Graphic organizers, activity, and the positioning of language and learners: An ethnographic case study

John Allan Unger
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GRAPHIC ORGANIZERS, ACTIVITY, AND THE POSITIONING OF LANGUAGE
AND LEARNERS: AN ETHNOGRAPHIC CASE STUDY

by

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1988

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1998

A dissertation in partial fulfillment
of the requirements for the

Doctor of Philosophy Degree
Department of Curriculum and Instruction
College of Education

Graduate College
University of Nevada, Las Vegas
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Dissertation Approval
The Graduate College
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Graphic Organizers, Activity, and the Positioning of Language and Learners: An Ethnographic Case Study

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Doctor of Philosophy

Examination Committee Chair

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ABSTRACT

Graphic Organizers, Activity, and the Positioning of Language and Learners: An Ethnographic Case Study

by

John A. Unger

Dr. Tom Bean, Examination Committee Chair
Professor of Literacy
University of Nevada, Las Vegas

There were two main purposes for this research and one parallel purpose. One main purpose was to investigate how learners of English in an EFL/ESL context, who were also teachers of English and/or learning to be teachers of English, perceived and responded to different types of graphic organizers and associated activities. These graphic organizers and activities were presented at a university in Northern Thailand through an advanced reading comprehension course for preservice and inservice teachers taught by the primary researcher. The second main purpose was to explore, synthesize, and apply theories of mediated activity and research methods originating from or related to the work of the famous Russian troika of Vygotsky, Leont'ev, and Luria. The parallel purpose was to provide the participants with an insider's perspective on qualitative case-study research that investigated their interactions and learning/teaching contexts.
Participants in this study were nine MATEFL (Master of Arts in Teaching English as a Foreign Language) students from China, the Netherlands, Turkey, the U.S., and Thailand. The overall research design was an interpretive, ethnographic case study. Within this research design principles of Vygotsky’s developmental method were used (i.e., genetic method). Data collected included interviews, ethnographic fieldnotes of the participants’ use of graphic organizers in their teaching contexts, graphic organizers generated by the participants, and video and audio data of classroom interactions.

The Results were divided into three sections. Principles of Vygotsky’s developmental approach were primarily used for the first two sections. These microgenetic analyses revealed the intersubjective and interwoven nature of gesture and graphic representations as these were used to mediate content knowledge. The third section of the Results provided a broader view of the nine participants’ engagement with graphic organizers. Participants were found to have distinctive styles and preferences for different graphic organizers. Distinctive styles and preferences were related to the participants’ communities of teaching and learning practice. Findings have implications for learning English as a second or foreign language, literacy, teacher education, multicultural and cross-cultural education, and non-verbal speech. Moreover, the research design and theoretical lens were presented as appropriate for investigating language and literacy contexts.
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CHAPTER ONE

INTRODUCTION

Purpose of the Study

Since the late seventies, graphic organizers, also known as key visuals in some of the research (e.g., Mohan, 1986), have been used to meet the challenges of integrating language learning and content knowledge in mainstream, English dominant classrooms, and more recently, in ESL and EFL classrooms (English as a Second Language; English as a Foreign Language) (Early, 1991; Perogoy & Boyle, 2001; Robinson, 1998). Broadly defined, graphic organizers are visual devices that provide a variety of organizational structures and categorization patterns for the learning of language and content. The most prominent learning objective is increased comprehension and/or language production. An additional oft-stated objective is an identification of the relationships between concepts. Common examples of graphic organizers include KWL charts (What do you know?; What do you want to know?; What have you Learned), Venn diagrams, matrices, concept maps, tree diagrams, and information flow charts (Bromley, DeVitis & Modlo, M., 1999; Egan, 1999; Merkley & Jeffries, 2000; Rice, 1994; Robinson, 1998).

There were two main purposes for this research and one parallel purpose that emerged due to interactions with the research site and participants. One main purpose
was to investigate how learners of English in an EFL context, who are also teachers of English and/or learning to be teachers of English, perceived and responded to different types of graphic organizers and associated activities. These graphic organizers and activities were presented through an advanced reading comprehension course taught by the primary researcher. The second main purpose was to explore, synthesize, and apply theories of mediated activity, artifacts, and research methods originating from or related to the work of the famous Russian troika of Vygotsky, Leont'ev, and Luria (Engestrom, 1999; John-Steiner & Mahn, 1996; Scribner, 1997a; Tomasello, 1999; Vygotsky, 1978; Wertsch, 1998). The parallel purpose of this research was to provide the participants with an insider's perspective on qualitative case-study research that investigates their interactions and context. As the research is presented, the reasons for this parallel purpose and how it was enacted will become clear.

In this introductory chapter, I first present the background to the study. This includes some introductory information concerning the site and participants, my relevant personal and professional history with the site, and some of the prominent characteristics of graphic organizers (GOs). Following these sections of the Introduction, I proceed with a presentation of the theoretical framework. With the theoretical framework in place, I discuss the gaps in the research on graphic organizers and how the interdisciplinary approach I adopted was a necessity due to the unique nature of participants, their educational and linguistic histories, and the site. Finally, a definition of terms, a statement of the problem, and the research questions are presented at the end of the Introduction.
Background to the Study

In this section I first present some introductory information about the site and participants. In the Methodology (Chapter Three), I provide more detail about the site, but most of the information about the participants is presented in the Introduction to better frame the interrelated nature of the participants and my position in the study. Following this introductory information about the site and participants, I present some of my own life history because I prompted the events that unfolded and produced the data. This presentation of my narrative and history is clearly related to my position as teacher/researcher throughout the study. Moreover, this information provides reflexivity, which is one of the essential components of overall validity (Altheide & Johnson, 1998).

The Site

The major portion of the dissertation research took place with students in an advanced reading course that was a part of the MATEFL (Master of Arts in Teaching English as a Foreign Language) program at a university in Northern Thailand, which I call Northern University. Northern University is located in a large city, which I call Northern City. Northern City is strategically located south of an area of Northern Thailand called the Golden Triangle, which encompasses the border-areas of Laos, Burma, (Myanmar) and Thailand. Recently, the term Quadrangle Economic Zone has been tossed around in the local and international press. This term includes the three countries already mentioned as part of the Golden Triangle, and China, which is commonly known to be prompting tremendous economic growth throughout the region.
This information about the close proximity of Northern City to China, Burma, and Laos is important because of the increasingly international nature of Northern University, which is beginning to draw students from all over the world due to its proximity to this lively area of cultural and economic activity. The University and surrounding area seemed more diverse on this extended stay than when I taught and lived there for several years in the 90s. The surrounding international context contributed to the diverse nature of the participants.

The Participants

Table One contains some introductory information about the nine participants who were enrolled in the advanced reading comprehension course. Some additional introductory details about the participants follow the table. Further descriptions about Northern University, the participants, and details about the advanced reading comprehension course and my instructional strategies are presented in the Methodology, Results, and Discussion.

All names for the participants are pseudonyms. After the semester was completed, I let the participants know what their pseudonyms were; a few chose new names. In addition to the information in the table, other introductory characteristics of the participants should be mentioned.

Chou, the student from China, made it clear in one of her class presentations and during two formal interviews, class discussions, and numerous conversations that she considered her native language to be Hani, which is the name of one of the minority peoples in Southern Yunnan. She also indicated to me in a follow-up interview that she
<table>
<thead>
<tr>
<th>Name and approximate age</th>
<th>Gender</th>
<th>Native language</th>
<th>EFL Teaching experience at the beginning of the semester</th>
<th>Teaching status during the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chou/44</td>
<td>Female</td>
<td>Native language</td>
<td>22 years</td>
<td>No teaching, full-time student</td>
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<tr>
<td></td>
<td></td>
<td>is Hani. Fluent in Mandarin and Hani and literate in Chinese</td>
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<td>Citizenship</td>
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<tr>
<td>Nathanee/26</td>
<td>Female</td>
<td>Thai/Thai</td>
<td>2 years</td>
<td>Full-time teacher</td>
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<tr>
<td>Mawngpleum/26</td>
<td>Female</td>
<td>Thai/Thai</td>
<td>3 years</td>
<td>Full-time teacher</td>
</tr>
<tr>
<td>Mamet/23</td>
<td>Male</td>
<td>Turkish/Turkish</td>
<td>2 months</td>
<td>Full-time teacher</td>
</tr>
<tr>
<td>Busaba/22</td>
<td>Female</td>
<td>Thai/Thai</td>
<td>3 months</td>
<td>Part-time teaching/full-time student</td>
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<td></td>
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<td>some preservice coursework</td>
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<td>Wanida/22</td>
<td>Female</td>
<td>Thai/Thai</td>
<td>No teaching experience</td>
<td>No teaching, full-time student</td>
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<tr>
<td>Name</td>
<td>Gender</td>
<td>Language/Citizenship</td>
<td>Years</td>
<td>Teaching Experience</td>
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<tr>
<td>Lada/22</td>
<td>Female</td>
<td>Thai/Thai</td>
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<td>No teaching</td>
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<td>some pre-service</td>
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<td>coursework</td>
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<tr>
<td>Dan/23</td>
<td>Male</td>
<td>Dutch Language/Dual</td>
<td>Some</td>
<td>Some part-time</td>
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<td>Citizenship</td>
<td>part-time teaching</td>
<td>midterm/partial-time at</td>
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<td>then full-time</td>
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<tr>
<td>Andy/38</td>
<td>Male</td>
<td>English/US Citizen</td>
<td>8</td>
<td>Some part-time</td>
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<td>South Korea</td>
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is actually a Bai, which is another of the 26 minority peoples of Southern Yunnan. Chou’s parents and relatives are all Bai. Her husband is a Hani. She grew up in a Hani area. Her parents spoke "Chinese" to her, and she learned Hani from the "environment". When relatives came to visit, her parents spoke Bai. (Follow-up conversations 8-2, 10-31)

During the study Chou was on a two-year leave of absence from a teachers college located about an hour’s drive south of the city of Kunming. I spent a week after the semester with her, her colleagues, and her husband, who is a well-known linguist and researcher of the Hani language and culture. Some of what I learned on this trip is embedded in the Results and Discussion. As a result of the interesting way Chou transformed her overall English proficiency and the way she used graphic organizers during the study, she became a central focus of the research.

Nathanee and Mawngpleum were also interesting due to the contrasts in their teaching environments, similarities and contrasts in foundational education, and the different ways they used graphic organizers. Nathanee taught English in what is known locally as a technical college, which could be described as an English for Specific Purposes (ESP) context. Most of her students were mainly studying for careers as secretaries, mechanics, hotel personnel, or other service and industry positions.

Mawngpleum taught Thai as a second language at an international school to students who spoke English or other languages as their first language. The language of instruction at this school was English. She also taught English as a Foreign Language part-time for a variety of undergraduate and graduate students who were getting ready for local, standardized, English proficiency exams, which the students had to pass in order to
proceed further. At the beginning of the semester, these were two of three students teaching full-time.

The third student who was teaching full-time at the beginning and throughout the semester was Mamet, whose native language and nationality are Turkish. Remarkably, Mamet did his Bachelors Degree in English at Northern University. For me, this is remarkable due to the fact that most of the general university courses are taught in Thai. Consequently, Mamet needed to develop a high degree of written and oral proficiency in Thai. I helped Mamet implement graphic organizers on three different occasions at two different schools during the semester.

Three of the students, Busaba, Wanida, and Lada, were on full-scholarships from Northern University, which is also where they did their undergraduate degrees in English. Mamet was in their graduating class. Busaba, Wanida, and Lada were also the least experienced in terms of teaching English. Busaba was the only one of these three teaching during the semester, and this was a part-time position teaching young children at what is locally known as a tutorial center.

Dan, who began the semester teaching English part-time, but around midterms landed a full-time position at an international school, has a Bachelors Degree in English from the University of California, Berkeley. Even though he did not claim to be a native speaker of English, his English was very close to what could be considered native-proficiency. He also claimed competency in French and German. Moreover, he held dual citizenship for the U.S. and the Netherlands. When we were talking about his pseudonym on e-mail during the write-up of the dissertation, we joked about him being Dan the man from
Amsterdam, and I have previously told him he might someday be drafted into the US armed forces.

Andy was the native English speaker in the class, and he was also the second most experienced teacher besides Chou. He had spent eight years in South Korea mainly teaching Berlitz courses and returned to South Korea at the end of the semester to earn more money and line up a site for his thesis research. Andy actively engaged some of the more challenging concepts I introduced, and we generally shared some of the same skepticism and astonishment concerning the politics of academia and the Bush administration. While in Northern City, he taught for a short while with adults as part of his interest in developing his thesis topic. He also taught some lessons with other MATEFL students in the program as part of his general coursework.

Overall, the participants' proficiency in written and spoken English, educational backgrounds, and teaching experience varied widely. In other words, they were a very diverse group of people. I am extremely honored to have worked with them, and I hope I assisted them in their professional growth, as well as grateful that they participated in my dissertation research. I told the participants I would e-mail copies of the dissertation their way when it is finished and approved. I will also be serving as an informal advisor on some of their thesis projects and sincerely hope I can keep in touch with all of them. Beyond the acknowledged purpose of this research, I hope to do justice to their hard work, creativity, and intelligence. I am not at all taking the position as a non-involved objective observer. My cultural and historical identity and role as teacher/researcher are very much a part of the interpretations and results.
My Position in the Study

I am a 46-old, white-male, doctoral candidate and ESL/EFL teacher, who averaged 4 to 6 months a year at sea, or getting ready to go to sea, for 19 years: first in the U.S. Navy for 4 years, and then for 15 years on thirty-some coastal and deep-sea fishing boats in the Northern Pacific, Gulf of Alaska, and Bering Sea. Before coming to graduate school, I taught EFL at Northern University and other private institutions in Northern City for 6 months per-year during the off season (I previously earned a BA in English during 6 winters down in Washington). I began teaching most of the year in Thailand as the black cod, halibut, and salmon seasons became more compressed in Alaska. The last fishing trip I made was a seven-day black-cod trip in May of 1994.

Those years at sea are central to the way I perceived myself in the world when I began working at Northern University part of the year in 1990 and left my position as a full-time instructor at Northern University in October of 1996 for graduate school in the States. These parts of my own storyline (Davies & Harré, 1999) are necessarily mentioned up front, particularly since I am taking a Bakhtinian approach to the data in terms of recognizing the power of narratives and looking at the self as a dialogically enacted, authored event (Bruner, 1987; Morson & Emerson, 1990; Wertsch, 1998). Moreover, in many of my day-to-day interactions, it seems that at some point I refer back to those years in a conversation or a thought. I mention those years in much the same way that other people say they are from New York City or Texas, or from a huge family, or raised on a farm, or Catholic or Protestant, or call themselves Hispanic, Irish, African-American, Asian, etc.
Overall, up until I returned to Northern City in May for data collection, I spent roughly four and one-half years in Thailand since I first went there in January of 1989, almost all of which was spent teaching in Northern City. In addition, I was married to a Thai from Northern City for six and one-half years and consequently became more intimately involved with my in-laws in the city and surrounding area than would be the general experience of a researcher doing ethnography. When I began this study, I will have been divorced for almost 4 years.

During those years at Northern University and living in Northern City, particularly when I began a long-term contract in October of 1993, I averaged between 15 to 25 hours' per-week teaching. Usually, the majority of my teaching took place at Northern University. Two content-based courses I began teaching during those first semesters at Northern University prompted me to work with graphic organizers: These were, *The History of the English Language* and *The Customs and Cultures of the English Speaking World.*

I first adapted a graphic organizer from Irwin (1991) to explain cultural differences in the customs and cultures class in October of 1993. Through the next three years, I combined a series of *chunking* (Irwin, 1991) (also known as *parsing*) activities with the maps, and merged this particular map design into exams and quizzes. I have also presented adaptations of these approaches at various professional conferences and other professional venues in Thailand, Korea, the US, and now China.

In 1993, before reading about concept maps in Irwin (1991), they had not explicitly caught my attention before, probably because I was still fairly new to the field of literacy and EFL education. As with many other educators, I am interested in graphic organizers.
as tools for improving language comprehension and production, particularly as this relates to increasing cultural and metalinguistic awareness in EFL/ESL contexts.

On a fundamental level, I see the dissertation research as follows: Beyond the agenda of fulfilling the requirement for the doctoral degree, I returned to a foreign land where I used to live. I returned with graphic organizers that I now consider artifacts (Cole, 1999), which I positioned as tools for working with language and content. I introduced these tools to the participants with a heavy emphasis on the co-construction of meaning (Jacoby & Ochs, 1995). I have attempted to find out what participants knew of graphic organizers, how they perceived them, and how they adapted graphic organizers to their teaching or learning needs. Through a formal teaching and research plan of action, I obtained some insight into participants using graphic organizers, gestures, and the English language to mediate content knowledge.

This return to Thailand is also connected to a day 25 years ago when I was a young sailor, and I went out on deck at dawn after a night of stacking plastic meal-trays and buffing the tile on the mess-decks of the USS New Orleans a few days after entering SE Asian waters. We were cruising past deep green islands and white, sandy shores kissed by the bursting orange rays of daylight and blue sky. I decided that day to come back to this part of the world as a civilian.

A little over 2-years later, again at dawn, about 20 miles offshore in the Gulf of Alaska, while on wheelwatch on a small salmon-troller; as a wave slammed against the side of the boat and knocked a cup of coffee that I had worked so hard to put together, several feet through the air, I decided to return to SE Asia and become a teacher. I arrived in Northern City 10-years later and began teaching. As I write the dissertation, it is over
13 years since I first arrived in Northern City, and 25 years since my heart was captured by the deep green and startling contrasts of SE Asia.

In a very Bakhtinian way, this utterance I am producing here, which myself and others are labeling a dissertation, is linked to numerous strands of utterances woven into the discursive nature of other selves enacting other lives (Bakhtin, 1986; Harré and Gillettt, 1994; Morson & Emerson, 1990). My narrative interacted with the participants' narratives; we all changed. Ultimately, I hope this research will inform educators and those interested in literacy, culture, artifacts, cognition, and activity.

Four Broad Types of Graphic Organizers

As previously mentioned, graphic organizers are generally recognized as visual devices that organize language and content in a manner that has been shown to improve reading comprehension (Merkley & Jeffries, 2000; Rice, 1994, Robinson, 1998). Specific ways graphic organizers are used (e.g., in the pre-reading or post-reading position) for reading comprehension and language production with mainstream and ESL/EFL learners will be discussed in more detail in the Literature Review. For this Introduction, I provide examples of four broad designs identified by Robinson (1998). I use participant-generated graphic organizers to represent the four basic designs from Robinson, which the students received early in the study. Once these four broad designs are in place, they act as general prototypes for the different designs and activities presented in the Literature Review, the Methods Section, Results, and Discussion. Moreover, I continually referred to these four basic designs as I taught the advanced reading course.
These four basic designs are tree-diagrams, flow-diagrams (I use the term flow chart), concept maps, and matrices.

As I describe these four basic designs from Robinson, refer to participant examples in 1, 2, 3, and 4 on the following pages. One of the examples was done on a large poster-paper (4ft by 3 ft) with white-board markers; two were computer-generated.

Figure 1 is a tree diagram, which mainly shows hierarchical and categorical relationships. This example of the flow diagram by Mamet is on poster-paper and was produced for an oral presentation to the class. A flow diagram shows sequential and/or chronological movement from one concept or category to another (see figure 2). Andy created this flow diagram for an oral presentation summarizing Tomasello’s (1999), *The Cultural origins of Human Cognition*. A flow diagram can be recognized for its common use as a time line or to show directions that run from left to right. It illustrates progression.

A matrix shows a more detailed explanation of the characteristics of different categories and juxtaposes categories (see figure 3). The matrix also presents an x- and y- axis of meaning by its arrangement of information across rows and down columns of defining terms. The matrix can be recognized for it's use of columns and rows that meet at a certain definition or point. Defining characteristics of terms and concepts are often contextualized by their position in the matrix. A concept map can show both semantic and conceptual relationships between different categories (see figure 4), and concept maps can be recognized by the use of circles connected by arrows and phrases (see also Bromley, K., Devitis, L., & Modlo, M. 1999; Novak & Gowan, 1984).
Figure 1. Tree diagram displays major events from an ironic and humorous story about a luckless traveler. Created by Mamet at the end of July. (Photo by EJ Haas)
Figure 2. Flow Diagram. Representing human evolution as summarized by (Tomasello, 1999). Created by Andy in mid-July.
Figure 3. Matrix used by Dan in November for his Elementary School Students.
Figure 4. Partially completed concept map completed by Mawng in July using the graphic organizer software Inspiration 6.0. This one she used for teaching graduate and undergraduate-level students. Instead of a circle at the center, she used a pictorial.

Summary of the Research on Graphic Organizers

The most common type of graphic organizers in the studies reviewed for the Dissertation was an integration of the tree-diagram and concept map, with predominantly tree diagram features. This is true for the ESL as well as mainstream applications (see Peregoy & Boyle, 2001). Research so far points toward encouraging but inconclusive results from graphic organizers both in comprehension, recall, and the integration of language and content (Rice, 1994; Robinson, 1998; Tang, 1989, 1991).

With regards to directions for future research, there seems to be an overall agreement on the need for more research on process features rather than if graphic organizers
facilitate comprehension (product features) (Rice, 1994; Robinson, 1998; Tang, 1989; Tang, 1991). There also seems to be room to look at more specific features of how learners from different language backgrounds and cultures interact with graphic organizers (Tang, 1989). More research into teaching students different graphic designs for varied goals might be explored; in addition to how different graphic organizers enhance or constrain shared perspectives among learners. How might different graphic organizers position learners to specific features of language and content? Overall, many questions about graphic organizers remain.

For ESL learners and contexts, research and classroom applications for using graphic organizers seem to be evolving (Early, 1991; Peregoy & Boyle, 2001; Short, 1994; Walter, 1996); however, for EFL contexts, I have not found any systematic research into process features of graphic organizer use, although there have been numerous application examples appearing and proposals for classroom use in texts directed toward EFL learners (see Nunan, 1995). In addition, there were numerous proposals for classroom use appearing in the TESOL '98 and TESOL '99 conference programs, and no doubt, numerous examples are appearing in conference programs and in texts I have yet to encounter.

Overall, with regards to graphic organizers, the field of ESL/EFL is wide open for systematic empirical research on process features of graphic organizers, even more so for EFL contexts. In addition, with many of the more recent advances in understanding the interwoven nature of language and culture, and new ways of thinking about language, culture, history, and activity (e.g., activity theory), new paths for research on graphic
organizer types of strategies are available and are beginning to appear in the literature (e.g., Hedegaard, 1999; Smagorinsky & O'Donnel-Allen, 1998, 2000)

With some introductory information about the research site, participants, my initial position in the study, and a basic history of graphic organizers established, I proceed with an introduction and description of the theoretical framework. Following this, I present a brief summary of the gaps in the research on graphic organizers along with the gaps in the research grounded in or related to the work of Vygotsky, Luria, and Leont'ev. Finally I provide definitions of the important terms and concepts before presenting the statement of the problem and research questions.

