese	7 A EF	ranch land	1033	F	F46	1.173	1
Japanese	7 A EF	ranch land	1034	G	E47	0.813	1
Japanese	7 A EF	ranch land	1035	F	F47	0.586	1
Japanese	7 A EF	old adobe house	1036	F	F47	0.617	1
Japanese	7 A EF	old adobe house	1037	G	E48	1.19	1
Japanese	7 A EF	old adobe house	1038	G	E49	0	1
Japanese	7 A EF	old adobe house	1039	F	F50	0.975	1
Japanese	7 A EF	old adobe house	1042	F	F51	1.045	1
Japanese	7 A EF	roadrunner river	1043	G	E52	0	1
Japanese	7 A EF	roadrunner river	1044	F	F52	1.382	1
Japanese	7 A EF	roadrunner river	1045	F	F53	0.888	1

Japanese	7 A EF	old adobe house	1046	F	F54	0.958	1
Japanese	7 A EF	roadrunner river	1048	F	F55	1.416	1
Japanese	7 A EF	roadrunner river	1049	G	E56	0.932	1
Japanese	7 A EF	roadrunner river	1050	G	E56	0.993	1
Japanese	7 A EF	old adobe house	1053	G	E57	0.865	1
Japanese	7 A EF	roadrunner river	1054	F	F57	1.265	1
Japanese	7 A EF	roadrunner river	1055	G	E58	1.202	1
Japanese	7 A EF	roadrunner river	1056	F	F59	0.94	1
Japanese	7 A EF	attractive cliffs	1059	F	F62	0.935	1
Japanese	7 A EF	cottonwood tree	1061	F	F63	1.503	1
Japanese	7 A EF	cottonwood tree	1062	G	E64	1.016	1
Japanese	7 A EF	attractive cliffs	1065	G	E66	0.931	1
Japanese	7 A EF	attractive cliffs	1067	G	E69	1.283	1
Japanese	7 A EF	attractive cliffs	1068	F	F69	0.987	1
Japanese	7 A EF	attractive cliffs	1069	G	E70	1.115	1
Japanese	7 A EF	attractive cliffs	1070	G	E70	1.08	1
Japanese	7 A EF	attractive cliffs	1071	G	E71	1.265	1
Japanese	7 A EF	cottonwood tree	1072	G	E73	1.292	1
Japanese	7 A EF	attractive cliffs	1073	F	F73	1.08	1
Japanese	7 A EF	attractive cliffs	1074	F	F73	1.387	1
Japanese	7 A EF	cottonwood tree	1075	F	F73	0.865	1
Japanese	7 A EF	attractive cliffs	1076	F	F74	1.176	1
Japanese	7 A EF	crashed spaceship	1085	F	F79	2.299	1
Japanese	7 A EF	cottonwood tree	1087	G	E81	1.312	1
Japanese	7 A EF	crashed spaceship	1088	F	F81	1.681	1
Japanese	7 A EF	crashed spaceship	1089	F	F81	1.295	1
Japanese	7 A EF	crashed spaceship	1090	F	E83/F83	1.115	1
Japanese	7 A EF	cottonwood tree	1091	F	F84	1.312	1
Japanese	7 A EF	crashed spaceship	1079	F	F75	1.811	1
Japanese	7 A EF	crashed spaceship	1080	G	E76	1.196	1
Japanese	7 A EF	attractive cliffs	1081	G	E76	1.062	1
Japanese	7 A EF	ranch land	1005	G	E31	1.039	1
Japanese	7 A EF	dry river bed	39	G	1	1.869	1
Japanese	7 A EF	dry river bed	40	F	2	1.225	1
Japanese	7 A EF	dry river bed	41	G	3	1.974	1
Japanese	7 A EF	carpenter	42	F	1	0.639	1
Japanese	7 A EF	carpenter	43	G	2	1.022	1
Japanese	7 A EF	carpenter	44	G	3	1.196	1
Japanese	7 A EF	crashed spaceship	45	G	1	6.362	1
Japanese	7 A EF	roadrunner river	46	F	1	1.091	1
Japanese	7 A EF	roadrunner river	47	G	2	3.669	1
Japanese	7 A EF	roadrunner river	48	G	3	2.159	1
Japanese	7 A EF	old adobe house	49	F	1	2.229	1
Japanese	7 A EF	old adobe house	50	G	2	3.855	1
Japanese	7 A EF	ranch land	51	G	1	0.871	1
Japanese	7 A EF	attractive cliffs	52	G	1	1.811	1
Japanese	7 A EF	attractive cliffs	53	G	2	1.898	1
Japanese	7 A EF	attractive cliffs	54	G	3	1.86	1
Japanese	7 A EF	attractive cliffs	55	F	4	1.544	1
Japanese	7 A EF	cottonwood tree	56	G	1	1.512	1