Theoretical Framework

I am bringing together different theorists for this research not only as an interpretive lens, but also for theory triangulation (Janesick, 1998). By using different theoretical perspectives derived or tangential to Vygotsky, Leont'ev, and Luria, I am intending to provide a credible interpretation of the data (Janesick, 1998). In addition, the way I am using these theorists to understand and present the data has not been done in this specific manner before. I summarize the theoretical framework in a concept map in Figure 5.

As already stated, the theoretical framework is based on research derived from or tangential to the theories of Vygotsky, Luria and Leont'ev. This is widely known as sociocultural theory (John-Steiner, Mahn, 1996; Luria, 1979). Some of the scholars I have included in the theoretical framework differ in their interpretations of the foundational work of Vygotsky, Luria, and Leont'ev (see Engestrom, 1999; Kozulin, 1998; Leiman, 1999).
Through collective artifact-mediated activity, human subjectivity emerges. This process includes signification, which is enacted ontogenetically, through social, cultural, and historical activity with representations as artifacts that mediate perception. Through collaborations with representations, humans discursively appropriate the intentions and mental states of others.

Figure 5. A concept map representing the theoretical framework. In the bottom left-corner, a synthesis and summary
In the spirit of a dialectic and pragmatic inquiry, I have juxtaposed the ideas of scholars who share similar theoretical roots; however, they are often judged (by the scholars themselves in many cases) as distant in theoretical perspective from one another (e.g., they treat internalization differently; they look at the individual and the collective differently; they treat the primary importance of artifacts differently) (Engestrom, 1999; John-Stiener & Meehan, 2000; Kozulin, 1998; Leiman, 1999; see also Sawyer, 2002).

I often use a phrase presented by Engestrom (1999) in describing these different theoretical positions related to the work of Vygotsky, Leont'ev, and Luria. Engestrom used the phrase "contextual and culturally situated theories of mind and practice" (p. 11). He used this phrase to describe approaches to human learning and development that emphasize mental activity and agency embedded in historically situated, dynamic interaction with culture and context.

Artifacts, Mediation, and Mediated Activity

As a foundation for this study, I have borrowed and synthesized the concepts of artifact, mediation, and mediated activity (Cole, 1999; John-Steiner & Mahn, 1996; Rogoff, 1995; Vygotsky, 1978; Wartofsky, 1979; Wells, 1999; Wertsch, 1998; Wertsch, Tulvise, & Hagstrom, 1993). In describing the distinctions between human biological evolution and historical development, Cole (1999) pointed out that the key to understanding these distinctions is found in the concept of artifact, which he described as:

a material object that has been modified by human beings as a means of regulating their interactions with the world and each other. Artifacts carry within
them the successful adaptations of an earlier time (in the life of the individual who made them or in earlier generations) and, in this sense, combine the ideal and the material, such that in coming to adopt the artifacts provided by their culture, human beings simultaneously adopt the symbolic resources they embody. (p. 90)

It is important to recognize that this definition of artifact starts with the word "material" and ends with, "human beings simultaneously adopt the symbolic resources they embody". From this perspective, and from what I present from Wartofsky (1979), abstract artifacts (i.e., symbolic resources) are linked to concrete material objects through activity. It is important to note here that I am moving beyond the use of "concrete material object" in some ways similar to Cole's (1999) and Well's (1999) expansions of this fundamental definition of artifact. Examples of concrete and abstract artifacts joined through activity include the rules of grammar as an abstract artifact linked to a sentence written on a piece of paper. Knowing how to write in an academic speech genre for a dissertation is an abstract artifact linked to the concrete artifact of the letters Ph.D., which includes access to all kinds of other abstract artifacts.

Representations, perceptions, and artifacts

I have followed the lead of Cole, (1999) and Wells (1999; 2000) and used Wartofsky's (1979) view of artifacts and representation as part of the theoretical framework. Wartofsky's ideas also provide a window into socially mediated agency, which will be presented later in this section.

In pushing forward the idea that the genesis of human perception is linked to the "fundamental activity of producing and reproducing the conditions of species existence" (p. 200), Wartofsky (1979) had this to say about artifacts and representations:
The crucial character of the human artifact is that its production, its use, and the attainment of skill in these can be transmitted, and thus preserved within a social group, and through time, from one generation to the next. The symbolic communication of such skills in the production, reproduction and use of artifacts—i.e. the teaching or transmission of such skills is the context in which mimicry or the imitation of an action becomes a characteristic human mode of activity. It is, in effect, this ability to represent an action by symbolic artifacts, which we may call representations. (p. 201 Italics in original)

It is easy to see why Wartofsky (1979) was taken up by Cole (1999), Wells (1999), and mentioned by others (e.g., Wertsch, 1998; Hedegaard, 1999). Wartofsky’s (1979) emphasis on artifacts as tools for the production and reproduction of existence and the embodied nature of perception are equally suitable to merge into the interpretive lens I used for the dissertation data.

Before going into Wartofsky’s (1979) explanation of the hierarchical nature of artifacts, a couple of key points from Wartofsky need to be mentioned to emphasize the relationships of artifacts and activities and how this is related to perception. In arguing for an historical epistemology concerning modes of human action; that is praxis, and for supporting the notion of the inseparability of perception, representation, artifacts and praxis, Wartofsky had these three major points around which his thesis revolved:

First, that perception itself is a highly evolved and specific mode of human action or praxis; i.e. that its characterization as only biological or physiological or more generally, in 'natural' contexts, is inadequate; and that moreover, its traditional treatment in philosophy, in the context of an
ahistorical epistemology, is fundamentally mistaken. Second: that the specific feature of perception as a mode of action is that it is mediated by representation; and third that it is by variation in modes of representation that perception itself comes to be related to historical changes in other forms of human practice, and in particular, to social and technological practice. (p. 189 Italics in original)

From these foundations about artifacts, Wartofsky described the hierarchical nature of artifacts, which was important for interpreting the dissertation data.

Wartofsky (1979) divided artifacts into three basic categories: primary, secondary, and tertiary. It is important to note that these categories are not mutually exclusive. It is also important to remember that when we move from primary to secondary and tertiary, we are moving beyond the notion of artifact as "concrete" and "material" (Cole, 1999, p. 90).

Primary artifacts are involved in the production of existence. Primary artifacts are objects like axes, bowls, computers, telecommunications networks, and mythical cultural personages (Cole, 1999; Wartofsky, 1979; Wells, 1999). These artifacts are concrete and material. Even though artifacts at this level carry information about how they are used, when information is explicitly provided on how to appropriate the use of primary artifacts, this information is more at the secondary artifact level.

According to Wartofsky (1979), artifacts created at the secondary level (representations) "may be gestural, or oral (linguistic or musical) or visual, but obviously such that they be communicated in one or more sense modalities; such, in short, that they may be perceived"(p. 201). Directions for sharpening an axe or how to behave
appropriately in relationships with relatives are other examples of secondary artifacts (Wartofsky, 1979; Wells, 1999). With regards to graphic organizers, process features of graphic organizers as they integrate language and content in an ESL/EFL teaching context are examples of a secondary artifacts merging into the tertiary world of curriculum.

Wartofsky’s (1979) final category is tertiary artifact “A model to explain the increasingly rapid disappearance of the rain forests would be an example of a tertiary artifact” (Wells, p. 69). Another example of a tertiary artifact is a Shakespeare play as a dramatic tertiary artifact (Wells, 1999). An ax having a symbolic meaning in a story is an example of a primary artifact moving into the tertiary level (Wells, 1999). Tertiary artifacts are imaginary worlds that are created to represent, examine, or plan human activity in a manner that does not necessarily have to be concerned with immediate applications and consequences (Cole, 1999; Wartofsky, 1979; Wells, 1999, 2000).

Wartofsky (1979) emphasized the transformational nature of artifacts by introducing the environment as artifact in the example of a hunter. When the hunter hears a snap of a twig, or hears birds take flight, this is an example of how the environment is transformed into an "object or arena of action" (p. 206). The hunter is using his knowledge of the environment as an instrument of the hunt. This knowledge of what the breaking of a twig or the rustle of birds might mean at a particular moment embodies the voices of generations of hunters before him. Awareness of the moment is as much a tool of the hunt as a gun or other weapon. With this understanding of artifacts in place, we can now turn to the concepts of mediation and mediated activity.
Mediation, transformation, and appropriation

I am referring to *mediation* as the use of concrete and abstract *artifacts* to monitor and regulate human activity. In the process of monitoring and regulating human activity, these artifacts exist *transformationally* (John-Steiner & Meehan, 2000; Rogoff, 1995; Tomasello, 1999) on *interdiscursive* (between people and the context) and *intrapersonal* (in the mind of an individual) planes of development. Between people and the context and within an individual mind are simultaneously constituted through dynamic, multidirectional, discursive activity. Artifact mediated activity allows individuals to attend to their own mental activity, thereby *transforming* the social, psychological, and physical worlds and the activities in which they engage (Harré & Gillett, 1994; John-Steiner & Meehan, 2000; Tomasello, 1999; Vygotsky, 1981; Wertsch, 1998). The use of the term *discursive* in this definition of mediation derives from the term *discursive practice*, which is defined by Davies and Harré (1999) as "all the ways in which people actively produce social and psychological realities" (p. 34).

My use of the term mediation was constructed through a synthesis of those scholars cited and the activities that occurred during the dissertation research. In other words, this definition is a product of a synthesis of scholarly work and *empirical* data. According to Le Compte and Presslie (1993), empirical "refers to whether or not phenomena are capable of being found in the real world and assessed by means of the senses" (p. 31). Indeed, the dissertation data, which at a minimum is 35 hours of audio and video data, provide numerous examples of mediation that can be found in the "real world" and assessed by means of the "senses". However, with Wartofsky's (1979) historical
epistemology of perception heavily influencing the theoretical framework for this study, the word "senses" takes on new meaning.

The particular nuances of this definition of mediation, which is central to the dissertation research findings, will become clearer as I proceed through the rest of the Introduction, Literature Review, Methodology, Results, and Discussion. It also should be noted that mediation is acknowledged as a common link between the various strands (e.g. activity theory) that have developed from the original troika of Vygotsky, Leont'ev, and Luria (Engestrom, 1999).

Another central element to understanding mediation is Vygotsky’s (1978) ideas about signs and tools, which he described as existing in distinctive, yet related realms (see Leiman, 1999, for criticism of Vygotsky on this interpretation). Readers of the dissertation will note the similarities between Vygotsky's explanation of sign and tools, and Wartofsky's (1979) use of the term artifact. According to Cole (1999), Wartofsky was not familiar with Vygotsky's work and Wartofsky was very influenced by Marx and Hegel. It seems an understatement to say that Vygotsky was heavily influenced by Marx and Engels (Vygotsky, 1978; Wertsch, 1985).

A tool, such as a pole used to vault a stream (Wertsch 1998), is directed externally; Vygotsky’s (1978) example of tying a knot to remember something is directed internally. This regulation of activity and memory ultimately affects the world of objects (Scribner, 1997c). It is also very important to recognize that the activities of vaulting a stream or tying a string around one’s finger are not unidirectional. These mediated activities, mediated by a pole and string respectively, are understood to be in a continual dynamic state (non-Cartesian!) as an ongoing transformation of the intermental and intramental
planes of development (Vygotsky, 1981). Signs and tools, despite their distinctions, are
linked together by mediated activity (Wertsch, Tulviste, & Hasgstrom, 1993; Vygotsky,
1978) as the acts of vaulting a stream and using a knot to remember are mediated.

One of the many issues of contention between some of the theorists working with
ideas originating from Vygotsky, Luria and Leont'ev, is around the notion of
internalization (i.e., the movement from intermental to intramental, external to internal).
To illustrate the position I am taking on mediation and transformation for the dissertation
research, and to illustrate the theoretical arguments found in the literature grounded in
sociocultural theory, I extend the previously mentioned example of tying a string around
one's finger to remember something.

Suppose I tie a shoelace around my finger to mediate the activity of remembering to
mail a car insurance bill that I keep forgetting on the bookshelf next to the front door of
my home. Every time I see a shoelace tied around my finger it means that I need to mail
my insurance bill (i.e., the shoelace becomes a sign). Further, suppose I begin to tie
shoelaces around my finger to remember other objects and activities: I have internalized
both the strategy and the meaning. I could even expand the basic strategy and use
different colored shoelaces to signify different activities and objects. Vygotsky (1978)
referred to this as the internal reconstruction of an external operation, and he used the
term internalization. Here is where the problems are: This notion of something moving
from the external to the internal has been criticized for expressing Cartesian dualism (see
John-Steiner & Meehan, 2000; Rogoff, 1995).

However, John Steiner and Meehan, (2000) mentioned how the argument is really a
non-issue. Their thinking on this is generally aligned with Rogoff (1995). It is in the use
of psychological tools (e.g., sign and symbol systems) that the wall between the external and the internal is broken down (Kozulin, 1998). John-Steiner and Meehan proposed the use of the term *transformation* in place of internalization.

It is interesting to note that John-Steiner and Meehan (2000) used the work of Rogoff (1990) and Wertsch and Penuel (1995) to support the notion of transformation, and these scholars (i.e. Rogoff, 1990, Wertsch & Penuel, 1995) prefer the term appropriation, although they use appropriation in slightly different ways. The point is that all of the scholars in this argument emphasize the *transformative* nature of tool and sign mediated activity.

I am primarily adopting and synthesizing Rogoff's (1995) and Wertsch's (1998) use of the term appropriation. More specifically, Rogoff said that participation and appropriation *are* transformation. To express this, she used the term *participatory appropriation*. Participation in an activity is crucial to appropriating any of the symbolic or concrete uses of tools and artifacts (Rogoff, 1995).

I should mention that there are obvious tensions in bringing Rogoff (1995), Wenger (1998), and other theorists together for this study (e.g., Harré & VanLangenhove, 1999). I talk more about the tensions at the end of the Introduction. Specifically, I respond to some of recent discussion of the tensions in sociocultural theory from Sawyer (2002) and briefly examine his proposal of *analytic dualism* and how it applies to the dissertation research. For the moment, it is necessary to acknowledge the tensions to keep the theoretical framework as accessible as possible, which includes potential limitations.

Wertsch (1998) discussed appropriation using Bakhtinian ideas (Bakhtin, 1981). From this perspective, appropriating the use of a tool would involve making it your own
in some way. If we briefly refer to my previous example of using my shoelace to mediate the activity of remembering to mail my car insurance bill, I have clearly vested a part of myself through participatory activity with the artifact of the shoelace.

Wertsch (1998) also used Bakhtin's notion of resistance to the appropriation of word meanings. Bakhtin (1981) talked of some words becoming more resistant to use due to context and other obvious reasons (i.e., the sociocultural history of individual membership in different discourse groups that used different types of words and discourse).

Because different parts of Bakhtin permeate the literature using Vygotsky's ideas (e.g., Wells, 1999; Wertsch, 1998) and some of his ideas are relevant to the dissertation research, I now move to the major Bakhtinian concepts I am using.

Before I shift into discussing Bakhtin, it is worth noting that there are many different Bakhtin's in the literature as there were many Bakhtin's in his own life (Morson & Emerson, 1990). Some of the ideas from Bakhtin are compatible with a Vygotskian perspective, and many ideas from Bakhtin are not wholly compatible with a Marxist or Hegelian view of activity (Morson & Emerson, 1990). Again, as I have brought other ideas together for the dissertation, I bring Bakhtin's ideas to this research in the spirit of pragmatic inquiry (Dillon, O'Brien, Heilman, 2000). The research questions and context prompted the interdisciplinary approach I am taking.

Collaboration with an Other, Speech Genre, and Utterance

Another important principle I am bringing to the dissertation research, which is either explicitly stated or implied in most of the theoretical work reviewed, is the notion that humans never really mediate activities alone; there are always others who supply the
concrete and abstract artifacts needed to enact day-to-day existence, unless of course an individual is autistic or has grown up in isolation (Clark & Holquist, 1984; John-Steiner & Meehan, 2000; Tomasello, Kruger, & Ratner, 1993). In recognizing the concept of an other, it is also important to understand the concept of *speech genre* and *utterance* (Bakhtin, 1986). I have touched on Bakhtin's notion of utterance earlier in the Introduction, but have not specifically defined it. I first present the concept of collaboration with an other followed by some foundational information on the notion of speech genres and utterance.

Even when one is alone, there is an *other* involved in activity. An individual might be reflecting on what someone has taught about a particular activity as she is enacting it; or she sees herself enacting the activity, either reflecting on some past occasion where she performed the same activity or something similar, or making adjustments to the current activity while projecting ahead to predict the outcome. In these ways, an individual enacting an activity will be reflecting on multiple images of the *self as other*. By enacting the self through the mediation of activities with others, there is always a degree of collaboration (Bakhtin, 1986; Clark & Holquist, 1984; John-Steiner & Meehan, 2000).

Essential to this idea of *other* is the qualitatively unique nature of time and space, which the self occupies in relation to context (Morson & Emerson, 1990). Bakhtin's ideas about time and space were related to his study of Einstein's theory of relativity and other topics from the natural sciences. Bakhtin adopted the notion that not two objects can occupy the same place and time simultaneously (Clark & Holquist, 1984; Holquist, 1990; Morson & Emerson, 1990). These ideas on time and space are fundamental to Bakhtin's notion of *dialogism* "Dialogism, like relativity, takes it for granted that nothing can be
perceived except against the perspective of something else" (Holquist, 1990, pp. 21-22). For researching human interactions, one of the implications from this approach is to investigate sociocultural/historical movement and context in which activity takes place. The challenge is understanding the individual against a broad background of social context, history, and movement. I am also mindful of advice from Vygotsky's (1978): "it is only through movement that a body shows what it is" (p. 65).

This view of the self as an enacted, authored event embedded in dialogic activity (Bakhtin, 1981, Bruner, 1987; Morson & Emerson, 1990; Wertsch, 1998) is important for understanding the interactions of the participants and myself in the dissertation data. This perspective has been effective in showing how we positioned ourselves through our respective storylines, classroom activities, and context. In addition to this concept of other, two other concepts from Bakhtin are essential for understanding the dissertation data. These are speech genre and utterance.

For Bakhtin (1986), utterances and speech genres emerged as significant features of his thinking on meaning and communication exchanges. Moreover, Bakhtin identified the utterance as a practical unit of analysis to study how meaning was created and exchanged.

In recognizing that the event of life and a unique self is shaped through the language used, Bakhtin (1986) turned to the utterance. For Bakhtin, the utterance is the basic unit of communication. An utterance can be a word, sentence, paragraph, movie, scientific paper, and a novel, which in common all have

so to speak, an absolute beginning and an absolute end: its beginning is preceded by the utterances of others, and its end is followed by the responsive utterances of
others (or although it may be silent, others' active responsive understanding, or finally, a responsive action based on this understanding). (Bakhtin, 1986 p. 71)

Furthermore, the utterance is bounded by "a change of speaking subjects" and "the possibility of responding to it" (Bakhtin, 1986, p. 71). These boundaries of an utterance are most easily identifiable by observing direct oral communication, where gesture and general posture can be observed.

When considering the physical posture and mental activity of those who are engaging in a communicative exchange, Bakhtin pointed out the importance of the listener as an active respondent to the utterance. As listeners engage the utterance, they begin to formulate a posture toward the utterance, and a response, where they will be agreeing and disagreeing, adding or subtracting the speaker's meaning according to where they are positioned and position themselves in the exchange. The speaker is also adjusting the tone of the utterance according to the effect they can observe or infer from what is implicitly or explicitly indicated through the listeners posture to the utterance (Bakthin, 1986). This is particularly significant in getting away from very passive and mechanistic views of communication (Wertsch, 1998).

Another important characteristic of Bakhtin's understandings of the utterance is how the boundaries and meanings of an utterance are linked to previous utterances. As paraphrased earlier in the Introduction "Any utterance is a link in a very complexly organized chain of other utterances" (Bakhtin, 1986, p. 69). The meaning that we find in oral or written text is very much related to past meanings. As soon as the meaning of the utterance emerges between people in "live speech" (p. 88), the utterance changes meaning in varying degrees. According to Bakhtin (1986), the closest one can come to
determining meaning is “at the point of contact between the word and actual reality, under the conditions of that real situation articulated by the individual utterance” (p. 88).

This temporary nature of the meaning of an utterance is additionally affected by other voices, often with an implied authoritative voice entering the moment of the communication exchange as is the case with the pronouncements of priests, judges, school superintendents, etc. “Words in discourse always recall earlier contexts of usage otherwise they could not mean at all. It follows that every utterance covertly or overtly, is an act of indirect discourse” (Emerson, 1986, p. 24). The idea of an appeal to a third voice for establishing the authority of an utterance is a particularly intriguing and powerful notion when you consider utterances as being linked to previous utterances, and the links of utterances to positions of power. A teacher, or someone standing in a room lecturing others, is one who necessarily depends on frequent appeals to authority and power.

Closely related to the notion of the utterance is the idea of relatively stable spheres of utterances known as speech genres. “A particular function (scientific, technical, commentarial, business, everyday) and the particular condition of speech communication specific for each sphere give rise to particular genres, that is, certain relatively stable thematic, compositional, and stylistic types of utterances” (Bakhtin 1986, p. 64).

In establishing the utterance as the most appropriate unit of analysis for the study of language, Bakhtin emphasized the inadequacy of other previous linguistic units such as the phrase, word, or sentence. These units ignored the contextual and historical nature of meaning, and when studied, gleaned information that was isolated from the various potentials of meaning signified by the utterance when considered within its context.
context in which the utterance is embedded is the relatively stable sphere of the particular speech genre (Bakhtin, 1986). Ultimately, the utterance must be used within the correct speech genre, which reveals the speaker's compositional links and overall speech-plan. It is the mastery of various speech genres that in many ways empowers the speaker:

The better our command of genres, the more freely we employ them, the more fully and clearly we reveal our own individuality in them (where this is possible and necessary) the more flexibly and precisely we reflect the unrepeatable situation of communication—in a word, the more perfectly we implement our free speech plan. (Bakhtin, 1986, p. 80)

It is easy to recognize that certain types of teaching strategies, ways to teach, and overall use of the English language in certain contexts would involve proficiency in very different speech genres, such as an the genres of an international school, a university, or a technical college. This proficiency in certain types of English teaching strategies and accompanying ways to teach could be understood as speech genres. Bakhtin's ideas about utterance and speech genre are relevant to the dissertation data and tangential to Wenger's notion of a community of practice, which I present later.

Wertsch (1998) and others (e.g., Wells, 1999) have merged Bakhtin's ideas into their theoretical perspectives. The reasons are obvious: Bakhtin enriched our understanding of the social nature of the self. These foundations from Bakhtin become even more useful for understanding human learning and development when we move into another related strand tangential to sociocultural theory, which informs the dissertation research: 

*positioning theory*
Positioning Theory

Positioning theory involves "The study of local moral orders as ever-shifting patterns of mutual and contestable rights and obligations of speaking and acting..." (Harré & van Langenhove, 1999, p. 1). More specifically the study of and the term position has come to mean:

the analysis of fine-grained symbolically mediated interactions between people, both from their own individual standpoints and as representatives or even exemplars for groups. In this technical sense a position is a complex cluster of generic personal attributes, structured in various ways, which impinges on the possibilities of interpersonal, intergroup, and even intrapersonal actions through some assignment of such rights, duties and obligations to an individual as are sustained by the cluster. (Harré & van Langenhove, 1999, p. 1)

This assignments of rights, duties, and obligations can be played out in the example of someone who is judged incompetent in a particular field and would consequently lose their authority; or someone might be positioned as an individual of authority and rule that particular cluster (Harré & Van Langenhove, 1999).

As a participant-researcher positioning theory became an essential component for understanding how the interactions between the participants and myself evolved. Positioning theory was also important for this dissertation research because I was in another country and culture introducing different graphic organizers and a variety of activities to English language learners and teachers. Moreover, I was continually in a position of power over the participants. In addition, my notion of graphic organizers as tools with tremendous potential in this EFL context was obvious to the participants,
regardless of how often I made a special effort to mention that the research on graphic organizers was inconclusive and more research was needed.

Significations and subjectivities

Two other important terms related to positioning and the discursive nature of the self are *significations* and *subjectivities*. Harré and Gillett (1994) use the term signification to indicate the active role of meaning in structuring the interaction between the person and a context so as to define the subjectivity of that person in the situation and their positioning in relation to certain discourses implicit in that subjectivity” (p. pp. 23-24)

Because the term *subjectivity* is used in this particular definition of signification and is relevant to the use of positioning theory in the dissertation research, it is important to provide a definition. Moreover, participants' subjectivities and my own subjectivity overlapped in some interesting ways as the semester unfolded. Subjectivity “expresses the way things appear to be or are signified by the speech and action of a person seen in relation to a discursive context” (Harré & Gillett, 1994, p. 35).

In addition to Harré and Gillett's (1994) use of the term, signification comes up in Vygotsky's (1978) discussion of his *genetic method*, specifically in relation to mediation. Vygotsky's (1978) describes signification as follows:

Tying a knot as a reminder, in both children and adults, is but one example of a pervasive regulatory principle of human behavior, that of *signification*, wherein people create temporary links and give significance to previously neutral stimuli in the context of their problem-solving efforts. (p. 74, emphasis in original).
In a related perspective of assigning meaning to the world, Lakoff and Johnson (1999) had this to say about the process of categorization in animals: "How animals categorize depends upon their sensing apparatus and their ability to move themselves to manipulate objects" (p. 17). This fits well with Bakhtin's *doctrine of answerability*, which centers on human responsiveness to the environment biologically and socially (Clark & Holquist, 1984; see also Morson & Emerson, 1990, and the term *responsibility*). It follows that our actual physical locations and how we are able to interact with the context will affect the extent of signification. In other words, what humans signify is embodied.

This common strand concerning where and how people assign meaning (what they signify), particularly with the artifacts around them, is an informative and critical place for understanding human learning and development. In teaching, aren't we prompting and creating significations? Aren't we intending for learners to signify specific symbolic means to perceive the world in a particular way?

Relevant to any discussion of positioning theory, signification, and subjectivity, is the notion of *agency*. This is particularly important to teachers assigning signification to different features of classroom interactions. Tangential to positioning theory and a way to link positioning theory with theories more closely related to Marx, Hegel, and Vygotsky is to move through the social nature of agency to Burke's Pentad, the notion of affordances, intersubjectivity, and activity theory.
Agency, Burke's Pentad, Affordances, Intersubjectivity, and Activity Theory

I am mainly drawing from recent and older works of Wertsch (1998) and colleagues (Wertsch, Tulviste, and Hagstrom, 1993) in this presentation of agency. Along similar lines of thinking, Harré & Gillett's (1994) view of agency is also a major resource. The word’s Latin roots revolve around to act and manage (Webster, 1996), and when the term is normally used, a particular goal is implied (Wertsch, 1998). Two related and relevant definitions are in Webster's Encyclopedic Unabridged Dictionary (1996). These are: "the state of being in action or of exerting power; operation: the agency of Providence (Italics in original, p. 37); and, "a means of exerting power or influence; instrumentally: nominated by the agency of friends" (Italics in original, p. 37).

Wertsch used Burke’s Pentad (1969), a rhetorical device, to present agency as embedded in the act, scene, agent, and purpose. Briefly summarized, this represents the what (the act), the why (the purpose), the where (the scene), the who (the agent), and finally the agency (the means) (Wertsch, 1998). Burke’s (1969) pentad provides a starting point to move beyond the prevalent view of seeing achievement and agency on purely individual levels and present agency as situated in the tensions between individuals and artifacts (i.e., on the interdiscursive plane).

However, as Wertsch (1998) and others (e.g., Rogoff, 1995) have reminded us, it is difficult to understand human activity when features are presented in isolation. Without addressing all of the specific methodological and theoretical conundrums lurking behind the concept of agency, I am using agency in this study to mean a varied spectrum of
abilities and competencies, which concretely translate into the varied means (i.e., skills, activities, strategies) with which a particular individual or group can enact/construct to reach a particular goal (s). Included in this perspective of agency are the varied motives involved, and all the different processes and knowledge of tool use. The main point is that very little about agency is isolated (Harré & Gillettt, 1994; Wertsch, Tulviste & Hagstrom, 1993; Wertsch, 1998).

Wertsch, Tulviste, & Hagstrom (1993) used Vygotsky's *general genetic law of cultural development* in distinguishing individual and group agency. This definition from Vygtosky, (1981) has been alluded to earlier, but not stated in its entirety.

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regards to voluntary attention, logical memory, the formation of concepts and the development of volition.

According to Wertsch, Tulviste, & Hagstrom, (1993) Agency exists in the interactions on these two planes (remember, this is a not a Cartesian view!). Another feature of agency that must be considered is the interaction between an agent and the scene as this relates to the scene affording or constraining an interaction. As suggested by Wertsch (1998) a useful theory to bring into a study of mediated action is Gibson's (1979) theory of perception.

The concept of affordances, as it was used to further understand the episodes of interactions selected for analysis, is based on the ideas of Gibson (1979). Briefly stated,
affordances can be viewed as those elements of the environment available to the sensorimotor capacities of the agent (Gibson used the term *animal*, which I will refer to as *agent*). Gibson mainly saw the environment as offering possibilities to the agent such as the ground having a "stand-on-able" quality; not a "sink-into-able" quality like water would have (Gibson, p. 127). He describes the term affordances as follows: "I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complimentarity of the animal and the environment" (Gibson, 1979, p. 127).

It is interesting to note that Gibson (1979) writes of the complementarity of the relationship between the animal and the environment and speaks of the inter-relatedness between the agent and what the environment affords the agent. Furthermore, affordances are unique for any given agent. A cold mountain lake affords breathing to a fish, but not to a deer. Affordances point "to the environment and to the observer" (Gibson, 1979, p. 129)

Summing up his theory of affordances Gibson (1979) said the following: "The possibilities of the environment and the way of life of the animal go together inseparably. The environment constrains what the animal can do, and the concept of a niche in ecology reflects this fact" (p. 143). It should be noted that this individual complementary relationship between an agent and what the niche affords to an individual agent is an element from this perspective that has been criticized (See Harré & Gillettt, 1994; Varela, Thompson, & Rosch, 1991). For the dissertation research, by emphasizing the social interaction of agent, mediational means, act, purpose, and the scene, I am emphasizing
the social nature agency in terms of the affordances enacted through socially mediated activity rather than any individual nature.

It is important to keep in mind that there is a balance between what an environment affords an agent and what it constrains (e.g. the fish and deer mentioned above: the niche the deer occupies and the affordances the deer requires to exist on land constrains its ability to live underwater). Moreover, the tools used by the agent constitutes the affordances or constraints of the environment.

By emphasizing the mutually constitutive nature of tool, perception, and environment, I am avoiding the "dualism" and "monism" of Gibson as discussed in Varella, Thompson, & Rosch (1991, p. 203-204). Moreover, I am not viewing perception as unmediated, as Gibson's (1979) theory implies (see Harré & Gillettt, 1994). By integrating Wartofsky's (1979) theories of representation and perception, I follow along more closely with Wetz's (1998) use of Gibson (1979) and van Lier's (1996, 2000) explication of the term affordance, which is listed in the Definitions of Terms section of the Introduction.

When examining what communicative interactions might afford or constrain, it is important to consider another concept that is implied or explicit in many paper and books by many researchers investigating mediated activity and a sociocultural approach to learning and development (e.g., van Lier, 1996; Wells, 1999; Wertsch, 1998). This concept is intersubjectivity (Rommetviet, 1974), which is considered essential for effective instructional dialog (Crook, 1994; van Lier, 1996).

Intersubjectivity is grounded in the notion of shared understandings (Crook 1994; Rommetviet, 1974). In his investigations of classroom interactions with computers,
Crook (1994) was looking for episodes where "partners are socially 'engaged' in the sense of being involved with constructing and exploiting shared objects of understanding" (p. 164). More specifically, intersubjectivity illustrates the notion that we have an idea of what exists in the minds of others. We can build our utterances in such a way as to prompt awareness of some topic or object without explicit statements because we know we have established a mutual understanding (Crook, 1994; Rommetviet, 1974). This notion of intersubjectivity is essential to understanding the participant interactions presented by the dissertation research.

*Activity theory* is another theoretical perspective that is a necessary piece of the overall theoretical framework and embedded in much of the literature discussing applications of Vygotsky's ideas. Before moving further, a brief explanation of activity theory is necessary.

In explicitly proposing activity theory as a necessary approach to learning and development Engestrom and Miettinen (1999) said that "More than ever before, there is a need for an approach that can dialectically link the individual and the social structure" (p. 19). On the same page, this proposal continues:

There is a demand for a new unit of analysis. Activity theory has a strong candidate for such a unit of analysis in the concept of *object-oriented, collective, and culturally mediated human activity, or activity system*. Minimum elements of this system include the object, subject, mediating artifacts (signs and tools), rules, community, and division of labor (Engestrom, 1987; Cole & Engestrom, 1993). The internal tensions and contradictions of such a system are the motive force of change and development. (p. 9, Italics in original)
Activity theory provided support for linking the participants' prompted use of graphic organizers with each other to the larger community of English language teachers and learners at Northern University and further beyond the case. Implicit in the community beyond the bounded case is the influence of social rules and divisions of labor. These societal influences, in turn, work to shape the tensions of individually mediated activity.

Mediational Means, Tensions, and the Materiality of Mediational Artifacts

From the overall perspective of agency emerging from the interactions of humans and artifacts on intermental and intramental planes of development, which I will be referring to as inter-discursive and intra-personal planes of development, Wertsch (1998) proposed that a suitable unit of analysis for understating human interactions is mediated action, which includes the irreducible tension between the agent and mediational means (p. 25). The mediational means is/are the artifact (s) mediating activity. Recall Burke's pentad and the use of the term agent to designate who is using the artifact. This use of the irreducible tension between agent and mediational means in the data analysis was intended to provide a non-reductionist, holistic approach to understanding mediated action.

Embedded in my efforts to explore and interpret those ideas tangential or related to Vygotsky is my intention to understand how this tension between agent and mediational means can be used. I leave a more thorough explanation of this suggested unit of analysis
for the Results and Discussion sections, beyond what is implied in the following explanation of mediational means, psychological tools, and the materiality of artifacts.

Wertsch (1998) used the term mediational means and cultural tools interchangeably. For the dissertation research I used the terms mediational means, mediational artifacts, and psychological tools interchangeably. Recall that tying a knot to remember something is a well-known example of using a concrete object to mediate an abstract activity. In this activity of using a piece of string to remember something, or putting notches in a wooden stick to count, the stick, and the piece of string are primary artifacts that are transformed into psychological tools through activities. Graphic symbolic devices, language, mnemonic and other types of signs and sign systems fall into the category of mediational means (Wertsch, 1998). Similar types of examples are also discussed using the word *tools* or *psychological tools* in the literature (John-Steiner, 2000; Kozulin, 1998; Wertsch, 1985, 1998). The main characteristic to remember when I use the terms tool, mediational means, or mediational artifact is to recognize the social and cultural history embedded in the use and creation of the tool. Moreover, as John-Steiner (2000) points out, and what I have alluded to frequently "We shape our tools and are shaped by them" (p. 194).

Another significant characteristic of mediated activity is to think of the mediational means in terms of the level of materiality. Wertsch (1998) talked about materiality of mediational means in terms of an artifact existing across time and space. Wertsch provided the example of maps and mechanical drawings as artifacts that exist across time and space, and he used Wartofsky's (1979) primary artifact category to identify these. Wertsch (1998) then gave the example of spoken language as having a materiality that seems to "evaporates" (p. 31) but is nonetheless as important and powerful as those
artifacts at more concrete levels. Wartofsky's (1979) categories of primary, secondary, and tertiary artifacts are useful for extending this notion of materiality and mediation.

As agents using mediational means, we are continually moving from one level to the next. Suppose you are a duck farmer thousands of years ago before people learned to count beyond their fingers and toes. I am also a duck farmer and have determined that I can put a notch in a stick every time I count ten ducks. I come over to your duck farm and I show you a stick (the primary artifact). I then work with you to count ten ducks, and instruct you to take out your stone knife and cut a notch into the stick. The instructions for cutting notches in the stick are now at the secondary artifact level. You then begin to plan your future duck farming activities using the notches on the sticks to calculate how many ducks you think you can raise and where you will take your ducks to make sure they have enough food and water. You are now at the tertiary artifact level (i.e., in your planning of how and where to put your ducks in a row, so to speak).

There were numerous examples in the data when this movement in the materiality of mediational means was clearly evident. This materiality of mediational means also has implications in the next section, where I present Wertsch's (1998) discussion of the role of narratives mediating activity.

Narrative as mediational means

This study showed that African American students at UCLA had appropriated stereotype threat. The stereotype was the African American's inability to do well on an exam in this context. This stereotyped view of the self, constructed by others, became a mediational means partially constitutive of a more damaging and all encompassing mediational means of the self during the activity of taking what was perceived to be an intelligence test.

In this study two groups of African American students and White students were randomly selected and assigned to a stereotype threat condition and stereotype free condition. In the stereotype threat condition the students were told that this was a diagnostic of intellectual ability, and in the non-stereotype threat condition the test-takers thought the exam was not for any kind of diagnosis and was only a series of problem-solving tasks.

The results showed that the African American students performed significantly worse when faced with the stereotype threat condition and improved markedly when in the non-threat condition. This is an instance of a perceived stereotype threat as a kind of cultural narrative mediating the activity of taking an exam. Of course the other disturbing suggestions of how stereotype threat as a cultural artifact/mediational means might be constraining the activities of African Americans and other minorities must be considered beyond this study.

Wertsch's (1998) framework adds to this theoretical foundation from the scholars I have presented. Furthermore, much of his work appears to some extent in almost all of the writings I have reviewed for this dissertation and other papers. His explanations of the tensions between agents and mediational means are rich and extremely applicable to
understanding the tensions that emerged in the dissertation research when different types of graphic organizers were introduced as artifacts to mediate various English language learning and teaching activities.

Further Contributions from Discursive Psychology and Positioning Theory

Harré and Gillett (1994) began their book *The Discursive Mind* with numerous reasons why cognitive psychology and other research frameworks (e.g., behaviorism) need to be replaced. Among these was the nature of these theoretical frameworks in promoting Cartesian mind-body dualism, and in this respect, render inaccurate perceptions of the world. The solution that Harré and Gillett present is *discursive psychology*: a way to approach human behavior more from the context of the interpretation and discovery of participant activity rather than from frameworks governed by prediction, ultimate truths, experimental variables, and control. (see Harré and Gillett, p. 21)

A central notion of discursive psychology is that reality and meaning are grounded in the oral, written, and symbolic text in which we enact our lives. Harré and Gillett (1994) extend an earlier approach by Austin (1961) in saying “language in use is primarily concerned with the performance of actions and acts of various kinds. . . . Actions and the acts they accomplish make up discursive practices.” (p. 28). This language in use is also recognized as having a standard of correctness or incorrectness that is situated. Language refers to oral, written, and symbolic language, which ultimately has to include gesture (Harré & Gillett, 1994).
A good example of the way discursive psychology might look at how language is played out as a speech-act is in the indexical nature of language, such as using the personal pronoun "I" (Harré & Van Langenhove, 1999, p. 62). On a simple and more concrete level, this indexicality indicates where something points, such as smoke indexing fire (Duranti, 1997). When "I" is used, it puts the speaker at the center of the activity. Harré & Gillettt (1994) illustrate the implications of what the speech points to in an example from Spanish where the meaning positions of interlocutors change if yo were placed in front of the verb espero. This would put emphasis on the phrase I am writing to the point that this speech act could be perceived as a reprimand (yo=I; espero=writing).

In summary, along with those relevant theorists from what has been labeled by Engestrom (1999) as contextual and cultural theories of mind and practice (e.g., Wertsch, 1998; Rogoff, 1995), discursive psychology and positioning theory provide a richer understanding of the larger society when investigating collective human activity. With these theories in place, we can now turn to an approach to human activity that brings collaboration with artifacts into the expanse of human history.

Collaboration, Cognition, and Artifacts

About 200,000 years ago the modern human became a distinct species (Tomesello, 1999). We now live in a world of extraordinary and startling technological achievements and possibilities (e.g., our robotic adventures on Mars, the mapping of the human genome). One of the central ideas that Tomasello presented was this: In the six million years that modern humans developed from apes, they did not have sufficient time to develop the cognitive ability to have accomplished all the technological feats and
complex systems of representation and organization that we now have. How have our technological achievements and complex systems developed in such a relatively short period of time? Tomasello's explanation revolved around understanding the perspectives of others, shared attention through collaboration, and artifacts (Tomasello 1999; Tomasello, Kruger, & Ratner, 1993).

With regards to what has been said thus far concerning mediation, artifacts, representations, and the dynamics of mediated activity (Wartofsky, 1979; Wertsch, 1998), Tomasello (1999) adds to a foundation of work that supports the notion that collaboration is a crucial human activity. Tomasello's work supports the idea that when humans collaborate through the use of artifacts, particularly when they are discovering something new together, they appropriate the intentions and mental states of others (of course, the amounts and kinds of appropriations vary widely) (see also Tomasello, Kruger, & Ratner, 1993).

The foundation to this idea of appropriating the mental states and intention of others is the ability to understand others as intentional beings, which involves high levels of shared perspectives and attention. For Tomasello (1999) the unique and profound depth at which humans collaborate explains how far we have progressed technologically in such a relatively short period of time:

> Human beings evolved a new form of social cognition, which enabled some new forms of cultural learning, which enabled some new processes of sociogenesis and cumulative cultural evolution. This scenario solves our time problem because it posits one and only one biological adaptation—which could have happened at any time in human evolution, including quite recently. (p.7)
This "biological adaptation" that Tomasello (1999) proposed is what he called our "species-unique cognitive skills" (p. 4), which is our mode of cultural transmission. Our modes of cultural transmission revolve around artifacts and our ability to recognize the intentions of others more profoundly than non-human species.

Humans do not have to re-create knowledge because of our unique social way of transmitting knowledge between one another and from one generation to the next. Humans are able to pool their knowledge and modifications of artifacts and consequently produce a *ratchet effect* (Tomasello, Kruger, & Ratner, 1993), whereby modifications are made to artifacts and passed on, leading to a ratcheting up of the potential impact of the artifact on human activity.

Synthesizing Tomasello's (1999) understanding of the collaborations resulting in modifications to artifacts with Wartofsky's perspective (1979), we can view these collaborations described by Tomasello as examples of sociocultural/sociohistorical collaborations with primary, secondary, and tertiary artifacts. Moreover, this notion of the appropriation of the mental states and intentions of others has some striking possibilities when setting up interactions around different types of graphic organizers. This perspective from Tomasello also has implications when we move into collective, social practices that we might find in communities and classrooms.

Sociocultural Approaches to Communities of Practice and Classrooms

The researchers of communities of practice and classrooms place more emphasis (of course, to varying degrees of emphasis) beyond individual interactions with others to
collective interactions in the classroom and community. Recall, though, that the collective community is implied, if not explicitly stated, in most of the theoretical work I am bringing to the dissertation (e.g., Wertsch, 1998). Artifacts and mediated activities are also central issues to the perspectives presented in this section as they have been for almost all of the work discussed thus far. A good point to begin this section are the observations of Rogoff (1995), emphasized the interwoven nature of the community and the individual. Following Rogoff, I present the ideas of Wenger (1998) and Wells (1999; 2000).

Three planes of activity

Rogoff (1995) presented three overlapping planes of activity that need to be considered when investigating the links between artifacts, culture, and cognition. Rogoff's descriptions of these planes of development are examples of the richness that a sociocultural approach to learning and development can provide. Moreover, some of the remarks Rogoff (1995) made in her paper about the concept of internalization are relevant to what has been presented concerning the use of appropriation. This also applies to discussions of movement on the intra- and inter-mental planes of cultural development (Vygotsky, 1981).

In beginning her paper, Rogoff (1995) presented Vygotsky's dialectical approach to learning and development, which is acknowledged as another central element of Vygotsky's stance toward meaning (John-Steiner & Meehan, 2000; John-Steiner & Mahn, 1996; Wertsch, 1998). Central to this principle is the acknowledged inseparability of opposite or similar factors, or elements that are mutually contingent and affective in any activity, such as water being contingent on a certain interaction of the elements of
hydrogen and oxygen. When human activity is researched, a similar posture toward the inseparability of elements must be taken (Rogoff, 1995).

Rogoff's (1995) three overlapping planes of development go along with much of what has been discussed thus far, particularly in emphasizing the dynamic nature of transformations due to mediated social interactions. These three planes are called apprenticeship, guided participation, and participatory appropriation, which she viewed as "different planes of focus in sociocultural activity—community/institutional, interpersonal, and personal" (p. 141). Rogoff (1995) described participatory appropriation as "active individuals participating with others in culturally organized activity" (p. 142).

Apprenticeship, guided participation, and participatory appropriation apply to a variety of culturally organized activities, such as learning to participate in school, learning how to behave as a faculty member, learning to be a husband/wife, etc. According to Rogoff (1995), "The idea of apprenticeship necessarily focuses attention on the specific nature of the activity involved, as well as on its relation to practices and institutions of the community in which it occurs—economic, political, spiritual, and material" (p. 142).