Japanese	7 A EF	cottonwood tree	57	F	2	0.702	1
Japanese	7 A GH	carpenter	1092	G	G4	0.766	1
Japanese	7 A GH	carpenter	1096	G	G5	0.659	1
Japanese	7 A GH	carpenter	1098	G	G5	0.575	1
Japanese	7 A GH	carpenter	1102	G	G8	0.633	1
Japanese	7 A GH	sandy mesa	1107	G	G15	0.961	1
Japanese	7 A GH	ranch land	1108	F	H16	0.697	1
Japanese	7 A GH	sandy mesa	1109	G	G17	0.784	1
Japanese	7 A GH	sandy mesa	1110	G	G17	0.673	1
Japanese	7 A GH	ranch land	1114	F	H19	0.583	1
Japanese	7 A GH	attractive cliffs	1119	G	G27	1.033	1
Japanese	7 A GH	attractive cliffs	1121	G	G28	0.946	1
Japanese	7 A GH	cottonwood tree	1126	G	G32/33	0.784	1
Japanese	7 A GH	cottonwood tree	1127	G	G32/33	0.65	1
Japanese	7 A GH	ranch land	59	G	1	0.906	1
Japanese	7 A GH	ranch land	60	F	2	0.795	1
Japanese	7 A GH	attractive cliffs	61	G	1	1.091	1
Japanese	7 A GH	attractive cliffs	62	G	2	0.819	1
Japanese	7 A GH	cottonwood tree	63	G	1	0.958	1
Japanese	7 A IJ	dry river bed	1128	G	I1	0.996	1
Japanese	7 A IJ	dry river bed	1129	G	I1	1.01	1
Japanese	7 A IJ	carpenter	1130	G	I2	0.917	1
Japanese	7 A IJ	carpenter	1131	G	I2	0.708	1
Japanese	7 A IJ	dry river bed	1133	G	I3	0.807	1
Japanese	7 A IJ	attractive cliffs	1143	G	I4	1.219	1
Japanese	7 A IJ	attractive cliffs	1144	G	I5	0.755	1
Japanese	7 A IJ	dry river bed	64	G	1	0.836	1
Japanese	7 A IJ	dry river bed	65	G	2	1.115	1
Japanese	7 A IJ	carpenter	66	G	1	0.679	1
Japanese	7 A IJ	attractive cliffs	67	G	1	1.178	1
Japanese	7 A IJ	attractive cliffs	68	G	2	1.248	1
Japanese	7 A IJ	attractive cliffs	69	G	3	1.335	1

Appendix E: NMMTP Sample Transcript

Transcript 3
Two Russian females
Age 25 and 40
Familiar to each other

25 year old Russian female
40 year old Russian female
O. Observer

Date of task: 12/7/2006

(tape breaks in)

A1. Don't, don't show me. Don't show me the map.

O. No, don't show her – you can't show her, you have to tell her. You can only tell her.

A2. Okay, I'm ready.

O. Here, hold this. Hold this underneath so she can't see the pathway.

B1. Uh, you see dry river bed?

A3. Mhm.

B2. Go, uh, through –

A4. Go to, or what?

B3. To, uh, and uh, --

A5. I don' know –

B4. Over this dry river bed on the left –

A6. Oh.

B5. Dry river bed, uh, will be on the left.

A7. Uh-huh. And what?

B6. Uh, and you'll go, uh, by house, uh, car-carpenter's house?

A8. Mhm.

B7. It, it will be on the right.

A9. Uh-huh.

B8. Then you see red lake, and along , uh, this lake –

A10. Red lake?

B9. Da.

2 The maps are not exactly the same. So, just keep talking until you find something that she has, that you have.

A11. Okay.