If I may use Wartofsky's (1979) terms to briefly frame Rogoff's (1995) ideas: as the apprentice participates in an activity, she is guided not only by a more capable other, but the apprentice is also guided by a vast array of primary, secondary, and tertiary artifacts. Thus, the artifacts involved in any activity serve as part of the scaffolding for the apprentice participating in the activity. The example that Wartofsky (1979) supplied of a model of a rain forest as a tool to apprentice a group into the position of environmental conservationists, or even if this were to become a tertiary artifact in the training of a
lumber company executive, this tertiary artifact of the rain forest is guiding the apprentice. Adding an ecologist into the activity to inform the participants how things in this rain forest interact and how the newcomer's involvement may impact the ecology could be viewed as *guided participation*. Finally, the third plane of development is *participatory appropriation* and this overlaps with the idea of an apprentice being guided by individuals and others as she participates in an activity. This participation in an activity prompts transformations, which Rogoff (1995) argues as “a process of becoming rather than acquisition.” (p. 142). I wish to emphasize that these planes of development are not to be seen as strictly delineated stages.

Rogoff (1995) goes on to discuss apprenticeship, guided participation, and participatory appropriation in much more detail and reports how this framework was applied with girl scouts and their cookie distribution system. She provides a wide perspective on how the girl scouts created and participated in their vast distribution system. The girl scouts enacted apprenticeship, guided participation, and participatory appropriation by collaborating with the varied artifacts and activities needed to sell cookies, such as counting money for sales and inventory, working with partners selling door to door, and getting advice from girl scout troop leaders and adults.

From Rogoff (1995) it is a natural step to move outward from the one type of collective, participatory activity with a group of girl scouts, into a slightly wider view of community as presented by Wenger (1998). From Wenger, we will move back inwards to the classroom with Wells (1999), whose approach synthesizes much of the work of the scholars that have been reviewed.
The community

Wenger (1998) provides a more encompassing and extensive view of apprenticeship, guided participation, and participatory appropriation in his book *Communities of Practice: Learning, Meaning, and Identity*. He credited this book to his earlier collaborations with Jean Lave in their book *Situated Learning: Legitimate Peripheral Participation* (Lave & Wenger, 1991). Viewed from what has just been said about Rogoff (1995), Wenger (1998) defined a unit of analysis of community. Since it is beyond the scope of the dissertation to completely cover the powerful framework that Wenger (1998) set up, some choice pieces will be provided that illustrate where he fits within these contextual and culturally situated theories of mind and practice that I used for the Dissertation.

With regards to Wenger's (1998) basic assumptions about learning and the nature of knowing, he began with the following four premises:

1) We are social beings. Far from being trivially true, this fact is a central aspect of learning.

2) Knowledge is a matter of competence with respect to valued enterprises—such as singing in true, discovering scientific facts, fixing machines, writing poetry, being convivial, growing up as a boy or a girl, and so forth.

3) Knowing is a matter of participating in the pursuit of such enterprises, that is, of active engagement in the world.

4) Meaning — our ability to experience the world and our engagement with it as meaningful — is ultimately what learning is to produce. (p. 4)
Wenger's (1998) book is grounded in the notion that engagement and participation in social practices are fundamental to learning, meaning and identity. Throughout his explanations and description, he used terms such as dual constitutions of histories, modes of knowing, the concept of practice, and finally concluded with a section on the implications for education. These kinds of descriptions and explanations swim in a sea of voices already mentioned, particularly Bakhtin (1981; 1986). I will briefly present some things Wenger mentioned about identity and the implications for education that, again, help to express how his work fits in with the rest of these scholars and how it applied to the dissertation data.

In describing the layers of meaning and tensions between participating in the identity of being a married couple and the establishment of an ever-changing self in that identification, Wenger (1998) had this to say:

our identities form in this kind of tension between our investment in various forms of belonging and our ability to negotiate the meanings that matter in those contexts. Identity formation is thus a dual process.

1) **Identification** is one half of it, providing experiences and material for building identities through an investment of the self in relations of association and differentiation.

2) **Negotiability**, the other half, is just as fundamental, because it determines the degree to which we have control over the meanings in which we are invested. (p.188)

This miniature piece of the vast array of support that Wenger (1998) provided for using the community as a unit of analysis exemplifies the very Vygotskian and
Bakhtinian assumptions that learning is an embodiment of the social, cultural, and historical domains of activity, which are filled with dynamic tensions and positionings (Harré & van Langenhove, 1999). These tensions and positioning emerge between the self and others mediating social interaction using primary, secondary, and tertiary artifacts in the attainment of goals.

In applying his work to education, Wenger (1998) focused on four main points that highlight how his explanations of learning and development might contrast with traditional approaches to education. Before presenting these four points, two terms Wenger used need to be clarified, these terms are participation and reification. Wenger used these two terms to explain the negotiation of meaning, which encompassed both of these terms. Participation and reification are implicitly or explicitly present in the work of many of the theories reviewed thus far (e.g., Rogoff, 1995; Tomasello, 1999).

Wenger (1998) used the term participation "to describe the social experience of living in the world in terms of membership in social communities and active involvement in social enterprises. It is a complex process that combines doing, talking, thinking, feeling, and belonging" (pp. 55-56). Wenger added the following, which is similar to some ideas about one's discursive relations with others (e.g., Bakhtin, 1986; Romettveit, 1974; Tomasello, 1999): "when we engage in conversation, we somehow recognize in each other something of ourselves, which we address" (p. 56). In this perspective of participation, Wenger included the notion that participation is a source of identity.

Through this process of seeing ourselves in others we are able to participate. This kind of participation, which involves seeing ourselves in others, shapes our identity and the community in which we participate. Ultimately, this seeing ourselves in others links
the negotiation of meaning to membership in a community, which means we link participation with being like the others in our community of practice. Closely related to this collective notion of participation and the negotiation of meaning is the concept of reification.

Reification is understood to be the treatment of an abstraction as real. It is a process of projecting ourselves into the world. This involves an "excessive concreteness" (Wenger, 1998, p. 59). Wenger provided the example of the common use of democracy and the economy:

In everyday discourse, abstractions like "democracy" or "the economy" are often talked about as though they were active agents. When a newscast reports that "democracy took a blow during a military coup," or that "the economy reacted slowly to the government's action," the process of reification provides a shortcut to communication. (p. 58).

Overall, meaning lies in a balance between reification and participation. Wenger (1998) talked of a balance between these two processes in which all humans engage. He was careful to speak of this balance as a duality, which should not be taken as opposites. This duality of participation and reification and its relation to meaning is grounded in negotiation: "meaning is always the product of its negotiation, by which I mean that it exists in this process of negotiation. Meaning exists neither in us, or in the world, but in the dynamic relation of living in the world" (p. 54).

The following four main points highlight how his explanations of learning and development might contrast with traditional approaches to education:
1) **participation and reification** – how much to reify learning, its subject and its object

2) **the designed and the emergent** – the relation between teaching and learning is not one of simple cause and effect

3) **the local and the global** – educational experiences must connect to other experiences

4) **identification and negotiability** – there are multiple perspectives on what an educational design is about: its effect on learning depends on inviting identities of participation. (p. 264)

In his final chapter, Wenger (1998) provided an extensive rationale for each of these issues and what kind of “trade-offs” (p. 264) are made in approaching education from this perspective when contrasted with a traditional approach.

This framework from Wenger (1998) contributes to the richness of a contextual and culturally situated theory of mind and practice. His focus on the community has tremendous potential to inform classroom teachers and researchers, as well as the Dissertation.

The final synthesis of utterances in this category of communities of practice and classrooms were the extensive proposals of Wells (1999). To refine questions about knowing and meaning with regard to teaching situations, Wells combined many of the foundations from the contextual and cultural theories of mind and practice already mentioned. I now turn to his rendering of learning and development.
The classroom and dialogic inquiry

Well’s (1999) framework provided effective suggestions for understanding classroom interactions, particularly discourse data and other data on discursive practices, and how we can investigate learner engagement with artifacts and relate this to clearer understandings of what it means to know something. Due to the need be as brief as possible, I will touch on the salient points that seem most relevant to the Dissertation; however, keep in mind that it would take more than this discussion to do justice to the complexity and strengths of his work.

Well’s (1999) outlined his central thesis for the book in the introduction after presenting the dialog of a mother and a child. After hearing a pastry pan snap while cooling, the child asks his mother what the loud noise was; the mother patiently explains. Following this dialog, Wells (1999) said: “The central argument in this book is that education should be conducted as a dialogue about matters that are of interest and concern to participants” (p. xi). From here he proceeds to take readers through an entire framework for understanding teaching, learning, meaning, knowing, culture, artifacts, and language.

One of the pillars of Well’s (1999) framework is Vygosky’s (1978) Zone of Proximal Development (ZPD) and some of the many associated assumptions concerning co-construction, psychological tools, and the engagement of participants in goal-driven activity. Wells (1999) juxtaposed the work of Halladay (1993), whose research revolved around language-based theories of learning, with the work of Vygotsky. It is then that Well’s (1999) discussion surged with clarity for framing classroom interactions and the activities of knowing and learning. The complementary aspects of Halliday and
Vygotsky's approaches to learning and development provided a foundation for Well's (1999) overall perspective.

Early on in the text, Wells (1999) introduced the Vygotsky's genetic method. In pointing out the effective nature of a genetic approach, Well's (1999) had this to say: "In any domain, the present state can be understood only by studying the stages of development that preceded it" (p.5). To study the social, historical, and evolutionary development of a phenomena as it relates to the individual and community is foundational to how Well's illuminated the complementary differences between Halladay and Vygotsky.

As Well's used Halladay and Vygotsky as foundational supports to his framework, he discussed topics that have been touched on in this Introduction, or that follow similar perspectives grounded in the assumption that learning is contextually and culturally linked to social interaction. Of the many proposals he made that add to the base of knowledge presented here, Well's rendering of representations in relation to his descriptions of knowledge seems most applicable to the Dissertation research. As in many of the other works that have been reviewed for the Dissertation, it is very difficult to choose which features of each perspective to present. What I choose to present from Wells (1999) should be taken in light of the major themes of mediation, mediated activity, and artifacts.

Recall that I have followed the lead of Cole (1999) and Wells (1999) in using Wartofsky's (1979) perspective on artifacts. More specifically, I am interested in how representations mediated the interactions presented by the Dissertation data. Ultimately, I am trying to catch glimpses of the process features of artifacts mediating language and
content knowledge. Fortunately, Wells (1999) provided some effective parameters from which to understand knowing, which, in turn, lead into some of the potentially rich procedures he provides for analyzing discourse.

Before presenting Wartofsky's (1979) view of artifacts Wells (1999) argued that knowledge may be partially understood as "located in the differing relationships between the actors, activities and artifacts associated with different modes of knowing" (67). From the earlier discussions of Wartofsky (1979), this view of artifacts and representations as it is applied by Cole (1999), and Wells (1999), illustrates how central artifacts are to representations and knowing, although this is only partially where knowledge resides (Wells, 1999). Wells supported the view that knowledge resides in our collaborations with artifacts, more specifically, this knowing is linked to the Bakhtinian and Vygotskian ideas of others as expressed in this part of Well's framework that is partially derived from Wertsch (1998). Keep in mind that this is only part of Well's understanding of how knowledge is related to representations and artifacts. On the topics of artifacts, the intermental and intramental planes of development, and knowledge and mediation, Wells (1999) said:

We represent our experiences, actions and thoughts through the different kinds of artifacts we create and use in order to act, know, and understand in activities jointly undertaken with others (Wertsch, 1998). . . . In sum, although knowing is necessarily an activity carried out by particular individuals, it has its purpose and its fullest realization in the socially-oriented creation and use of artifacts in order to represent and extend our understanding with and for others. (pp. 70-71)
From these foundations Well's (1999) proceeded to place an emphasis on knowledge as associated with activity and intentions. In so doing, Wells proceeded more toward an activity theory perspective and thus turned completely away from any notion of a traditional view of knowledge as permanent or fixed. "Knowing can thus be most adequately understood as the intentional activity of individuals who as members of a community, make use of and produce representations in the collaborative attempt to better understand and transform their shared world (p. 76, Italics in original).

These foundations from Wells (1999) on learning and development are useful extensions of much of what the scholars assembled for the Dissertation imply. Researchers of learning and development need to begin to look at learner collaborations with artifacts and what kinds of concrete and abstract artifacts are constituted from these collaborations. The implications for understanding the construction of value and belief systems from collaborations with artifacts should be clear, particularly in some of the unusual social transformations taken place in the United States and the World in the past few of years; the Columbine High School massacre is one example that comes to mind where the collaboration with artifacts associated with violence (e.g., violent videos, songs, guns, etc.) could be perceived as certainly being a contributing factor. Other obvious collaborations with artifacts that involve communities of practice are extremist activities pushing humanity this way and that, tit for tat, then?

Because Wells (1999) laid out such clear parameters on how knowing and how representations with artifacts are so crucial to learning and development, it seems only fitting to mention Well's (1999) understanding of learning.
Learning is the taking over and mastering of cultural artifacts and practices in the course of engaging in joint activities, in which the functional significance of these artifacts and practices is modeled and the learner receives assistance in their use.

(p. 155)

Here again, we see that Wells (1999) synthesized many of the positions taken by other Vygotskians and related theorists in placing concrete and abstract artifact mediation as a central feature to classroom activities.

Besides ultimately placing the object of activity at the foreground and using the same type of triangle of activity as part of his explanatory framework as Engestrom (1999), Wells (1999) synthesized most of the work of the scholars presented in this theoretical framework for the dissertation research into a hybrid of his own. As mentioned previously, his work warrants much more discussion and explanation than I have covered here in this section on communities of practice and classrooms, but for the moment, his understandings, explanations, and links between representations, knowing, artifacts, mediation, and learning are worth applying to the Dissertation.

A Summary of the Theoretical Framework

I have synthesized the scholars presented here in order to provide a wide, interdisciplinary lens to interpret the data, follow through with the purposes of the research, and answer the research questions. In addition, this theoretical framework guided my teaching practice, of which I will provide more detail in the Methodology. For the moment, this theoretical framework can be understood as represented in this hypothesis-like statement displayed in the bottom left-hand corner of Figure 5:
Through collective artifact-mediated activity, human subjectivity emerges. This process includes signification, which is enacted ontogenetically, through social, cultural, and historical activity with representations as artifacts that mediate perception. Through collaborations with representations, humans discursively appropriate the intentions and mental states of others.

Ultimately, this is an attempt toward an interdisciplinary approach to better understand human learning and development. I now proceed to the Rationale, Statement of the Problem, Definitions of Terms and Concepts, and Research Questions.

Rationale: Discursive Planes of Development and Gaps in Vygotsky's Theories

I have previously used the terms intermental and intramental, which Wertsch, (1991, 1998) suggested instead of interpsychological and intrapsychological from the oft-quoted definition of the general genetic law of cultural development (see Vygotsky, 1981).

However, as previously stated, I have proposed two terms in my use of the concept of mediation for this study. I think these two terms are essential for synthesizing Vygotsky's ideas with the other theorists I have presented here (e.g. Harré & Gillett, 1994).

As previously stated, I am using the terms interdiscursive and intrapersonal instead of the more commonly used terms interpsychological and intrapsychological. I am using the term interdiscursive to indicate between people. I am using interdiscursive in a slightly different manner to refer to a social plane of development than intermental or interspsychological (Vygotsky, 1978; Wertsch, 1998). I am also using the term intrapersonal, which is intended to extend the notion of a psychological plane of
development (Vygotsky, 1978), or as this might be commonly thought of, within a person. However, in the context of the interactions presented as the dissertation data "within a person" is to be understood as an illusion. I am using *intrapersonal* to indicate within the mind of an individual. However, within the context of the dissertation, I understand the activity of the mind as constituted through mediated representations. Artifacts shape and regulate activity thereby maintaining a dynamic state of complementarity between the interdiscursive and intrapersonal planes of development. Also recall that the use of the term *discursive* in this definition of mediation derives from the term *discursive practice*. Subjectivity "expresses the way things appear to be or are signified by the speech and action of a person seen in relation to a discursive context" (Harré & Gillett, 1994, p. 35).

Scribner (1997a) pointed out that Vygotsky left changes in adult ontogeny, particularly in cultural and historical lines of development, incomplete. According to Scribner "In Vygotsky, as in other classic developmental theories, ontogeny stops with the attainment of adolescence" (p. 260). Further on the same page, Scribner continued:

Flavell (1970) described adulthood as a pure experiment in nature of the effect of experience, and Vygotsky acted on that concept when he resorted to observations of adult behavior to develop his experimental schemes. It is fascinating to consider why Vygotsky's group did not follow through on the logic of the method--why, with the exception of Luria's cross-cultural studies, adults dropped out of the research program. Whatever the reasons, opportunities are now present to fill in the missing link of adult cognitive change. (p. 260)
Of course, this paper first appeared in 1985, and when Scribner used the term "now", she is referring to that time period. Beyond the studies that I mention below, which briefly address the issue of using concepts and assumptions derived from the study of children and studies explicitly mentioning children, this gap in the research on adult cognitive change; that is, studies explicitly mentioning ontogenesis and investigating ontogenesis with a concern for the three other domains of Vygotsky's genetic method (e.g., microgenesis, sociocultural/historical, and phylogenesis) seems to be unique to sociocultural theory as it is developing at the time of writing the Dissertation.

As part of my effort to specifically address this issue, I am using interdiscursive and intrapersonal in my definition of mediation where intermental and intramental are implied. This is because the general genetic law of cultural development was mainly constructed through Vygotsky's interaction with children (Scribner, 1997a). However, there are numerous proposals and research in the literature that explicitly support the notion that Vygotsky's concepts and assumptions are not solely directed toward children (e.g. Ball, 2000; Ohta, 2000; Wertch, 1998).

In their afterward to Vygotsky (1978) John-Steiner and Souberman pointed out that despite Vygotsky's primary focus on child development it would be a mistake to view his work as only applicable to children. However, I agree with Scribner's (1997a) proposal that there is room for exploration; particularly in the dissertation research where the participants are seven adult English language learners of widely varying proficiency and one near-native speaker, and one native speaker, all of whom are also inservice and preservice teachers learning language and content.
Other reasons for further exploring and adapting Vygotsky's theories in adult learning situations are mentioned in other sources (see also Vygotsky, 1987). In Vygotsky (1978), a statement is made relevant to applying Vygotsky's ideas for the study of adolescents, which leads me to think we should approach the study of adults using Vygotsky's ideas with equal caution. "For the young child, to think means to recall; but for the adolescent, to recall means to think" (p. 51, Italics in original). This observation is repeated, although phrased differently in Luria (1976): "In his analysis of the fundamental developmental changes in mental processes (changes expressing successive forms of reflections of reality), Vygotsky observed that although the young child thinks by remembering, an adolescent remembers by thinking" (p. 11). Moreover, in Vygotsky (1978), the following proceeds a long explanation on the differences in choice behavior between children and adults: "The structure of the child's decision does not in the least resemble the adult process" (p. 34). The point is that there are qualitative differences in adult and child cognition.

In Vygotsky, (1978, 1981, 1986, 1987) adults are referred to in numerous experiments, but as previously stated, Vygotsky's general genetic law of cultural development and other equally important concepts and terms refer specifically to children or were derived from studies with children (e.g., spontaneous concept knowledge and scientific concept knowledge). Two researchers touch on this issue and seem to effectively deal with it, but not to the extent that I think is suggested by Scribner (1997a), nor to the extent that I feel comfortable with in the dissertation research.

Ohta (2000) mentioned Vygotsky's use of children in applying the general genetic law of cultural development to her research on adults learning Japanese as a foreign
language. In her study, she effectively demonstrated how the interpsychological and intrapsychological planes of development apply to second language learners. Ohta pointed out that "while Vygotsky was speaking of children, this principle is being successfully applied to the SLA context" (p.54) (SLA here is Second Language Acquisition).

I am not disputing that Vygotsky's general genetic law of cultural development has not been applied successfully in other SLA studies or that Ohta's study is flawed. I am only suggesting that there seems to be a need to explore this issue in more detail.

Another researcher who briefly touched on this issue is Ball (2000) in her study of teachers' internalizing perspectives on literacy. As in Ohta's (2000) paper, Ball used the general genetic law of cultural development. She inserted the word "adult" into Vygotsky's (1981) definition using brackets: "First it appears between people as an interpsychological category, and then within the [adult or] child as an intrapsychological category. This is true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition" (p. 163)" (Ball, 2000, p. 230).

I am not disregarding nor denigrating the work done by these and other researchers far more experienced than me. I am just addressing this issue more specifically in my expanded definition of mediation and my efforts to synthesize Vygotsky's work in a more explicit manner with Harré and Gillettt (1994) and others (e.g., positioning theory). I also think this issue is relevant when approaching adults using theories and terminology that continually refers to children. I want to reiterate that I am not claiming that any of these scholarly works I have reviewed are flawed. As mentioned, I am most specifically
interested in the concept of artifact mediation. I proceed with caution and respect for the outstanding scholars who have come before me.

**Statement of the Problem**

As stated earlier in the introduction, there are a number of gaps in the research on graphic organizers, particularly in terms of studies that examine process features of graphic organizer use. Despite a vast amount of research in mainstream, English dominant classrooms, and a general agreement that graphic organizers are effective tools for teaching and learning, many questions are open to systematic empirical, inquiry into process features of graphic organizer use in EFL/ESL contexts.

With regards to work grounded in or related to the ideas of the famous Russian troika of Vygotsky, Luria, and Leont'ev, there is a rapidly building foundation of research and numerous interpretations (Engestrom, 1999; Kozulin, 1998; Lantolf, 2000). The most prominent gap seems to be an explicit extension of Vygotsky's developmental approach into the realm of adult ontogenesis and intersubjective relations that arise through collaboration with artifacts (Lektorsky, 1999; Wertsch, 1998; Scribner, 1997a).

Some of the research that comes closest to this investigation of adult ontogenesis and/or intersubjective relations that arise through collaboration with artifacts includes McCafferty (2002), Putney, Green, Dixon, Durán, and Yeager, (2000), Smagorinsky and O'Donnel-Allen (1998, 2000). However, these studies either do not directly address Vygotsky's four genetic domains and or explicitly mention adult ontogenesis. This does not mean that any of this research is flawed. It means that there is room for more investigation.
Moreover, various suggestions from sociocultural theorists and activity theorists on an appropriate unit of analysis for the study of human learning and development need more investigation (Davydov, 1999; Toulman, 1999). A close examination of participants' appropriation of artifacts through collaborative activity and a resistance to the appropriation of artifacts also seem a productive direction of research (Wertsch, 1998). To my knowledge, participants who are simultaneously English language learners and inservice/preservice teachers learning about the use of graphic organizers have not been investigated using methods grounded in sociocultural theory, case-study research, and ethnography.

In putting together a number of diverse scholars for the dissertation research there are some tensions that exist. Some scholars take the position that the individual cannot be studied as a separate entity (see Sawyer, 2002). Moreover, as I previously stated, some of these theorists and scholars have distanced themselves from one another and certain paradigms. For example Wenger (1998) pointed out that in terms of using systems of activities as a unit of analysis, "theories based on practice have a different ontological foundation than activity theory (Leont'ev, 1985; Wertsch, 1985)" (p. 286).

Sawyer (2000) identified two broad theoretical assumptions that he argued are "mutually incompatible" (p. 261). These two approaches identified by Sawyer are:

- a process ontology of the social world; and the inseparability of individual and social levels of analysis. A process ontology holds that only processes are real; entities, structures or patterns are ephemeral and do not really exist. Inseparability is the claim that the individual and the social cannot be methodologically or ontologically distinguished. Socioculturalists argue that the individual learner
ontologically distinguished. Socioculturalists argue that the individual learner cannot be meaningfully separated from the social and cultural context of learning, and they reject a traditional view of learning in which the learner is presumed to internalize knowledge presented from the external world. (p. 283, Italics in original)

Sawyer (2002) went on argue that Wertsch (1998), Lave and Wenger (1991), and Cole (1995) used a kind of analytic dualism, which applies both a process ontology and the notion of the inseparability of the individual and the social level of analysis. Broadly defined, analytic dualism rejects an extreme version of inseparability of the individual from the social context, and in this way, analytic dualism provides a middle ground from which to consider the implications of process ontology and the inseparability of the individual from the social context.

It is beyond the scope of the dissertation to review all of the nuances between each of the sociocultural theorists cited in the dissertation or that Sawyer (2002) identified as balancing the incommensurable differences between a process ontology and the view that the individual is inseparable from the social context. Sawyer also pointed out that the analytic dualism these socioculturalists imply is not stated explicitly (e.g., Wertsch, 1998).

I have not read a recent rebuttal or reaction to this piece from Sawyer as I am writing the dissertation, but expect some voice to pop up somewhere in response. For the moment, due to my reliance on many different theorists in the dissertation who often ground themselves in opposing ontological and epistemological assumptions, I need to adopt a similar stance to analytic dualism. This allows me to be as open as possible in
recognizing the theoretical tensions that emerges as a result of building this interpretive lens for the dissertation research.

Despite my reliance on mediated activity as a central unit of analysis, the interdisciplinary approach I have adopted for the dissertation research provided an insight into ontogeny that is not necessarily completely dependent on the social context, but is highly influenced by the mediated practice in a social context. There are unique individuals in the data. Despite their engagement in socially situated, artifact mediated, and goal-oriented activity, I think we can discern ontological domains and individual epistemological assumptions with regards to specific artifact-mediated activity.

Through an extensive review of the scholars cited, I have found that to understand and investigate how human learning, development, and the self unfold through object- and goal-oriented activity, the tensions between agents and mediational artifacts seem an effective direction to pursue. The theories I have reviewed and synthesized from sociocultural theory, positioning theory, and discursive psychology, particularly the explanations of significations, subjectivities, and artifacts, were essential to interpret the data and answer the research questions. Before proceeding to the Research Questions, the definitions of terms and concepts are presented.

**Definitions of Terms and Concepts**

For the purposes of this study, the following terms and concepts are defined. These are listed alphabetically; however, there are many relationships between these terms and concepts, and many embedded assumptions concerning human learning and development; that is, one definition is an expansion of another or serves as a foundation
to another. These relationships should become clear as readers move back and forth between the overall narrative and this listing of terms and concepts. In order to make the synthesis of scholarship that these terms represent more explicit, some data from the dissertation research is included in the following definitions of terms; however, most definitions are quoted directly from the diverse group of scholars I am bringing together for the dissertation research.

Artifact: A material object that has been modified by human beings as a means of regulating their interactions with the world and each other. Artifacts carry within them successful adaptations of an earlier time (in the life of the individual who made them or in earlier generations) and, in this sense, combine the ideal and the material, such that in coming to adopt the artifacts provided by their culture, human beings simultaneously adopt the symbolic resources they embody. (Cole, 1999, p. 90)

As this definition is expanded into the hierarchical levels proposed by Wartofsky (1979) and which appear below (and which are used by Cole, 1999), we move from the notion of artifact as "material", as stated in the previous definition, into more abstract realms (See primary, secondary, and tertiary artifact). Wertsch (1998) used the term materiality of artifacts.

Activity Theory: According to Engestrom (1999), activity theory is "an approach that can dialectically link the individual and the social structure" (p. 19). Also of relevance from Engestrom and Miettinen (1999):

There is a demand for a new unit of analysis. Activity theory has a strong candidate for such a unit of analysis in the concept of object-oriented,
collective, and culturally mediated human activity, or activity system.

Minimum elements of this system include the object, subject, mediating artifacts (signs and tools), rules, community, and division of labor (Engestrom, 1987; Cole & Engestrom, 1993). The internal tensions and contradictions of such a system are the motive force of change and development. (p. 9)

As activity theory applies to the dissertation research, graphic organizers are foregrounded as mediating artifacts in different collective activities occurring in and out of the advanced reading comprehension course.

Discursive Practice: "All the ways in which people actively produce social and psychological realities" (Davies & Harré, 1999, p. 34).

Epistemology: Ways of knowing reality (what is true). Epistemological assumptions are those that people hold about the basis of knowledge, the form it takes, and the way in which knowledge may be communicated to others. Scheurich and Young (1997) related that these assumptions arise out of the social history of specific groups and that our typical epistemologies are often biased (e.g., racially). Epistemological assumptions have methodological implications. (Dillon, O'Brien, & Heilman, 2000, p. 14)

Episode: "An episode is any sequence of happenings in which human beings engage which has some principle of unity. Episodes have a beginning and an end that can be identified" (Harré & Secord, 1972, p. 10).

As I am using the term in the Dissertation, boundaries of the episode are comparable to Bakhtin's (1986) boundaries of utterances.
General genetic law of cultural development: Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regards to voluntary attention, logical memory, the formation of concepts and the development of volition. (Vygotsky, 1981 p. 163)

Graphic Organizers: Broadly defined, graphic organizers are visual devices that provide a variety of organizational structures and categorization patterns for the learning of language and content. The most prominent learning objective is increased comprehension and/or language production. An additional oft-stated objective is an identification of the relationships between concepts. Common examples of graphic organizers include KWL charts (What do you know?; What do you want to know?; What have you Learned), Venn diagrams, matrices, concept maps, tree diagrams, and information flow charts (Bromley, DeVitis & Modlo, M., 1999; Egan, 1999; Merkley & Jeffries, 2000; Rice, 1994; Robinson, 1998).

Joint Attentional Scenes: Joint attentional scenes are established through taking the perspective of others through the use of symbolic means. This includes an awareness of the perspective of others, particularly in terms of recognizing intentions. Tomasello (1999) defined joint attentional scenes as follows: “Joint attentional scenes are social interactions in which the child and the adult are jointly attending to some third thing, and to one another’s attention to that third thing, for some reasonably extended length of
time” (p. 97) Tomasello elaborated further in saying that attentional scenes provide “the intersubjective context within which the symbolization process occurs” (p. 98).

**Knowing:** intentional activity of individuals who as members of a community, make use of and produce representations in the collaborative attempt to better understand and transform their shared world (Wells, 1999, p. 76, Italics in original)

**Learning:** is the taking over and mastering of cultural artifacts and practices in the course of engaging in joint activities, in which the functional significance of these artifacts and practices is modeled and the learner receives assistance in their use. (Wells, 1999, p. 155)

**Mediation:** The use of concrete and abstract artifacts to monitor and regulate human activity. In the process of monitoring and regulating human activity, these artifacts exist transformationally (John-Steiner & Meehan, 2000; Rogoff, 1995; Tomasello, 1999) on interdiscursive (between people and the context) and intrapersonal (in the minds of individuals) planes of development. Between people and the context and within an individual mind are simultaneously constituted through dynamic, multi-directional, discursive activity. Artifact mediated activity allows individuals to attend to their own mental activity, thereby transforming the social, psychological, and physical worlds and the activities in which they engage (Harré & Gillett, 1994; John-Steiner & Meehan, 2000; Tomasello, 1999; Vygotsky, 1981; Wertsch, 1998). The use of the term discursive in this definition of mediation derives from the term discursive practice, which is defined by Davies and Harré (1999) as "all the ways in which people actively produce social and psychological realities" (p. 34).
Microgenesis: Microgenesis frames development as unfolding before one's eyes over short periods of time; as short as seconds or minutes, or longer periods (Wells, 1999). Lantolf (2000) described the microgenetic domain as follows: "Where interest is in the reorganization and development of mediation over a relatively short span of time (for example, being trained to criteria at the outset of a lab experiment; learning a word, sound, or grammatical feature of a language)" (p. 3). Wertch (1985) provided definitions of two types of microgenesis:

The first type of microgenesis identified by Vygotsky concerns the short-term formation of a psychological process. The study of this domain requires observations of subjects repeated trials in a task setting. . . . The second type of microgenesis is the unfolding of an individual perceptual or conceptual act, often for the course of milliseconds. (p.55).

Ontogenesis: Ontogenesis frames learning and development on an individual level; how an individual's intellectual development unfolds and is transformed. (Wells, 1999; Wertsch, 1985). This is one of the four domains of Vygotsky's (1978) genetic method. The ontogenetic domain has been traditionally defined in terms of children (See also Lantolf, 2000, and Scribner, 1997a).

Ontology: The nature of reality (what is understood to be real). Ontological assumptions get at what people believe and understand to be the case--the nature of the social world or the subject matter that forms the focus of our research. Ontological beliefs give rise to beliefs about epistemology (Dillon, O'Brien, & Heilman, 2000, p. 14).
Phylogenesis: Phylogenesis can be considered natural biological development across a culture and/or species over evolutionary time (Wells, 1999; Wertsch, 1985). As in Vygotsky's (1978) explanation of the other four domains, the interrelationship of the phylogenetic domain with the microgenesis, ontogenesis, and sociocultural/historical domain means that evolution is not isolated from social interaction. Therefore, from this perspective, phylogenesis cannot be completely separated from the intellectual development of a culture or species. This is one of the four domains of Vygotsky's genetic method (see also Lantolf, 2000; Scribner, 1997a).

Participatory appropriation: "The concept of participatory appropriation refers to how individuals change through their involvement in one or another activity, in the process becoming prepared for subsequent involvement in related activities" (Rogoff, 1995, p. 142). For the dissertation research, "individual change" is recognized when a research participant clearly contextualizes the graphic in some way that indicates an investment of the self in the activity (Bakhtin, 1981; Wertsch, 1998).

Many examples of participatory appropriation are present in the data. One of the most salient examples is Chou's use of the graphic organizer program Inspiration 6.0 to create a concept map that she continually adapted and adjusted to think through, discuss, and plan her thesis research (See figures 45 and 46 in the Results sections).

Primary Artifact: Refers to objects like axes, bowls, computers, telecommunications networks, and mythical cultural personages (Cole, 1999; Wartofsky, 1979; Wells, 1999).

Proficiency: "L2 proficiency refers to a learner's skill in using the L2. It can be contrasted with the term "competence". Whereas competence refers to the knowledge of the L2 the learner has internalized, proficiency refers to the learner's ability to use this knowledge in
different tasks" (Ellis, 1994, p. 720). When I am using the term proficiency in the dissertation research, I am also including different notions of communicative competence, such as sociolinguistic competence and discourse competence (see Cohen, 1994). Sociolinguistic competence refer to knowing the sociocultural rules of a language. Discourse competence reflects the ability to create "meaningful wholes" (p. Cohen, 1994, p. 20) from utterances. In addition to these parameters, I am also including the notion of grammatical ability (Cohen, 1994), which refers to "how acceptably words, phrases and sentences are formed and pronounced" (Cohen, 1994, p. 286).

Psychological tools: Are those symbolic artifacts—sign, symbols, text, formulae, graphic symbolic devices—with the help of which individuals master their own 'natural' psychological functions of perception, memory, attention, and so on (p. Kozulin, p. 84).

Representation: The ability to represent an action by symbolic artifacts. Representations mediate perception (Wartofsky, 1979). For the dissertation research, graphic organizers are fore-grounded as symbolic artifacts representing a process that is constituted by activity unfolding during that moment of discursive practice presented by the data.

Three main points concerning perception, representation and artifacts:

First, that perception itself is a highly evolved and specific mode of human action or praxis; i.e. that its characterization as only biological or physiological or more generally, in 'natural' contexts, is inadequate; and that moreover, its traditional treatment in philosophy, in the context of an ahistorical epistemology, is fundamentally mistaken. Second: that the specific feature of perception as a mode of action is that it is mediated by
representation: and third, that it is by variation in modes of representation that perception itself comes to be related to historical changes in other forms of human practice, and in particular, to social and technological practice. (Wartofky, 1979, p. 189 Italics in original)

Secondary Artifacts: According to Wartofsky (1979), artifacts created at this secondary level (representations) “may be gestural, or oral (linguistic or musical) or visual, but obviously such that they be communicated in one or more sense modalities; such, in short, that they may be perceived” (p. 201). Directions for sharpening an axe or how to behave appropriately in relationships with relative are other examples of secondary artifacts (Wartofsky, 1979).

Sociocultural/historical domain: The sociocultural/historical domain is one of the four domains of Vygotsky's genetic method. The sociocultural/historical features of a phenomenon would be those linked to social, cultural, and historical forces that shape the phenomena under study. In particular, the way sociocultural/historical features of a society shape artifacts mediating activity is a main concern of this domain.

Spontaneous Concept Knowledge and Scientific Concept Knowledge:

Spontaneous concepts emerge from the child’s own reflections on immediate, everyday experiences; they are rich but unsystematic and highly contextual. Scientific concepts originate in the structured and specialized activity of classroom instruction and are characterized by systemic and logical organization. The concepts themselves do not necessarily relate to scientific issues—they may represent historical, linguistic, or practical knowledge—but their organization is “scientific” in
the sense of having a formal, logical, and decontextualized structure

**Speech genres:** "A particular function (scientific, technical, commentarial, business, everyday) and the particular conditions of speech communication specific for each sphere give rise to particular genres, that is, certain relatively stable thematic, compositional, and stylistic types of utterances" (Bakhtin, 1986, p. 64).

"Each separate utterance is individual, of course, but each sphere of communication in which language is used develops its own relatively stable types of these utterances. These we may call **speech genres**. (Bakhtin, 1986, p. 60, Italics in original).

**Tertiary Artifacts:** A model to explain the increasingly rapid disappearance of the rain forests would be an example of a tertiary artifact" (Wells, 1999, p. 69). Another example of a tertiary artifact is a Shakespeare play as a dramatic tertiary artifact (Wells, 1999). Tertiary artifacts are imaginary worlds that are created to represent, examine, or plan human activity in a manner that does not necessarily have to be concerned with immediate applications and consequences (Cole, 1999; Wartosky, 1979; Wells, 1999, 2000).

**Transformation:** "Transformation means changing an object internally, making evident its essences and altering it" (Davydov, 1999, p. 42). Davydov talked about humans selecting a certain type of wheat, sowing the wheat, creating favorable conditions, then reaping a good harvest, "this process is an example of real transformation of some part of nature by humans, or purposeful human activity" (p. 43). The essence of the process of the growth of wheat was altered, and we can see how it was altered through human intervention by choosing a particular seed and nurturing the growth process.
Utterance: An utterance can be a grunt, a word, sentence, paragraph, movie, scientific paper, and a novel, which in common all have

so to speak, an absolute beginning and an absolute end: its beginning is preceded by the utterances of others, and its end is followed by the responsive utterances of others (or although it may be silent, others’ active responsive understanding, or finally, a responsive action based on this understanding). (Bakhtin, 1986 p. 71)

Research Questions

1. What did microanalyses of purposefully selected participant interactions, which were guided by principles from a Vygotskian developmental approach (i.e., Vygotsky's genetic method), reveal about the participants' ontological and epistemological assumptions concerning the use of graphic organizers and/or English language teaching or learning and/or the interaction undergoing analysis?

2. Overall, what kinds of transformations, if any, in appropriating and applying graphic organizers to an oral or written text situation were found in the data?

3. What evidence was found of the participants' ability and/or desire to apply graphic organizers to their English language teaching and learning contexts?
CHAPTER TWO

LITERATURE REVIEW

The main goals of this literature review were to present types of graphic organizers investigated, how these graphics were used with text and participants during this evolution of graphic organizers since the late sixties, and directions for future research.

Looking across the vast expanse of research and writing about graphic organizers, I am reminded of Bakhtin's notion of utterance (Bakhtin, 1986; Morson & Emerson, 1990).

According to Bakhtin (1986) any utterance is a link in a long chain of other utterances. An utterance can be as small as a grunt, or as long as a full-length epic novel or movie (Morson & Emerson, 1990). Utterances are shaped and live through the social and cultural history of the speech community in which utterances shape activity and, in turn, shape further utterances and activity (Bakhtin, 1986; Morson & Emerson, 1990). Graphic organizer research has an extensive and responsive history in education and in society in general.

For the graphic organizer sections of this literature review, I focused on systematic investigations of empirical data related to one or more of the four basic types of graphic organizers mentioned in Chapter One: matrices, tree-diagrams, flow charts, and concept maps (see figures 1, 2, 3, and 4 in Chapter One). Besides these four basic designs, I
reviewed some of the research and proposals for well-known variations and related
designs such as Venn diagrams (Bromley, DeVitis & Modlo, 1999), KWL charts (Ogle,
1986), semantic maps (Heimlich & Pittleman, 1986) and story mapping (Boyle &
Peregoy, 1990). Additionally, because the software Inspiration now seems prominent in
mainstream creation of graphic organizers, I introduced Inspiration 6.0 to the participants
as an option for creating graphic organizers. Therefore, I briefly present some of the
research on graphic organizer software as part of the Literature Review.

For graphic organizers in classrooms and language learning contexts, Barron (1969),
Earle (1969), and Ausubel, (1968) prompted a chain of utterances involving a specific
way to arrange text to enhance comprehension. These utterances comprising the research
on graphically arranging text for the teaching and learning of language and meaning are
far from completed.

From a broad review of the literature, some general patterns of the contexts and types
of graphic organizers emerged, as well as the predominance of research grounded in
positivism (e.g., experimental and quasi-experimental designs) (see also Cunningham,
2001). This past research, particularly the predominance of research grounded in
positivism, naturally lead to the necessity of adopting an interdisciplinary approach for
the dissertation research. Moreover, this review included foundational information on
graphic organizers to provide a rationale for creating graphic organizers in an EFL
context.

The graphic organizer sections of this review proceed from those foundational studies
that investigated graphic organizers in mainstream, English-dominant classrooms, to
those studies that looked at graphic organizers use for students with diverse abilities,
bilingual students with learning disabilities, foreign language learning classes (e.g., learning German) and ESL (English as a Second Language) contexts. At the end of the review of graphic organizers in mainstream and second language contexts, I present some basic information about the graphic organizer software, *Inspiration*.

Because of the emphasis on positioning theory and Vygotsky's (1978) genetic method as part of this dissertation research, I also reviewed studies using Vygotsky's genetic method and positioning theory in a variety of contexts. Following these studies using positioning theory and Vygotsky's genetic method, I reviewed studies of the relevant research on gesture.

**A Broad Definition of Graphic Organizers**

As stated in the Introduction, broadly defined, graphic organizers are visual devices providing different organizational and categorization structures for the integration of language and content. The most prominent learning objectives for graphic organizers found in the literature is increased general reading comprehension in written text and/or language production. In addition, understanding the relationships between concepts introduced in written and oral text is another prominent objective (Bromley, Devitis, & Modlo, 1999; Egan, 1999; Merkley & Jeffries, 2000; Rice, 1994; Robinson, 1998). Recall that the four major types that were chosen as a focus for the research participants included Venn diagrams, KWL charts, matrices, concept maps, tree diagrams, and information flow charts. Most of the research and rationale for the use of graphic organizers has been based on *advanced organizer theory* (Ausubel, 1968) and *schema theory* (Early, 1991; Mohan, 1986).
Included in this presentation of graphic organizers in ESL contexts is a review of Tang's (1989) dissertation on *key visuals*, supervised by Bernard Mohan and Margaret Early, both of whom have published extensively on key visuals and *knowledge structures* (see Early, 1991; Mohan, 1986). Moreover, Tang (1989) was the only study I found that primarily used ethnographic methods to investigate graphic organizers in an ESL or EFL context. She used the results of her ethnography as a foundation to build a quasi-experimental study. The ethnographic part of her study addressed some of the issues revolving around process features of graphic organizers, which is the focus of the Dissertation.

It is interesting to note how these two terms, *key visuals* and *knowledge structures* highlight one of the findings of this review. From the literature reviewed, I found two, broad distinct groups of researchers and curriculum writers. One group of studies and proposals on the use of graphic organizers used the term key visuals and emphasized the links between key visuals and knowledge structures. These studies had strong links to the work of Mohan (1986) and placed ESL concerns in the foreground.

Mainstream scholars and researchers generally used the term graphic organizers as an umbrella term to cover Venn diagrams, tree diagrams, KWL charts, and concept maps (Bromley, Devitis, & Modlo, 1999; Robinson, 1998). This broad definition of graphic organizers that I have used also worked well for key visuals, although there were some distinctions I discuss in more detail later in the review. As stated earlier, I used a broad definition of graphic organizers to provide participants with an accessible framework to respond to their own teaching and learning needs.
The studies I labeled the *mainstream group* trace their foundations to work on *structured overviews* from Barron (1969) and Earle (1969), and work on *advanced organizers* from Ausubel (1968). This large body of research does not foreground ESL learners; however, many of the positions toward the use of visuals to access content knowledge proposed by this mainstream group were similar to those proposed by ESL curriculum writers (e.g., Peregoy & Boyle, 2001; Walter, 1996).

**Literature Review Questions for Graphic Organizers**

1. From the studies on graphic organizers and the proposals for implementation, what kinds of graphic organizers were predominant and how were students introduced to graphic organizers? In other words, how did students engage graphic organizers?

2. What proposals on how to create graphic organizers and what patterns on creating graphic organizers were found in the literature?

3. What directions for further research on graphic organizers in mainstream and ESL contexts were present in the literature reviewed? Were there any discernable patterns in the directions for future research?

These three questions were answered through the summary of each article reviewed. Because the goal of this review was to foreground the kinds of graphics and strategies used and directions for future research, I excluded specific $p$ values and detailed descriptions of reliability and validity. In addition, I presented the articles in the mainstream section from oldest to newest to display graphic organizers in the context of their historical development. In the second part of the review, which is comprised of
those studies that used graphic organizers in ESL settings, the review was organized around Tang's (1989) dissertation.

For looking at the graphic organizers presented by each of the studies reviewed, including those studies that were linked to Mohan's (1986) notions of key visuals and knowledge structures, I described the graphic organizers in terms of the most common four types identified by Robinson (1998). These were introduced in Chapter One (see figures 1, 2, 3, and 4). These four categories are not mutually exclusive, and during my interactions with the participants I frequently discussed graphic organizers as combinations of these types; that is, as more of a tree diagram than a flow diagram or concept map, having the attributes of a concept map, etc., or, a synthesis of two or more of these basic designs.