B10. Okay, you see seven pines.

A12. So, so the carpenter's house should be on the right.

B11. On the right.

A13. But the seven pines are on the right, too, so how can they –

B12. Uh, you go straight to seven pines –

A14. From what point, from carpenter's house?

B13. From carpenter house, yes.

A15. But it's on the right…

B14. Uh, on the right hand from you –

A16. Like, this, on the right…

B15. (sighing and laughing slightly) You go –

A17. From dry river's bed –

B16. Past the house and uh, and left, it's on the right –

A18. Yeah, this is right.

B17. You go –

A19. But it's left, then – it's my left…

B18. (talking to herself in Russian, but inaudible) – (laughs) right (XXX), right.

A20. Please – (XXX) –

B19. Go past the seven pines, the seven pines, and pass it on the left –

A21. Oh, yeah, wait, wait -- then?

B20. This seven pines left, on the r-, left, left hand –

A22. This one?

B21. Uh-huh…and you go, uh, by a cha-chapel –

A23. There is no chapel.

B22. Ah, ya, chapel, sandy mesa {no} -- what is on?

A24. Ranch land –

B23. Okay, ranch land, around uh –

A25. So, on the left – it's on the left where is should be, like this –

B24. You go, you go, on the left around ranch land –

A26. The house?

B25. Uh-huh. Then, uh, uh, go by, road, roadrunner river – yeah?

A27. Uh-huh.

B26. River --

A28. Along it?

B27. Along river, and uh, you see rabbit's burrow?

A29. Mhm.

B28. It will, it will be on the left –

A30. Mhm. It's my left, so it's on the left.

B29. I know, but –

A31. I don' know how you call this one –

B30. On the left.

A32. This is my left, it's rabbit's burrow on the left.

B31. Okay, and on the right –

A33. Then?

B32. Ah, you see open space and attractive cliffs –

A34. Okay.

B33. Between, uh, you go between attractive cliffs and open space –

A35. There is no open space.

B34. About attractive cliffs – uh-huh. Then you go, go, go, further, further

A36. Where further?

B35. You see cottonwood tree?

A37. Yeah.

B36. Uh –

A38. But it's, it's down – it's underneath –

B37. Tak.

A39. Attractive cliffs are above.

B38. What is this?

A40. A crashed spaceship.

B39. Crashed spaceship. Uh, you go, and this crashed spaceship will be –

A41. So I go down, I go down, yeah – like this?

B40. On the left, yes.

A42. Yeah. And where will it be? On the left or on the right?

B41. On the left.

A43. Okay.

B42. (gesturing to make sure) On the right. The right.

A44. (laughs)

B43. Uh, my left – and –

A45. Okay.

B44. That is finish, finish.

A46. By the cottonwood? The tree?

B45. No, no, no – this point is finish. Potom?

Appendix F: Compassionate Schools Start-Up Guide Excerpt

COMPASSIONATE SCHOOLS START-UP GUIDE:

The Journey from Trauma-Informed to Trauma-Responsive

Produced by the Child Protection Accountability Commission, Office of the Child Advocate,
with generous support from Casey Family Programs

Lead Author: Teri Brown Lawler, MA

RESOURCES

http://www.ascd.org/publications/educational-leadership/sept16/vol74/num01/Two-Times-Ten-Conversations.aspx

Attachment and Trauma Network, Inc., Trauma-Sensitive Schools Initiative: Devoted to creating school-wide trauma-sensitive reform. Creates professional development programs for educators to help them craft a strategy for trauma-sensitive schools. Website includes teacher training resources. http://www.attachu.org/trauma-sensitive-schools/about-tss-initiave/

Children's Law Center: http://tlpi.jacksonwhelan.netdna-cdn.com/wp-content/uploads/2015/11/CLC-Addressing-Childhood-Trauma-DC-Schools-June-2015.pdf/

www.childtraumaacademy.org

www.datacenter.kidscount.org

GBG Manual: http://ctsp.tamu.edu/videos/videos13/toolbox/Dolan%20GBG%20Manual.pdf