The Mainstream Group

One of the most frequently cited reviews of the research on graphic organizers from the mainstream group was Moore and Readence (1984). They found that graphic organizers in the post-reading position seemed to produce greater results than in the pre-reading position, where the graphic organizer functioned more like an advance organizer. Moore and Readence also reported that graphic organizers affect vocabulary knowledge more than overall comprehension. In their conclusion, Moore and Readence called for more "systematic attention" (p. 16) to how graphic organizers are placed into instructional situations. They also suggested that it might be more effective for students to create graphic organizers. With regards to the type of graphic organizers presented, Moore and Readence provided a tree diagram illustrating units of measurement of time and length in
the English and Metric system. They restricted their definition of graphic organizer to tree diagrams, and their review of the research was based on these.

In another frequently-cited study on graphic organizers, Bean, Singer, Sorter, and Frazee (1986) used a quasi-experimental design to investigate graphic organizers with seventy-two, tenth-grade honors students in three world history classes at an Orange County high school. Of the three groups, two groups received training in the use of graphic organizers and one group did standard outlining techniques. Of the two experimental groups that received training on graphic organizers, one of these also had instruction on how to summarize and generate questions about expository text (in this case this was a history text at a tenth-grade level).

This metacognitive instruction provided in Bean et al. involved teaching the students three steps. This included selecting a topic sentence that linked subordinate ideas, developing a graphic that showed the interrelationships in the text, and finally, the students were expected to generate a "concluding statement" (p. 158). Overall, the approach to the written material was following the structure of the history text, which presented concepts in a "superordinate to subordinate fashion" (p. 157).

One of the graphic organizers created by the students in the Bean et al. study could generally be described as a tree diagram. Two other more complex graphic organizers expanded on the tree diagram and took on some of the attributes of a matrix and concept map in that there was a kind of x and y axis displayed where links on meaning could be made moving over and/or down. Parts of the graphic organizer also used noun clauses, abbreviated adjectival clauses, and sentences; and sometimes full sentences and/or clauses.
The group with previous training in summarization techniques scored significantly higher while using graphic organizers than groups that had no training in summarization techniques; however, without any prior training in summarization, the graphic organizer group performed the same as the group that outlined. Furthermore, student attitudes were significantly more favorable toward graphic organizers than outlining. With regards to a direction for further research, the Bean et al. study suggested that more research is needed on metacognitive instruction. It should also be noted here that Bean et al. found that it took about 14 weeks to teach students the graphic organizer strategies.

Alvermann and Boothby (1986) positioned graphic organizers as an "adjunct aid" (p. 88) for 24 fourth-grade students' comprehension of social studies oriented text (e.g., readings on the colonization of America). Specifically, they were looking at fourth-graders ability to use a "top-level structure" (p.88) to assist students' accessing of content knowledge. They applied Moore, Readence, and Rickelman's (1983) definition of content area literacy as "reading to learn" (Alvermann & Boothby, 1986, p. 87) to frame the context for using graphic organizers. As consistent with the times when this study took place, researchers embraced experimental and quasi-experimental designs that included experimental and control groups.

Alvermann and Boothby (1986) provided students with a tree diagram that used phrases and single words. Some sections of the tree were made of oblong boxes. Some of the boxes were blank, and some filled in. The idea here was to present the students with a partially filled in tree diagram and they could fill in the rest. Alverman and Boothby pointed out the similarities to an approach known as a macro-cloze technique. To
complete the boxes, students had to find key concepts from the text, and the researchers said the completed structure was intended to represent the overall structure of the text.

Again, as in The Bean, Singer, Sorter, and Frazee (1986) study, the students were taking a top-down approach to the text, which reflects the text design. Also as in the Bean et al. study, the experimental group in the Alvermann and Boothby (1986) study had explicit instruction in graphic organizer use. The graphic organizer instruction in the Alvermann and Boothby study seemed to have more guided practice on how to use the graphic organizer than the Bean et al. study. In terms of limitations, Alvermann and Boothby mentioned ecological validity due to the brevity of the reading passages they used, the students were average and above average, and the sample size was small. For future studies, they recommend that these limitations are considered, a less homogenous group is chosen, and different scoring methods are used. They did not go beyond saying that they were encouraged by the positive nature of graphic organizers in recommending anything in particular for classroom use. However, Alvermann went on to write other articles and book chapters proposing more specific ways of using different types of graphic organizers (see Alvermann, 1986, 1991).

In proposing the use of semantic mapping in a variety of interactions with text, Heimlich and Pittleman (1986) reviewed a number of studies and distinguish semantic mapping as a distinctive strategy. Recall that for the purposes of this review and dissertation, I placed semantic mapping under the umbrella term of graphic organizer. In terms of the four types of graphic organizers from Robinson (1998) I used as prototypes, the semantic maps Heimlich and Pittleman presented mainly combined features of both tree diagrams and concept maps; with a predominant distinction of illustrating the
semantic interrelationships between concepts, along with some expression of the
hierarchical relationships of these concepts. On almost all of the semantic maps
presented, adjectives, adjectival phrases, and nouns were predominant.

The different semantic mapping activities presented in Heimlich and Pittelman (1986)
involved presenting the students with maps partially completed. Then students worked on
the maps for the first time in groups or as a whole class. Following group work and
demonstrations on how the maps were intended to function, many of the activities
allowed for individual student engagement with the maps. Many of the mapping ideas
also involved presenting the students with ready-made map designs. Many of these
designs and the associated activities were arranged to assist the students in identifying
specific themes and words in the text (i.e., semantic features). In addition, many of the
maps could be implemented at the post- or pre-reading position. It is interesting to note
that the studies Heimlich and Pittelman presented in support of using graphic organizers
were predominately dissertations (e.g., Karbon, 1984).

Stahl and Vancil (1986) investigated semantic maps with class discussion in three
sixth-grade classrooms in Illinois. The focus was on vocabulary learning and how
discussion facilitated learning. Two of the groups used discussion in the lesson, and this
facilitating feature of discussing text was one of the most important findings. Overall, the
results suggested that discussion was more important than the maps. This led the authors
to propose more whole-class work with the semantic maps rather than individual work.

The semantic map presented in this study was very similar to the ones mentioned by
Hemlich and Pittelman (1986). The map appeared to be a mixture of a tree diagram and a
concept map, with a variety of nouns and adjectives arranged to show relationships
between meaning. Hierarchical relationships were emphasized on different parts of the map. Beyond suggesting that discussion be integrated into semantic map activities, as well as any classroom activity, Stahl and Vancil (1986) did not make any suggestions for future research.

Schewel (1989) proposed a study-skill strategy for enhancing comprehension and memory. As many of these studies from both mainstream and ESL contexts did, Schewel invoked schema theory as a support for semantic maps; that is, semantic maps were viewed as a tool for organizing concepts in concrete form. As in most of the other graphic organizers categorized as semantic maps, the maps presented by Schewel had the characteristics of both the tree diagrams and concept maps already mentioned. They presented superordinate and subordinate categories through the tree-diagram features, and illustrated links between concepts by drawing lines between them. None of the maps introduced by Schwell had phrases introduced between the concepts, as did the concept map example presented earlier from Robinson (1998) (see figure 4 chapter 1). However, one of the semantic maps presented by Schwell had lines drawn out from a bubble center that had the word *dinosaur* inside.

These lines drawn out from the bubble were laid out like a simple street map, with some lines imitating major boulevards and streets. Some of major lines had a noun-clause type of statement that implied a question (e.g., Why they died out; How they lived), and other lines stretching out from the noun-clause answered the question the noun-clause prompted (e.g., Swamp lands dried out; Ate vegetarian). In this way, as in some of the earlier examples from Heimlich and Pittelman (1986), the semantic maps were used to guide students into extracting specific information from the text.
One of the maps from Schwell (1989) had blocks partially completed, which the students could be prompted to finish. The teacher was advised to present a core question. Around this core question the teacher was advised to guide students in drawing lines, posing questions, thus organizing the concepts from the text in a memorable and more comprehensible manner. Beyond advice against overuse of semantic maps and using them at an appropriate time, Schwell did not recommend any direction for future research.

Persich, Meadows, and Sinatra (1990) reported on the successful application of semantic mapping strategies to assist a large number of students who scored low on Mississippi’s “Basic Skills Assessment Program in Reading, Written Communication, and Theme Writing” (p. 424). The school district came to the conclusion that their traditional approaches were deficient because they focused on teaching grammar and form without proper emphasis on the planning, revising, and editing stages of writing. The district turned to semantic mapping techniques to focus the students’ attention on the process of comprehension, first by successfully using these techniques for eleventh-graders, and then training teachers in the implementation of these strategies at the fifth through eleventh-grade levels.

Perisch, Meadows and Sinatra (1990) presented a similar type of semantic map as mentioned from numerous other studies (i.e., resembling tree-diagrams), which they implemented with 11th graders. The maps they presented were simple tree-diagrams made up of different sized boxes with nouns written in the boxes. Some boxes were larger than others with central and/or superordinate concepts inside. As in many of the applications covered, teachers used the maps as scaffolds (see Wood, Bruner, & Ross, 1976) and
actively engaged students in the students' early introductory activities with the maps. Again, maps were used to pinpoint certain words in the text and highlight semantic connections between different concepts in the text. Perisch et al. presented positive results from using semantic maps, but did not provide guidance for future research.

In a review of graphic organizer research, Dunston (1992) reached similar conclusions as Bean et al. (1986) and Moore and Readence (1984). She found that graphic organizers produce greater effects when combined with lengthy instruction in summarization techniques and graphic organizer construction. She also concurred with Moore and Readence in their findings that graphic organizers do not function with the intended success in the pre-reading position. This conclusion, and other research reported, clearly implies that graphic organizers may be more effective in the post-reading position.

With regards to directions for future research, Dunston (1992) suggested that the lack of success in the pre-reading position might be because most of the graphic organizers she reviewed were constructed by the teachers/researchers. Dunston also made some distinctions on how graphic organizers change from being a teaching strategy to a learning strategy when moved from the pre-reading to the post-reading position. This opens a path of investigation into how graphic organizers shift from being a teaching to a learning strategy. Most of the suggestions Dunston made revolved around terms from the well-known information processing model (see Gagné, 1992), such as memory retrieval and encoding prompts; however, relevant to my investigation in Northern Thailand, much of what she suggested would involve a more detailed look at process features (i.e., how students actually use and perceive graphic organizers).
In another broad review, Rice (1994) looked at past graphic organizer research and concluded that studies were focused on the positive or negative outcomes for applying graphic organizers, while neglecting an explanation of why graphic organizers do, or do not work. Rice pointed to the lack of any systematically organized understanding of how graphic organizers facilitate learning, which lead to the research being inconclusive regardless of positive or negative results.

Moore and Readence's (1980, 1984) earlier investigations were cited by Rice (1994) to support the belief that the research on graphic organizers was faulted. The reason: “no systematic control placed on operational criteria” (Rice, 1994, p. 50). “Without a clear set of operational criteria, there is no consistency in the research findings of graphic organizers” (p. 53). Like Dunston (1992), Rice (1994) was taking a structuralist and information processing approach to investigating graphic organizers; however, both Dunston and Rice were proposing that more research be focused on process.

Lipson (1995) performed an experimental study with three groups of college freshman (Total N=40) in a remedial reading program and found that students who used mapping strategies improved their performance on text questions. The semantic maps used were similar to the ones already described in many of the previous studies (i.e., tree-diagram designs with concepts contained in squares or bubbles). However, for this mapping intervention the map seemed more packed with information in boxes within larger boxes and a couple of arrows that provided directional as well as hierarchical information. The instructor was very involved in modeling the development and use of the map. This heavy instructor involvement has also been something very common in the
most of the research reviewed. Moreover, as in most of the other studies, the map design originated with the teacher.

After presenting the statistical results demonstrating the effectiveness of mapping strategies, Lipson (1995) suggested a process interview component be added to the research. She proposed students be asked what kinds of thought processes they engaged in while using the semantic maps, and how they thought the maps impacted their comprehension.

Robinson (1998) presented one of the most extensive reviews of graphic organizers in mainstream curriculum that I have found thus far. He reviewed studies from 1964 to 1994 and discussed the permanence of graphic organizers on the educational landscape. He also made a number of suggestions for future research. Of the many noteworthy things Robinson put together in his review are the four basic categories of graphic organizers that I outlined earlier (e.g., matrix, concept map, tree diagram, flow chart). In addition, Robinson mentioned that due to the inconsistencies in the studies (e.g., text length), it is difficult to say anything conclusive in terms of effectiveness. He mentioned that textbook authors are using graphic organizers extensively, but they are not really making these judgements from empirical evidence. Robinson said textbook writers were using their "intuition" (p. 85).

Another trend from earlier studies that Robinson (1998) noted was that most of the studies used recall of facts as a dependent measure. This focus on recall of facts seems to express the predominance of experimental and quasi-experimental designs and information processing models in most of the research (see Hall, Hall, & Saling, 1999; Robinson, Katayama, Dubois, & Devaney, 1998; Robinson & Schraw, 1994).
In supporting the use of graphic organizers, Robinson (1998) pointed out that graphic organizers permit a two-dimensional display of knowledge, thus improving comprehension and making the relationships between terms and concepts more explicit. He also noted that in a number of cases, researchers found that some of the advantages of using graphic organizers "disappeared when testing was delayed" (pp. 98-99).

Among the extensive list of suggestions for researching graphic organizers, Robinson (1998) called for easily constructed graphic organizers to be used. Additionally, tests that highlight the links between concepts should be implemented, and similar length texts should be used to provide consistency when noting how effective a particular graphic organizer might be. According to Robinson, a chapter-length text would be a more realistic length of text with which to employ graphic organizers. Other suggestions include using multiple graphic organizers because the chapter contains multiple text structures. Robinson also proposed that testing be delayed, because in real-life tests are not often given immediately following instruction. For designing graphic organizers, Robinson concluded that their power as visual displays have not yet been realized and future designs should be striking.

In another recent study, which included a broad definition of graphic organizers similar to the broad definition introduced at the beginning of this review, Egan (1999) proposed a number of sensible suggestions for creating graphic organizers. Moving away from some of the earlier studies that were teacher-centered, Egan suggested that teachers spend time practicing the graphic organizer themselves in order to be "authentically prepared" (p. 641). The graphic organizers Egan displayed have columns arranged similar to an accountant's ledger. The column headings ask questions related to background
knowledge (e.g., What I know definitely; What I think I know) and questions directing the student to specific parts of the text (e.g., Where to find answers). Egan pointed to the origins of this graphic organizer in Ogle's (1986) well-known KWL diagram.

Egan's graphic organizer was quite different from any of the semantic-map designs, tree diagrams, and concept maps I reviewed. This graphic organizer was a combination of a Venn diagram and KWL chart. It was set up with five columns. The center column was labeled "C" and "D" and was slightly wider than the rest. Thus, the A and B columns appeared before the combined wide center C and D column, and the E and F columns appeared after the center C and D column. This center column captured the spirit of the Venn diagram and had a label underneath the heading "Read/verify" (p. 642). The column was labeled "Discussion may take place here" (p. 642).

As far as describing how students are engaged by the graphic organizer that Egan proposed, again, talk of using the graphic to activate schema is prevalent, as well as suggesting that this particular graphic was intended to activate "pre-reading and post-reading thought processes" (p. 642). Student interaction with one another and the graphic organizer was encouraged, as well as using the graphic organizer at the appropriate time.

To determine whether it is appropriate to use graphic organizers Egan suggested that a careful screening of the lesson objectives, the text, the students, and many other features be considered. In addition to discussing whether a graphic organizer was appropriate it is also necessary to consider the type of graphic organizer to employ. She also suggested that the use of graphic organizers might be extended to movies, class discussion, and lectures. Egan (1999) did not suggest any directions for future research.
beyond some inquiry and experimentation on graphic organizers in non-traditional situations, such as using them with movies or lectures.

In one of the more recent articles on graphic organizers, Merkley and Jeffries (2000) directed their attention to the role of graphic organizers for expository text. As in many of the other studies and proposals for graphic organizer use, Merkley and Jeffries emphasized schema theory and the notion that students' background knowledge needs to be activated. This activation of background knowledge should be focused.

For construction of graphic organizers, Merkley and Jeffries proposed that teachers analyze the learning task and identify which words and concepts need to be addressed. The words and concepts that need to be addressed should be arranged so that the relationships and patterns of organization be made clear. Empty slots should be used in the final graphic and the clarity of the display needs to be evaluated.

In terms of presenting the graphic organizer to the students Merkley and Jeffries proposed the following:

- verbalize relationships (links) among concepts expressed by the visual
- provide opportunity for student input
- connect new information to past learning
- make reference to the upcoming text, and
- seize opportunities to reinforce decoding and structural analysis (p. 352)

The graphic organizer that Merkley and Jeffries displayed is a result of dividing up a story on Artic bees into different parts that are linked using each of the five bulleted guidelines just presented. The graphic displayed some of the previously stated characteristics of concept maps, tree diagrams, and flow charts. In all of the descriptions...
for moving from the text to putting this graphic organizer together, Merkley and Jeffries emphasized continual student-teacher dialog about how they are moving from the text to the graphic. Beyond advice for making graphic organizers, Merkley and Jeffries did not offer directions for further research.

From this review of many of the foundational works on graphic organizers and proposals for classroom use, what was noticeable is the general view that graphic organizers improve comprehension, and graphic organizers seem to work best in post-reading positions. Moreover, most of the research and proposals for classroom use emphasized explicit instruction for students on how to use graphic organizers. However, some of the more recent proposals promote the notion that graphic organizers can be made to work in the pre-reading position.

From the mainstream literature on graphic organizers, the most predominant direction for research was the investigation of process features of student interaction with graphic organizers: Why do they work? Which parts of the graphic organizers are important? As mentioned, the research seems to say that graphic organizers appear to work in aiding comprehension and the memory of details, but are not suitable all the time and for all learners.

As mentioned previously, graphic organizers are becoming prominent in ESL contexts (Peregoy & Boyle, 2001), and seem to be gaining prominence in EFL contexts (see Nunan, 1995). It is with this in mind that I will turn to some of the research on graphic organizers in ESL contexts.
As mentioned earlier, part of this group of scholars used the term *key visual* (see Mohan, 1986; Early, 1991). For consistency, I will continue to use the term graphic organizer broadly and include key visuals under this term. However, the group of scholars that generally follow theoretical foundations originating with Mohan (1986) display a more explicit theoretical rationale for graphic organizers than any of the work I encountered from the mainstream group. Other work I found that addressed ESL concerns (e.g., Boyle & Peregoy, 1990) generally seemed to have extended the work of mainstream scholars into the context of diverse learners and English as a Second Language.

As in the section on graphic organizers I mainly looked at the types of organizers proposed. I will also be mainly reviewed a dissertation by Gloria Tang (1989) who, as I mentioned earlier, had Bernard Mohan as Chair and Margaret Early on her committee. This dissertation formed a major part of this section of the review. Both Mohan and Early have lead the way for research on graphic organizers in ESL contexts in the school districts surrounding Vancouver, British Columbia. Therefore, Tang (1989) is an extensive work that embodies the years of experience gleaned from Mohan and Early's engagements with second language learners in the Vancouver area (see Early, 1991; Mohan, 1986). However, before proceeding to Tang's study, it is necessary to present some of the theoretical foundations for this group that used the term key visuals to describe graphic organizers.

Tang (1989) closely followed a theoretical rationale and approach for using graphic organizers from Mohan (1986) and Early (1991). This group of scholars used the term
key visuals for graphic representations of knowledge structures. Examples of knowledge structures would be *sequence*, *description*, and *choice* (Early, 1991). The links between knowledge structures and thinking skills were also emphasized. An example would be using a timeline as a key visual to express sequence, the knowledge structure. The types of thinking skills to express sequence would include arranging events in order, noticing changes over time, following directions to make one thing happen after another, and other possibilities closely related to the knowledge structure of sequence (Early, 1991; Mohan, 1986).

Closely related to any of the general knowledge structures mentioned are specific language situations that can be analyzed for the different kinds of knowledge structures that belong to the communicative situation, or as Mohan (1986) preferred, an *activity* (this is a different orientation to activity than the previous example from Engestrom, 1999). An example of a graphic organizer chosen for a given activity that expresses the links between an activity, a specific type of knowledge structure, and thinking, could be something like a story using a dialog about a trip to the grocery store. Certain features of the activity of a trip to a grocery store happen in a sequence, which could be made explicit by using a flowchart (e.g., leave the house, park, grab a shopping cart, go into the store). For this shopping example, a concept map could be used to categorize the different items encountered on the shelves.

From Mohan's (1986) approach, another example of using a graphic organizer to link activity to knowledge structures would be a flowchart used to illustrate the sequence of a story about survival in the desert. This could also illustrate a type-two conditional (e.g., if...
they had water, they could have survived) to connect the knowledge structures of sequence and evaluation (Mohan, 1986).

Very briefly, these were the general principles on connecting knowledge structures and graphic representations that were foundational to Tang's (1989) dissertation and this perspective on graphic organizers. Moreover, the strategies that Tang followed, and those proposed by Mohan (1986), place the integration of language and content at the foreground. Therefore, neither language learning nor content take priority. This group of scholars argued that the right amount of graphic representations closely aligned with the appropriate language forms and thinking skills will result in improved reading comprehension and language production (Mohan, 1986; Early, 1991; Tang, 1989).

Tang (1989) investigated two 7th-grade classrooms in the Vancouver school district. Of the 56 participants that made up the two classrooms in her study, 46 spoke English as a second language and were predominantly Chinese and SE Asian. The purpose of her study was to understand how the students engaged graphic organizers to improve comprehension of content-area texts and to see if any comprehension improvement occurred. As mentioned previously, to accomplish these goals she designed both an ethnographic study and a quasi-experimental study, which divided the overall study into two phases.

During the ethnographic phase of the study, Tang looked at the kinds of graphics the students engaged as a part of their day-to-day activities in the school, in addition to the graphics in their texts. Tang provided detailed descriptions of the kinds of graphics found in their textbooks and day-to-day interactions; however it is beyond the scope of this review of the literature to do justice to the amount of detail she provided. She categorized
the graphics in terms of Mohan's (1986) classification scheme previously alluded to, such as the time-lines she observed at the school categorized as types of knowledge structures called classification and sequence.

For the two groups of 7th graders, who are known as division one and division two in the study, Tang found that graphics were prevalent in both classes. The major differences revolved around how students engaged the graphics, if they did at all. She found that students generally did not use graphics unless it was specifically required. In division one, students were left on their own and had to look for graphics if they wanted to use them. These students had a lot of difficulty engaging graphics and were described as generally copying graphics from textbooks instead of positioning them in any effective way for comprehension. Overall, the division one group was described as having a negative view toward graphic organizers.

Division two was more teacher-directed and more guidance was provided. This was a big difference between the two groups. Teachers in division two interacted with the students to show them how to use graphic organizers. However, despite the greater level of understanding of how graphic organizers worked, division two did not interact with graphics unless they had to, which was the same attitude as division one. Both division one and two overwhelmingly chose text over graphic forms. Of course, these more positive results with division two could be expected because of the increased guidance from the teacher. And this is what Tang mentioned in her final conclusions. Groups that had guidance with graphic organizers had a more positive experience, which Tang wisely chose as being inconclusive for graphics specifically linked to learning. She then moved to the quasi-experimental part of the study.
Tang chose the division one group for this part of the study. One of the research questions asked if graphic organizers would facilitate recall and comprehension. Another asked if these students could learn to build a tree-diagram. Tang also looked at a graphic previously taught, which was used during a reading activity.

Tang found that using graphic organizers facilitated comprehension and immediate recall. She also reported a gain in an awareness of the structure, which Tang reported as probably linked to the increase in comprehension. In this example, students generated a map by following a previously introduced model. Students also were successfully taught to build tree diagrams. Overall, as mentioned earlier, students who were guided had more positive experiences and were more likely to use graphics.

In terms of directions for future research, Tang suggested that different groups of ESL students with different proficiency levels and backgrounds be compared in a variety of contexts with graphic organizers. For example, she suggested looking at the differences in interactions with graphics in terms of how long a student has studied English, their cultural background, and first language background.

It should be noted that Tang (1989) published the data from the dissertation in Tang (1991). Of course, this was a very condensed version of the dissertation, but essentially Tang (1991) emphasized the same general findings, with a particular emphasis on how students did not seem to be able to interact with graphic organizers effectively without some kind of guidance. She also highlighted that students generally looked on graphic organizers negatively without some kind of guidance. In some examples students thought the GOs served a decorative function (Tang, 1991).
Boyle and Peregoy (1990) and Peregoy and Boyle (2001) are two scholars who drew heavily on some of the previous mainstream work in graphic organizers, such as Heimlich and Pittelman's (1986) semantic mapping strategies. Peregoy and Boyle (2001) introduced different types of semantic maps, concept maps, and more illustrative maps that have the characteristics of semantic maps and concept maps, yet involved drawing a more detailed picture (e.g., a story about a cat might involve a graphic shaped like a cat). These hand-drawn pictures were called *storymaps* and can be found in a number of texts presenting ESL classroom activities (e.g., Peregoy & Boyle, 2001; Herrell, 2000; Walter, 1996).

Short (1994) investigated tree-diagrams, Venn diagrams, and story-map illustrations in a middle-school social studies class. This study used observational data and discourse analysis techniques to investigate the integration of content and language. Short found positive interactions of students with GOs, particularly with Venn diagrams, tree-diagrams, and story maps as tools to integrate language and content. It should also be noted that this data were all gathered as the researchers were helping to implement mapping strategies as part of a larger literacy project. Researcher and teacher interventions specifically addressed the needs of English language learners and improving the integration of language and content. They followed the proposals of Mohan (1986) and Early and Tang (1991) in constructing the graphics.

Scanlon, Duran, Reyes, and Gallego (1992) used semantic maps with bilinguals. Specifically, they focused on vocabulary webs to prompt students to generate ideas about content. Their approach is called "Interactive Semantic Mapping (ISM)" (p. 143), and this emphasized having students work closely with teachers and peers. The teacher also

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performed an intense content analysis on the text before presenting it to the students. Scanlon et al. provided a precise set of instructions for performing a content analysis with the text, which emphasized the clustering and categorizing of various concepts in the text. This content analysis allowed the teacher to better prepare a sample map for the students.

When the teacher reached the point of introducing the text and mapping to the students, Scanlon et al. emphasized how the creation of the map should be collaborative. Brainstorming and discussion activities should evolve so that text structure and the relationships between concepts introduced by the text are made explicit to the students. The emphasis on the interactive nature of the context was sustained through dialog and collaboration. In this way, Scanlon et al. promoted a more interactive approach to the maps than many of the studies reviewed.

As in many of the other studies discussed thus far, the maps in Scanlin et al. were a combination of a tree diagram and concept map, with the branches and implied hierarchies displayed as bubbles, like in many common vocabulary webs and concept maps. In their conclusions, Scanlon et al., stated that their findings align with earlier research in terms of the way the interactive nature of instruction prompted students to engage their prior knowledge and make predictions about the text (i.e., schema theory). By interacting continually with the teacher, metacognitive strategies were made more explicit. With regards to directions for future research, Scanlon et al. do not make any recommendations.

Another more recent study of graphic organizers investigated Bilingual knowledge maps (BiK-Maps) in the context of learning German vocabulary (Bahr & Dannereau, 2001). As many of the earlier studies from the 80s on graphic organizers, this research
took a positivist stance toward graphic organizers with a hypothesis and experimental and control groups. The maps presented in this research were very similar to concept maps and semantic maps. One map showed a long string of ovals with each oval divided into two parts. One half of the small oval had an English word, and one half of the small oval had a German word. Another map was made of ovals spread out more and connected by arrows. As in the first map presented, these ovals were divided into two halves, with the top half blank (for the German word to be written), and the bottom half had the English word. The ovals were connected according to the relationship between words, and this provided the map with the attributes of a semantic map and tree diagram.

As in many of the other experimental studies, the dependent measures revolved around recall of words and concepts. For this study, recall was delayed. In addition students were provided with a questionnaire asking them about there experiences with learning vocabulary with these maps.

Bahr and Dansereau (2001) found that the learners who used maps outperformed learners using word lists. In their discussion, the researchers speculated that the better performance on depended measures could be accounted for in a number of different ways. One reason for better performance could have been the "placebo effect" (p. 31), because learners found the maps to be "novel and interesting" (p. 31). Another explanation for the better performance could have been the result of making semantic relationships more explicit; however, the authors wisely caution that this is not conclusive.

Putting their results in the information-processing model that this study clearly expressed, the authors speculated that increased performance could have been the result
of the spatial cues the maps provided, which "aided storage and retrieval" (p. 31). For building maps in future bilingual contexts, the authors suggested that those constructing maps should attend to design features that enhance coding and retrieval. For future research, the authors suggest a longitudinal study for investigating long-term and cumulative effects of BiK-Maps.

Overall, the studies reviewed that used graphic organizers in second language learning contexts were interestingly similar to mainstream studies. Graphic organizers were found to facilitate recall and comprehension, with an emphasis on recall. As would be expected, these studies are dominated by experimental and quasi-experimental designs (with the exception of Mohan and colleagues). Finally, an emphasis on process features of graphic organizer use is a supportable direction for future research.

Graphic Organizers, Psychological Tools, and Reuven Feuerstein

There is related work on the use of graphics with emphasis on mediation and activity that needs to be mentioned. One strand of this research is Heddegaard's (1999) use of concept maps as part of her efforts to frame knowledge of history as a psychological tool. Another strand of research revolves around the work of Reuvan Feuerstien (see Kozulin and Rand, 2000), whose work on teaching symbol mediation in relation to content literacy was summarized by Kozulin (1998). A final direction of research I will present looked at a different kind of graphic, known as a body biography (Smagorinsky-O'Donnell-Allen, 2000; Smagroinsky-O'Donnell Allen, 1998). I will first present Heddegaard's work, followed by Smagorinsky and O'Donnell-Allen's approach, then summarize the perspective of Reuvan Feurstein and how this relates to graphic
organizers. All three of these strands of research provide additional perspectives to enrich the research on graphic organizers I have reviewed thus far. This research also supported my efforts into shaping an accessible approach for introducing graphic organizers as cultural artifacts to the participants in Thailand.

Knowledge of History as a Psychological Tool

Hedegaard (1999) proposed the use of activity theory for investigating the teaching of history in the fourth and fifth grades in Denmark. One of the central features of the study was to adopt the Vygotskian (1978) notion that physical and psychological tools mediate humanity's relation to the environment. For example, in terms of knowledge of history and the various features of studying human phenomena from an activity theory perspective, this involved investigating mediating artifacts, subjects, rules, community, division of labor, object, and outcome (see Engestrom, 1999), Hedegaard said:

Knowledge of history can therefore be seen as a psychological tool that is effective if it can be used to analyze the phenomena persons confront in their lives from a societal and historical perspective. In my view, the objective of history teaching is to give students an understanding of the connection between differences in living conditions, resources, and societal characteristics in different historical periods so that they can gain insight into how the living conditions and societies of today have developed throughout several periods. (p. 283)

One of the ways in which Hedegaard and her colleagues emphasized the distinguishing features of different historical periods was to present different types of
models for these periods. She mentioned that the models prompted students to move from the abstract to the concrete and back to the abstract. Of the models used in the study, concept maps were utilized with timelines to prompt students to notice how different time periods were characterized by different divisions of labor and different tool use (e.g., the Stone Age, Bronze Age, Iron Age). This continual re-conceptualization and elaboration of models of society, tool use, and division of labor and elaboration of the interwoven nature of these features of activity transformed the knowledge of history into a psychological tool for these students.

The relevance of Hedegaard's (1999) study to the dissertation research is most prominent in the way she prompted her students to re-conceptualize activity in broader terms than they had previously experienced. Moreover, knowledge of history is positioned as a psychological tool. Similarly, with the participants, I positioned knowledge of graphic organizers as a psychological tool for mediating English language learning and teaching, with a curriculum prompted objective of reading-to-learn. Besides Hedegaard (1999), another closely related set of learning activities involving the use of graphics to mediate activity are the proposals of Smagorinsky and O'Donnell-Allen (2000, 1998), whose theories are another possible direction to take the notion of mediated activity into the classroom.

Body Biographies as Mediation Means

In two related studies Smagorinsky and O'Donnell-Allen (2000, 1998) investigated the use of body biographies. They used many of the same theorists from sociocultural theory and cultural psychology whose ideas I borrowed (e.g., Cole, 1996; Wertsch,
Body biographies are life-sized drawings made from a student's outline drawn on a large piece of butcher paper. All around and in the body-outline, students write different words, phrases, sentences, and draw images that express their interpretations of the text they are studying (Smagorinsky and O'Donnell-Allen, 1998).

As mentioned earlier, Smagorinsky and O'Donnell-Allen synthesized many of the theorists I have used for the dissertation research. Some of the positions they take up in both papers reviewed are worth repeating. They proposed investigating different conceptions of literacy as acts of making meaning; that is, acts of making meaning could be described as a cultural tool kit comprised of: "the various mediational means through which people construct and communicate meaning (Burner, 1986; Wertsch, 1991)" (Smagorinsky O'Donnell-Allen, 1998, p. 198). They also link mediation to artifacts: Cole (1996) defined mediation as the use of artifacts (i.e., any means or residue of cultural behavior) to regulate human interactions with the world, especially with other people. Through volitional use of such cultural mediators (e.g., writing, speech, graphic design, dance) in contexts that validate their use, people potentially experience changes in consciousness through their production of representational and communicative texts. (Smagorinsky & O'Donnell-Allen, 1998)

Moreover in both papers (Smagorsinsky & O'Donnell-Allen, 1998; Smagorinsky & O'Donnell-Allen, 2000), development was considered from an activity theory perspective as goal directed and understood as occurring "through the volitional use of cultural tools toward purposeful ends in a socially mediated context" (Smagorinsky & O'Donnell-Allen, 1998, p. 201).
Also noticeable for both papers was the use of ethnographic types of methods, including field notes taken of classroom activities, interviews, and analysis of recorded discussions that took place when student-groups were working on their body-biographies. However, Smagorinsky-O'Donnell-Allen (1998) mentioned that their research did not specifically fit within any particular research paradigm. In the context of the research I am reviewing for the dissertation, I place them in a broad qualitative and sociocultural domain (e.g., Merriam, 1998; Wertsch, 1998)

For the Smagorinsky and O'Donnell-Allen (1998) study, a high-school English class of 24 students was divided into 5 small groups, and their activities with reading, writing, and body-biographies were studied over one academic year. The researchers focused on the dialog and activities of one particular group who were working with the character Laertes from Shakespeare's *Hamlet*.

Smagorinsky and O'Donnell-Allen (1998) framed their results in terms of their argument that the process of interpretation took place through "a continuum of mediated processes" (p. 234). These mediated processes included the drawings, phrases, and sentences the participants collaboratively constructed and used in their body biography. Overall, the results supported the importance of studying the process of meaning construction, particularly in terms of examining classroom interactions and the artifacts students use to mediate activities. Moreover, both papers (Smagorinsky O'Donnell-Allan, 1998, 2000) further support the use of a contextual and culturally situated perspective on the interwoven nature of mind, context, language, and activity.
Reuven Feuerstein and the Mediated Learning Experience

One of the most startling things to find out about Reuven Feuerstein were his similarities with Vygotsky. Most prominent are the life circumstances from which Feuerstein developed such a remarkably similar, yet independently constructed view of learning and development as occurring through human interaction (Burgess, 2000; Kozulin, 1998). Reuven Feuerstein was born a Jew in Rumania in 1921. He contracted tuberculosis early in his life, almost died of it, and much of his thinking evolved from working in special-education circumstances, some of which he encountered as a result of being in sanatoriums with other ill people (Burgess, 2000). Recall that Vygotsky was a Russian Jew, who succumbed to tuberculosis at the age of 38 in 1934. Much of Vygotsky's early thinking and later theories were profoundly affected by his dealings with special education contexts (Luria, 1979; Mahn, 1999). Of course, much of this is simply remarkable coincidence. However, because Feuerstein's notions of mediated activity contributed to my foundation for my teaching strategies in Thailand, some of the salient features of Feuerstein's theories are necessarily mentioned.

I must acknowledge that this brief presentation of Feuerstein's work only touches the surface of his approach to education and learning. It is beyond the scope of this dissertation to adopt more of his approaches to research and phenomena beyond the essentials summarized by Kozulin (1998). Nonetheless, as I proceed in summarizing Feuerstein's perspective on mediated activity, the relevance to the dissertation research should be clear, particularly in a movement away from positivist, information-processing types of perspectives on graphic organizers to an approach recognizing the interwoven nature of positions, activity, culture, cognition, and artifacts, which includes language.
After studying with Karl Jaspers and Karl Jung, Reuven Feuerstein became a student of Jean Piaget (Burgess, 2000). During this time with Piaget, Feuerstein began to reject Piaget’s fixed succession of stages and the idea that the order and sequence of intellectual maturation is so tightly linked to biological stages. As is well known, Vygotsky was corresponding with Piaget since the late 1920s (Burgess, 2000; Luria, 1979). According to Burgess (2000)

Piaget chose not to share Vygotsky’s work with his students. He remained committed to his epistemological mode of inquiry and theory building. Reuven Feuerstein independently began to develop his early concepts of Mediated Learning Experience before he was aware of several parallel conclusions of the Russian scholar. (p. 8)

This revelation that Piaget did not discuss Vygotsky with his students is as striking as some of the other information about Feuerstein. However, in terms of recognizing the genesis of Feuerstein’s theories, it is important to recognize that he developed independently of Vygotsky (Burgess, 2000).

As with Vygotsky, Feuerstein believed that maturation depended as much on mediated experiences as on any biological maturation factors. As a result of his earlier work and exposure to learners with special needs, Feuerstein believed that modifications could be made to cognition through the intervention of a mediator (Hadji, 2000).

This is where one of many distinctions can be made between Feuerstein's theories of mediated experiences with Vygotsky's (1978) ideas of mediated activity. The role of the mediator was emphasized in Feuerstein's theories, rather than the activities and tools (Burgess, 2000; Hadjii, 2000). In other words, the role of the other in activity and the
potential to modify cognition through a mediator-guided intervention was emphasized. These early beliefs of Feuerstein evolved into what is now applied in numerous contexts as a mediated learning experience (MLE) (Hadjii, 2000; Kozulin, 1998).

Kozulin (1998) selected three general parameters for distinguishing between a regular learning experience and a mediated learning experience. There were more parameters (see Burdin, 2000; Costa, 2000), but these three broad parameters Kozulin chose seem the most applicable to frame my positions with the participants in Thailand.

These distinguishing parameters of an MLE are as follows: (a) intentionality/reciprocity; (b) transcendence; and, (c) meaning. With regards to intentionality and reciprocity, this is where the mediator transforms an incidental moment into a more purposeful, goal-directed moment. For example, the mediator provides questions to highlight an aspect of the experience, such as prompting participants to notice the size of an object, or how it can be changed or manipulated (Kozulin, 1998). The mediator attends to both the object of the activity and the participant and looks for a way to push the experience toward transcendence; however, transcendence does not always need to be purposeful. Many parents supply hundreds of examples of non-deliberate mediating techniques daily (Kozulin, 1998).

To illustrate transcendence and the MLE character of an experience Kozulin (1998) provided the example of a fixed schedule for feeding a child:

A child’s feeding during a fixed time period has a “surface” value of providing a child with nourishment and, possibly, teaching him or her the sensory-motor skill of manipulating a spoon; the same activity, however, may have the transcendent...
value of teaching the child the notion of time, schedule, recurrence of similar events and so on. (p. 66)

In addition, Kozulin (1998) mentions the Passover ritual as one where the traditional script for the ritual operates to transcend the immediate by touching the “deep script” (p. 67) of the Jewish people. We can easily view this example using Wartofsky’s (1979) description of primary, secondary, and tertiary artifacts. During the Passover ritual, artifacts are working at all different levels of materiality to mediate the narrative of the exodus of the Jewish people from Egypt: the artifacts in the immediate discourse are packed with intentionalites that transcend the experience (Kozulin, 1998).

Finally, the third basic and necessary parameter of the MLE is meaning. Kozulin (1998) uses the event of Passover to point out that unless someone were to highlight the meanings of the artifacts associated with Passover to the participants, the whole episode might end up fairly unimportant. In order for a regular experience to be distinguished from this mediated learning experience, it must be infused with meaning. The Mediated Learning Experience is one of the major contributions that Feuerstein makes to the expansive field of contextual and culturally situated theories of mind and practice.

In terms of taking many of Feuerstein's ideas about mediated learning experiences into practice, Kozulin (1998) discussed some of the work that has taken place with Ethiopian immigrants, who arrived having to adjust to life in modern Israel with a completely different set of intellectual demands not previously encountered. Prominent among those demands for the Ethiopian immigrants was a problem-solving ability, which was mainly shown to hinge on the ability to recognize a problem, or even that a problem
existed. In order to do learn to recognize and solve problems, different mediational tools and strategies have to be taught to these students.

Specifically, Kozulin (1998) proposed that an emphasis be placed on engaging immigrants with common sign and symbol systems, which immigrants must learn in order to have successful experiences in a modern society. This includes using symbols to illustrate relationships between written directions and symbols, mathematical symbol manipulation, categorizing tasks (e.g., grouping like and unlike triangles, squares, and other figures), devices used for ordering information and sequence (e.g., timelines), and many of the standard bar-graphs and simple tables used in science, business, and math texts.

Although these contexts and applications of different types of graphic in instruction are different than many of the contexts previously reviewed, overall, this work of Kozulin and Feuerstein supports the broad sociocultural and qualitative perspective for the dissertation research. Moreover, their work supports an investigation of process features of graphic organizers, particularly as these visual devices are offered across cultures as a legitimate possibility for supporting the integration of language and content.

Inspiration Software

Through the advanced reading comprehension course, the participants were introduced to the graphic organizer program *Inspiration*. Inspiration is basically a drawing program that supplies the user with a variety of templates in which to create almost any conceivable type of graphic organizer (Anderson-Inman & Horney, 1997; Schnieder, 2000). The program allows users to go back and forth between outline view
and diagram view. This brings connections made on different types of graphic organizers into the parameters of a standard outline. In addition, anything done with the Inspiration software can be linked to other media, such as the importing of photos and use with Web pages (Anderson-Inman & Horney, 1997; Schnieder, 2000).

This software generally seemed to make graphic organizers more accessible and appropriate for the language and content demands of the participants in Thailand. It should be remembered that creating graphic organizers with a computer was not intended to be major research issue for the Dissertation; however, Inspiration proved to be a transformative artifact.

As Anderson-Inman and Horney (1997) pointed out, one of the main advantages of using computer-based concept mapping is being able to alter maps "to reflect changes in thinking over time" (p. 302). The software program Inspiration provides a path toward this kind of flexibility in making graphic organizers to fit the context (Anderson-Inman & Zeit, 1994).

From a brief review of the literature, the rationale for the use of Inspiration is built from the same types of arguments presented for the use of graphic organizers in other contexts (e.g., make links between concepts explicit; illustrate knowledge structures; prompt analysis and organization of concepts) (Alvermann, 1991; Anderson-Inman & Horney, 1997; Merkley, Schmidt, & Allen, 2001). The main difference is the ease of changing and creating graphics as a learning activity unfolds.

It is with this notion of providing the participants in Thailand with a flexible and easy-to-use method of making graphic organizers that I brought this software and the computer into the study. It would be easier and simpler to exclude this tool from the
research, but I would consider it to be irresponsible as an educator if I did not share this potentially powerful tool with the students.

**Summary of Graphic Organizer Research**

The most prominent type of graphic organizer in almost all the studies reviewed was an integration of the tree-diagram and concept map, with tree-diagram features emphasized. The exceptions to these basic designs were in more recent studies grounded in related strands of sociocultural theory (e.g., Kozulin, 1998; Smagorinsky & O'Donnell-Allen, 1998, 2000).

This predominance of tree diagrams and concept maps also seemed to be true for ESL as well as mainstream applications of graphic organizers. However, many different and creative types of use of in mainstream and second language contexts are changing rapidly. This predominance of a certain type of graphic organizers is surely a transitory illusion because of the possibilities from computers to create new kinds of graphic organizers and other visuals to assist language learners.

Remember the *ratchet effect*, whereby modifications are made to artifacts and passed on, leading to a ratcheting up of the potential impact of the artifact on human activity (Tomasello, Kruger, & Ratner, 1993). Perhaps we can see a glimpse of the ratchet effect with some of the participants and their activities with GOs in the dissertation data. Overall, from the research on graphic organizers I have found thus far, there seems to be positive results from graphic organizers both in comprehension, recall, and the integration of language and content.
With regards to directions for future research, as mentioned often throughout the review, there seems to be an overall agreement that there is a need for more research on how graphic organizers work rather than if graphic organizers do in fact facilitate comprehension. There is also a gap in the research on how learners from different language backgrounds and cultures interact with graphic organizers. Also, what have not been emphasized in the research are the differences between varied collaborative group arrangements of learners with graphic organizers. How might triads and dyads differ? More research into teaching students different graphic designs for varied goals might be explored, in addition to how different graphics enhance or constrain collaboration among learners. How might different graphics specifically position learners to specific features of language? Many questions about graphic organizers remain. Moreover, there is a huge gap in the research on graphic organizers in EFL contexts.