Helping Traumatized Children Learn 2: Creating and Advocating for Trauma Sensitive Schools. There are policy manuals to support advocacy as well as an online learning community. http://traumasensitiveschools.org/get-involved/creating-trauma-sensitive-schools/

www.nctsn.org

www.pathseducation.com

www.PBSworld.com

www.PBS.org

SAMHSA National Center for Trauma Informed Care: Includes a curriculum on how to implement trauma-informed approaches based on 6 principles. http://www.samhsa.gov/nctic

www.smhp.psych.ucla.edu/practitioner.htm

Strengths and Difficulties Questionnaire: http://www.sdqinfo.com

www.superduperinc.com/products/view.aspx?stid=6314#.VO21K2Phhs.M

The Heart of Learning and Teaching (Compassionate Schools Manual):
http://www.k12.wa.us/compassionateschools/pubdocs/TheHeartofLearningandTeaching.pdf

2X10 Resource: www.ascd.org/publications/educational-leadership/sept16/vol74/num01/Two-Times-Ten-Conversations.aspx

SUGGESTED READINGS

Systemic Change:

Failure Is Not an Option: 6 Principles for Making Student Success the ONLY Option (Blankstein, 2010)

Promoting Social and Emotional Learning: Guidelines for Educators (Elias, Zins, Weissberg, Haynes, Kessler, Schwab-Stone & Shriver, 1997)

Push Has Come to Shove: Getting Our Kids the Education They Deserve (Perry, 2011)

Schools Can't Do It Alone (Vollmer, 2010)

Trying Hard is Not Good Enough: How to Produce Measurable Improvements for Customers and Communities (Friedman, 2015)

Theoretical Foundation – Development and Learning:

Brain Rules (Medina, 2014)

Lost at School (Greene, 2008)

Teaching with the Brain in Mind (Jensen, 2005)

The Explosive Child (Greene, 2001)

Theoretical Foundation – Trauma:

Ghosts from the Nursery: Tracing the Roots of Violence (Karr-Morse & Wiley, 2013)

Helping Traumatized Children Learn: A Report and Policy Agenda (Massachusetts Advocates for Children, 2005)

Helping Traumatized Children Learn: Creating and Advocating for Trauma-Sensitive Schools (Trauma and Learning Policy Initiative, 2013)

Supporting and Educating Traumatized Students: A Guide for School-Based Professionals (Rossen & Hull, 2013)

The Body Keeps the Score (Van Der Kolk, 2014)

The Compassionate School: A Practical Guide to Educating Abused and Traumatized Children (Morrow, 1987)

Theoretical Foundation – Resilience:

Building Resilience in Children and Teens: Giving Kids Roots and Wings (Ginsburg & Jablow, 2015)

How Children Succeed: Grit, Curiosity, and the Hidden Power of Character (Tough, 2012)

Ordinary Magic: Resilience in Development (Masten, 2014)

Creating a Multi-Tiered Student Support Framework:

Academic and Behavior Supports for At-Risk Students: Tier 2 Interventions (Stormont, Reinke, Herman & Lembke, 2012)

Behavioral Response to Intervention: Creating a Continuum of Problem-Solving and Support (Sprick, Booher & Garrison, 2009)

Comprehensive Children's Mental Health Services in Schools and Communities: A Public Health Problem-Solving Model (Hess, Short & Hazel, 2012)

Developing Schoolwide Programs to Prevent and Manage Problem Behaviors: A Step-by-Step Approach (Lane, Kalberg & Menzies, 2009)

Discipline in the Secondary Classroom: A Positive Approach to Behavior Management (Sprick, 2006)

Effective Inclusive Schools: Designing Successful Schoolwide Programs (Hehir & Katzman, 2012)

Effective RTI Training and Practices: Helping School and District Teams Improve Academic Performance and Social Behavior (Cates, Blum & Swerdik, 2011)

Enhancing Academic Motivation (Brier, 2006)

Homework, Organization, and Planning Skills (HOP) Interventions (Langberg, 2011)

Integrated Multi-Tiered Systems of Support: Blending RTI and PBS (McIntosh & Goodman, 2016)

Positive Behavior Support in Secondary Schools (Young, Caldarella, Richardson & Young, 2012)

RTI in Restrictive Settings: The TIERS Model for Students with Emotional/Behavioral Disorders (Cook & Wright, 2009)

Self-Regulated Learning (Brier, 2010)

What Works in Schools: Translating Research into Action (Marzano, 2003)

School-Based Practices and Strategies:

Fostering Resilient Learners: Strategies for Creating a Trauma-Sensitive Classroom (Souers & Hall, 2016)

Managing Challenging Behaviors in Schools: Research-Based Strategies that Work (Lane, Menzies, Bruhn & Crnobori, 2011)

Interventions: Evidence-Based Behavioral Strategies for Individual Students (Sprick & Garrison, 2008)

Smart but Scattered: The Revolutionary "Executive Skills" Approach to Helping Kids Reach Their Potential (Dawson & Guare, 2009)

Cognitive-Behavioral Interventions in Educational Settings (Menutti, Christner & Freeman, 2012)

Give 'Em Five: A Five-Step Approach to Handling Challenging Moments with Adolescents (Thompson & Thompson, 2016)

A Strength-Based Approach for Intervention with At-Risk Youth (Powell, 2015)

Socially Strong, Emotionally Secure (Bruce & Cairone, 2011)

Daily Behavior Report Cards: An Evidence-Based System of Assessment and Intervention (Volpe & Fabiano, 2013)

Proactive Discipline for Reactive Students: A Guide for Practicing Effective Classroom Behavior Management (Johnson, 2006)

Trauma-Informed Practices with Children and Adolescents (Steele & Malchiodi, 2012)

Classroom Strategies for Children with ADHD, Autism & Sensory Processing Disorders: Solutions for Behavior, Attention and Emotional Regulation (Hyche & Maertz, 2014)

Mindsets in the Classroom: Building a Culture of Success and Student Achievement in Schools (Ricci, 2013)

Managing the Cycle of Acting-Out Behavior in the Classroom (Colvin, 2004)

Managing ADHD In School: The Best Evidence-Based Methods for Teachers (Barkley, 2016)

101 Trauma-Informed Interventions (Curran, 2013)

Study Strategies Made Easy: A Practical Plan for School Success (Davis, Sirotowitz & Parker, 1996)

The Whole-Brain Child Workbook: Practical Exercises, Worksheets and Activities to Nurture Developing Minds (Siegel & Bryson, 2015)

Behavior Management Skills Guide: Practical Activities & Interventions for Ages 3-18 (Walls & Rauner, 2015)

No-Drama Discipline Workbook (Siegel & Bryson, 2016)

Oppositional Defiant & Disruptive Children and Adolescents (Walls, 2016)

Helping Teens Learn Self-Regulation (Chapin, 2014)

55 Creative Approaches for Challenging and Resistant Children and Adolescents (Epstein, 2014)

Helping Young Children Learn Self-Regulation (Chapin & Penner, 2012)

Measurement and Evaluation:

Behavior Intervention Without Tears: Keeping FBAs and BIPs Simple (Johnston, 2014)

Data Without Tears: How to Write Measurable Educational Goals and Collect Meaningful Data (Johnston, 2014)

Direct Behavior Rating: Linking Assessment, Communication, and Intervention (Briesch, Chafouleas, & Riley-Tillman, 2016)

Making Data Work (Kaffenberger & Young, 2013)

Statistics: A Spectator Sport (Jaeger, 1990)

Systematic Screenings of Behavior to Support Instruction (Lane, Menzies, Oakes & Kalberg, 2012)

Universal Screening in Educational Settings (Kettler, Glover, Albers & Feeney-Kettler, 2014)

Cultural Competence:

For White Folks Who Teach in the Hood...and the Rest of Y'all Too: Reality Pedagogy and Urban Education (Emdin, 2016)

Teaching with Poverty in Mind (Jensen, 2009)

Family Support and Engagement:

Parenting Better Children: An 8 Week Skills Training Guide to Reach, Teach and Empower (Wilke-Deaton, 2014)

Positive Prescriptions for Negative Parenting (Taylor, 1991)

Self-Care:

Building Your Bounce: Simple Strategies for a Resilient You (Mackrain & Poyner, 2013)

Growing Yourself Back Up: Understanding Emotional Regression (Lee, 2001)

The Art of Extreme Self-Care (Richardson, 2009)

Trauma Stewardship: An Everyday Guide to Caring for Self While Caring for Others (Lipsky & Burk, 2009)

Books for Students:

Master of Mindfulness (Grossman & Alvarez, 2016)

What it Means to Be Present (DiOrio, 2010)

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