In conclusion, the field of ESL/EFL is wide open for empirical research on graphic organizers, even more so for EFL. More importantly, new paths for research on graphic organizers are available due to the many recent advances in understanding the interwoven nature of language and culture (e.g., the links between meaning and activity), and new ways of thinking about language, culture, mind, history, activity, and artifacts.

Studies using Positioning Theory and Vygotsky's Genetic Method

With the recent swing toward looking at human learning and development from a more social and interdisciplinary perspective, some powerful directions of research have evolved. As already stated, positioning theory and Vygotsky's genetic method provided the primary foundation of the approach to my teaching at Northern University and the
dissertation research. More specifically, Vygotsky's genetic method dominated the analysis of purposefully selected participant interactions with graphic organizers in and around the context of the bounded case, the advanced reading comprehension course.

Positioning theory is providing an overarching perspective to illustrate my continual positioning as a foreign participant-observer at many different levels throughout my six-month stay in Northern City. I will first present relevant studies using positioning theory and then present Vygotsky's genetic method and relevant studies using this method.

Studies that used Positioning Theory

Howie (1999) described three examples of individual positioning. These were: “capacity for positioning oneself and others, willingness or intention to position and be positioned, and power to achieve positioning acts” (p. 53). To understand skill development, Howie used notions about learning and development from Vygotsky (1978) and Reuven Feuerstein (see Kozulin, 1998; Kozulin & Rand, 2000). More specifically, Howie used Vygotsky’s (1978) Zone of Proximal Development, and from Feuerstein, Howie borrowed the Learning Potential Assessment Device (Feuerstein, Rand, & Hoffman, 1979) and a program of instruction called Instrument Enrichment (Feuerstein, Rand, Hoffman, & Miller, 1980) (see Kozulin & Rand, 2000, for more recent studies using Feuerstein). Before proceeding further with Howie's (1999) study, and to provide more explicit links between these ideas and the dissertation research, it is necessary to provide more specific information about Feuerstein's theories.

As implied earlier, Feuerstein's theories of learning and development are strikingly similar and complementary to Vygotsky's. Without going into great detail, the Learning
Potential Assessment Device (LAPD) is similar to Vygotsky's (1978) Zone or Proximal Development (ZPD). However, rather than a distance between a learner's potential developmental level and a developmental level resulting from collaboration with a more capable peer, as in the ZPD, Feuerstein's LAPD emphasizes propensity for development (Feuerstein, 2000) which evolves through dynamic assessment.

It is beyond the scope of the dissertation to explain the distinctions between Feuerstein's and Vygotsky's approaches; however, an emphasis on the term propensity rather than potential is grounded in the notion that development achieved through intervention cannot really be quantified (Feuerstein, 2000). This also reflects Feuerstein's rejection of psychometric testing (Burgess, 2000), which some of his colleagues are trying to work around in order to gain mainstream acceptance of these theories (see Guthke & Beckmann, 2000).

For Howie's (1999) participants, the inclusion of these concepts of Vygotsky and Feuerstein indicate that there was dynamic activity in which more capable peers scaffolded participants into operating more toward their potential, or propensity toward cognitive modifiability. More important, with Feuerstein's LAPD and Vygotsky's ZPD, the focus is on process, not product, and I assume this is the direction Howie (1999) was taking. Howie (1999) used these ways of gauging process and intervention from Vygotsky and Feuerstein to investigate psychological symbiosis in two separate cases.

Psychological symbiosis "can be used for those cases in which a group of people complete through public symbiotic activity, particularly in talking to each other, inadequate social and psychological beings" (Howie, 1999, p. 54). To investigate psychological symbiosis, Howie pulled two cases from a larger group who were involved
in an empirical study of enhancement and assessment of self-advocacy and decision-making.

The 10 New Zealanders from which Howie pulled the two cases were the experimental group. Of the two cases, one student, case A, was a white, adolescent New Zealander, and the other, case B, was a Nuie Island New Zealander. Case A had a history of special education placement, and the Nuie islander was a non-native English speaker with little English spoken at home. These two cases went through the same type of self-advocacy and decision-making skills training using an approach to mediated development from Vygotsky and Feuerstein.

As could be expected with Case A, with the history of special education placement, she scored lower on real-life decision making and self-advocacy tasks; however, she showed improvement on analogy-type Raven Matrices Tasks. Case B, who had to deal with the challenges of being a non-native English speaker, responded favorably to Feuerstein's mediated learning experiences set up by the program.

As mentioned, these two cases were taken from 8 individuals to make up an experimental group of 10. Overall, when compared to the 12 subjects who did not receive the extensive mediated experiences based on the work of Vygotsky and Feuerstein, the 10 students in the experimental group demonstrated superiority in planning strategies and outcome skills measures.

Howie concluded that there are a number of factors to consider in a symbiotic relationship to develop self-advocacy and decision making skills. Among these factors to consider is the quality and balance of supplementation and complementation in the mediated relationship. Most important, is for the mediator to initially appear as removed.
from the power structures in which the self-advocate is learning how to function. This would allow a wider range of free-expression. Moreover, positive feedback is important along with the encouragement of a strong sense of self on the part of the self-advocate.

Howie's (1999) description of the difficulty of moving from negative to positive positioning is worth repeating:

Self attribution concerning capacities are intricately interwoven with the learning of self positioning or self-advocacy strategies. Such affective or emotional beliefs, whether publicly communicated or privately held, are products of long-time practiced discursive acts. There is evidence from the study that long-term and intensive training and practice is needed to modify negative self-attributions to more facilitating positive self attributions, and hence a more dynamic attitude to positioning” (Howie, 1999, p. 58).

Roebuck (2000) was another study that proposed a move away from standard experiments and measures toward positioning theory and more dynamic assessment. Roebuck investigated test-subjects in the context of psycholinguistic research. The subjects were chosen from 32 university-level Spanish language learners.

Using sociocultural theory and positioning theory, she looked at how participants in the standard type of psycholinguistic experiment were expected to perform various tasks. In these experiments, outcome-measures following task-performance were usually the only data collected. Roebuck argued that in many of the experiments from the natural sciences the experiments objectify participants to the point that they are regarded as having little or no intentions or motives; consequently, experimental designs might not be appropriate.
The participants in her study were asked to recall information from different types of text, such as newspaper and magazine articles. Her results support the notion that written data can provide evidence of individuals positioning themselves. According to Roebuck, this is in contrast to Davies & Harré (1993), who regarded positions as a conversational phenomenon.

Roebuck proposed that the definition of a *discursive practice* "ought to be expanded to include all the symbolically mediated ways in which people construct social and psychological realities" (p. 90). (It should be noted here that Davies and Harré [1999] used the term *discursive practice* "for all the ways people actively produce social and psychological realities" [p. 34]).

Roebuck's data illustrated learners positioning themselves in written responses to questions in a way that demonstrates that speakers will express truth-values by distancing themselves from an answer. For example in Roebuck's study subjects said things like, *I think; I think because the article says; the article stated.* Overall, her findings support the view that learning and assessment activities are unpredictable and unique. Her data showed participants continually repositioning themselves in the activity, thus transforming the activity. In one example, learners often reframed the tasks involved so they were not the "object of scrutiny" (p. 94).

Instead of taking an approach to human activity as in the natural sciences, her study supports a view of test-subjects as "conscious individuals as they act upon themselves and their environment" (p. 94). She suggests an approach to researching human activity where the emphasis would be on discovery rather than prediction.
In a study that has provided some of the central concepts for using positioning theory, Davies and Harré (1999) attempted to create a balance between Searle (1979) and Austin (1961):

As we develop our account of positioning we will argue for a productive interrelationship between 'position' and 'illocutionary force'. The social meaning of what has been said will be shown to depend on the positioning of the interlocutors, which is itself a product of the social force a conversation action is supposed 'to have' (p. 34).

Davies and Harré (1999) view positioning as a "discursive process whereby people are located in conversations as observably and subjectively coherent participants in jointly produced storylines" (p.37). In an approach to moral order expressed as storylines, they focus on the spontaneous negotiability of positions.

For their data, Davies and Harré discussed a situation of two people in an argument revolving around one person positioning the other a certain way due to gender. One of the participants (a female) took offence at the way the offender (a male) described a situation in which they found themselves. This offence was taken when the male apologized for putting the female in such an uncomfortable position, which she took to mean that he was treating her as if she did not have any independent intentions in the choice she originally made to accompany him. The male was baffled by how his apology was offensive.

A negotiation of positions unfolded that involved recognizing the feminist position assumed by one of the participants as immanent to the conversation; that is, one participant's storyline is embedded in the feminist position normally taken up by her, therefore, this female’s moral order, and the male participant's negligence or awareness of
this moral order, become immanent, shaping the conversation and positions that unfolded. Summing up this episode, Davies and Harré (1999) said "A subject position is a possibility in known forms of talk; position is what is created in and through talk as the speakers and hearers take themselves up as persons" (p. 52).

Other important issues that Davies and Harré (1999) addressed are the way positioning theory is intended to look at sequences of events set in motion and how agents engaged in the events position themselves as more or less in control of an activity. Davies and Harre also seem aligned with Bruner's (1987) views on narratives in terms of discussing the way positions are taken up as storylines and that participants appropriate the storylines of others. Davies and Harre also acknowledge the tensions when individual participants assume conflicting positions.

Another study from the same collection (i.e., Harre & Van Langenhove, 1999) is Sabat & Harre (1999), who investigated the positionings of Alzheimer's patients as they worked to recover their identity. One of their conclusions was that personal identity remains intact even after severe damage to cognitive and motor control functions. They found that the storylines assigned to Alzheimer's patients (e.g., disabled and incapable) are a type of self in the social realm that contributes to the overall deterioration of the patient due to numerous others positioning the patient as disabled and incapable. This study also takes the Bakhtinian perspective of life and being as a collaboratively negotiated, ongoing activity (Clark & Holquist, 1984; Bakhtin, 1990; Bruner, 1987).

A final study worth mentioning is Barone's (2001) re-examination of data from previous research she did on the literacy development of crack cocaine babies. This re-examination of the data is known as revisioning (Alvermann, 1999) and involves an
investigation of previously analyzed data through a different interpretive lens. For Barone's data on young children who were prenatally exposed to crack-cocaine, she used positioning theory. She chose positioning theory to illustrate the different power relationships, which included her role as researcher.

Barone found that by analyzing positions through an investigation of discursive practices, different participants were brought to the foreground. This illustrated features of literacy phenomena unfolding that had previously been ignored in earlier data analysis. This included the importance of a grandmother (Luciille) in making decisions about the literacy development of the child (Billy). Positioning theory also illustrated the power Lucille had over the researcher and interpretations in terms of trying to protect Barone from the realities of the neighborhood and making sure that an accurate portrait of Billy was in the study.

Overall, as stated in the Introduction, and as will become clear in the Results and Discussion, positioning theory offered a powerful and necessary tool to examine my interactions as a foreign instructor and researcher with participants who are also teachers and my students. Indeed, the positions taken up through the diverse interactions within and beyond the bounded case were a crucial part of the investigation.

Vygotsky's Genetic Method

A sociocultural approach to mediated activity also involves a particular research method. This method was proposed by Vygotsky (1978, 1986, 1987), but had its origins in earlier work in developmental psychology from Wundt, Lewin, and Werner (Vygotsky, 1978; Werner, 1978; Wertsch, 1985). This is known as the genetic method.
(Vygotsky, 1978; Wells, 1999; Wertsch, 1985, 1991), which forms a critical part of the data collection and greatly impacts the overall approach to the data. Due to the central role of the genetic method to this research design, it is necessary to present some of the more important features of this approach. According to Vygotsky (1978):

Any psychological process whether development or thought or voluntary behavior, is a process going on right before one's eyes. The development in question can be limited to only a few seconds, or even fractions of a second (as in the case in normal perception). It can also (as is the case of complex mental processes) last many days and even weeks. (p. 61)

Another important idea from Vygotsky (1978) expressing the importance of studying the process of phenomena is this:

*To study something historically means to study it in the process of change.* . . . To encompass in research the process of a given thing’s development in all its phases and changes—from birth to death—fundamentally means to discover its nature, its essence, for 'it is only in movement that a body shows what it is'. (Vygotsky, 1978, p. 64-65, Italics in original).

Vygotsky's genetic method was in reaction to most psychological research around the time of Vygotsky's life (1896-1934), which was addressing object more than process (Prawart, 2000). In other words, by looking at the results of stimulus-response activities in laboratories, researchers were missing the spontaneous unfolding of psychological development, the *genesis* (Mahn, 1999; Vygotskaya, 1999b).

One cannot understand human development without considering its sociocultural origins and history of transitions (Scribner, 1997a). Whatever human interaction we are
investigating can be framed as the unfolding of human learning and development right before our eyes. This genesis of human development has been presented by Vygotsky (1978) and others (Wells, 1999; Wertsch, 1985, 1991) as mutually constitutive in four domains: microgenesis, ontogenesis, the sociocultural/historical domain, and phylogenesis.

Microgenesis frames development as unfolding before one's eyes over short periods of time; as short as seconds or minutes, or longer periods (Wells, 1999). Lantolf (2000) described the microgenetic domain as follows: "Where interest is in the reorganization and development of mediation over a relatively short span of time (for example, being trained to criteria at the outset of a lab experiment; learning a word, sound, or grammatical feature of a language)" (p. 3).

Because Wertsch (1985) provided definitions of two different types of microgenesis and these definitions influenced the data analysis, they need to be mentioned here. "The first type of microgenesis identified by Vygotsky concerns the short-term formation of a psychological process. The study of this domain requires observations of subjects’ repeated trials in a task setting" (p. 55). On the same page, this is followed by a second definition. "The second type of microgenesis is the unfolding of an individual perceptual or conceptual act, often for the course of milliseconds" (p. 55).

Ontogenesis frames psychological development on an individual level; that is, how an individual's intellectual development unfolds and is transformed (Wells, 1999; Wertsch, 1985). However, this does not mean that the ontogenetic domain is isolated from the other domains. When Vygotsky developed his notions of ontogenesis he was referring to ontogenesis with children (Wertsch, 1985). In terms of using ontogenesis as a term in
child psychology, this is the generally acknowledged mainstream approach (Scribner, 1997a). Vygotsky died before moving any further with these ideas with regards to adults (Scribner, 1997a). Moving Vygotsky's ideas to an investigation of ontogenesis with adults is one of suggested openings for extending Vygotsky's ideas (Scribner, 1997a).

Sociocultural/ historical features of phenomena would be those linked to social, cultural, and historical forces that shape the phenomena under study. Phylogenesis would be intellectual development across a culture and/or species over time (Wells, 1999; Wertsch, 1985). To describe phylogenesis Well's (1999) provided powerful examples of the interwoven nature of these four genetic domains by using the fiction novel, the Inheritors (1955), by William Goldring, best-known for his novel, Lord of the Flies. In order to make the interwoven nature of these domains more explicit, and to more clearly define phylogenesis from this perspective, the examples from Well's (1999) are worth repeating.

The Inheritors is about the life of a particular tribe of Neanderthal that will be destroyed through the emergence of modern humans, who are known as New Men. To illustrate microgenesis and the powerful trajectory of the link between language as a tool and activity, which involved a transformation of cognition and activity, Wells (1999) presented a scene near a river. In this scene two members of a shrinking tribe of Neanderthals, a male and a female, are attempting to find a way to an island to find out what happened to members of their tribe who have disappeared.

In this telling scene from Goldring's book, the female, Fa, expressed to Lok, the male, an idea she has of moving a log to create a bridge. It takes awhile for Lok to get her point, but she finally is able change his frightened and bewildered first reaction (see Goldring,
1955, pp. 120-122). In this moment, language is used in a certain way for the first time to direct the attention of others and intentionally plan collaborative activity. On a microgenetic level, in this moment where normal activity has been altered, words were arranged in a unique way to plan activity to meet a new challenge. On a phylogenetic level, we can understand this tool of language spreading across a species and used to mediate activity and cognition, which become even more intertwined with the sociocultural/historical domain as writing comes along (Wells, 1999).

This episode of language to communicate and direct activity also expressed the notion of cognition resulting from goal directed activity occurring on the social plane of development (i.e., intermental plane of development). In this instant, Fa plans and expresses these plans using language to direct and reflect on the goal directed activity of finding out what happened to missing members of their tribe. Language begins its long history of mediating activity and the related domains of cognition and culture (Wells, 1999).

I am basically approaching these four domains using the definitions provided by the theorists reviewed. However, due to my efforts to explicitly approach ontogenesis with regards to adults, some of whom are both English language learners and English language teachers, I am synthesizing Vygotskian versions of ontogenesis (Wells, 1999; Wertsch, 1985), as previously stated, with definitions of ontology from Dillon, O'Brien, and Heilman (2000). This definition of ontology is listed in the definitions of terms and concepts at the end of the Introduction, but due to its prominence in my approach to adult ontogenesis, this definition of should be restated here for clarity:
The nature of reality (what is understood to be real). Ontological assumptions get at what people believe and understand to be the case—the nature of the social world or the subject matter that forms the focus of our research. Ontological beliefs give rise to beliefs about epistemology (Dillon, O'Brien, & Heilman, 2000, p. 14).

Because the participants in the dissertation research are students who are also learning to do research, this definition of ontology is particularly important. With any ontogenesis unfolding with these participants, I am hunting around for changes in their perceptions of a specific nature of reality: how they understand and see graphic organizers with regards to learning/teaching language, concepts, and/or content. As stated in the above definition, ontology is closely related to epistemology, therefore, a definition of epistemology from Dillon et al. also needs to be stated. Epistemology is defined as:

Ways of knowing reality (what is true). Epistemological assumptions are those that people hold about the basis of knowledge, the form it takes, and the way in which knowledge may be communicated to others. Scheurich and Young (1997) related that these assumptions arise out of the social history of specific groups and that our typical epistemologies are often biased (e.g., racially). Epistemological assumptions have methodological implications. (Dillon, O'Brien, & Heilman, 2000, p. 14)

For the participants in the study, I am trying to understand the inter-related nature of their ontology and their epistemological assumptions, and, if I will see any transformations in the participants use of graphic organizers or around graphic organizers during classroom interactions or as a result these interactions. These interactions include
interactions with my narrative and imminent storylines as participant/researcher/instructor.

Studies that used Microgenetic Analysis.

The studies using the genetic method that I reviewed were mainly investigations of second and/or foreign language learning contexts. As would be the expected when using Vygostsky's genetic method, an overall sociocultural approach to the data was taken in all the studies, including data collection techniques normally associated with ethnographic research (i.e., interviews, member-checks, fieldnotes, audio and video tapes, discourse analysis).

Ohta (2000), a study previously discussed in the Introduction, used Vygotsky's genetic method to illustrate the nature of collaborative interactions with Japanese translations of two University-level students learning Japanese in the States. Ohta examined the data for resistance and assistance in the process of internalizing different Japanese grammatical forms. She found that Vygotsky's general genetic law of cultural development and the ZPD used in conjunction with a genetic analysis highlighted developmental processes. More specifically, in terms of internalizing features of the Japanese language, this analysis provided a fine-grained picture of language learning and how this learning took place as a collaborative interaction. She also found that this fine-grained analysis illuminated the differences between what had been planned in a lesson and what actually transpired.

Two earlier studies, Donato (1994) and Aljafreh & Lantolf (1994) used microgenetic analysis to analyze the internalization of language forms. Donato (1994) described three learners of French as co-constructing specific language forms, where each participant in
the communication exchange provided one chunk of language to construct the requested form. Donato concluded that these scaffolded episodes supported individual linguistic development. Moreover these learners demonstrated their ability to be "sources of knowledge" (p. 46) in this dialogically constructed activity. He found that "the co-construction of the collective scaffold progressively reduces the distance between the task and individual abilities" (p. 46). His findings support the positive role of group work as a collective learning activity and this study provided another example of an effective application of microgenetic analysis and sociocultural theory.

Aljaafreh & Lantolf (1994) created protocols for the ZPD and used microgenesis to examine the progressions to different levels of learners' ZPDs during one-on-one tutor-student interactions. This study focused on the effectiveness of corrective feedback provided by the tutor and how this was investigated through microgenetic analysis.

In their conclusions, the authors emphasized that effective error correction occurred when learners act with an other to "dialogically co-construct a zone of proximal development" (p. 480). Aljaafreh & Lantolf gave a detailed explanation of the co-constructed interactions that lead to self-regulation in writing. Their findings suggested that mediation by an other is important for effective error correction and language learning. Their study also supports the use of a sociocultural framework and microgenetic analysis to examine movement from other- to self-regulation within the dialogically, co-constructed ZPD.

A more recent study used microgenetic analysis and sociocultural theory to investigate teachers' questions as scaffolded assistance with Adult ESL students. McCormick and Donato (2000) used Wood, Bruner, and Ross's (1976) definitions of
scaffolding for coding the detailed transcriptions. For example, two of the well-known functions of a scaffolding episode are: "Reduction (R)--Drawing the novice's attention to the task; Reduction in degrees of freedom (RDF)--Simplifying or limiting the task demands" (McCormick & Donato, 2000, p. 185). All together there are six (see Wood, Bruner, & Ross, 1976).

By using this micorgentic approach McCormick and Donato (2000) were able to investigate how teacher questions and instructional goals were aligned to the six functions of scaffolding. These specific moments of scaffolding unfolding in the audio and video tapes and the teacher's instructional goals were then related to supportive conditions for "comprehension, comprehensibility, and participation of the students in the language lesson" (p. 196)

In terms of ethnographic types of data collection and analysis supporting their microgenetic analysis, the authors used teacher-journal comments, researcher fieldnotes, and pre- and post-lesson interviews. In addition, of the 15 segments transcribed and coded, an outside rater coded 5 randomly selected segments. An agreement rate of 88% was reached between the rater and researcher.

One of the statements about microgenetic analysis McCormick and Donato (2000) make in their conclusion is worth repeating:

The genetic method (Vygotsky, 1978; Wertsch, 1990) of investigating the scaffolding process of teacher questions, starting outside the classroom with goals and working our way into the classroom tasks, highlighted the role of teacher goals as explanations for how she used questions" (p. 197)
The use of microgenetic analysis complemented by ethnographic types of data collection and analysis clearly provided an effective research design.

Each of these studies effectively used microgenetic analysis to highlight the developmental processes unfolding at moments of communicative exchange. This emphasis on process rather than outcome is at the forefront of the approach to investigating graphic organizers as cultural artifacts.

Gestures

Due to the way in which gestures became an issue in two of the major sections of data presented in the Results, it is important to review some of the research on gestures. It was not my intention when I began this research to investigate gesture. This is not a dissertation about gesture, this is a dissertation about ESL/EFL learners/teachers, graphic organizers, and a synthesis of theoretical perspectives related or tangential to Vygotsky, Luria, and Leont'ev.

However, in two of three sections of Results I am focusing on the interplay of gestures with graphic organizers and other significant mediating artifacts (e.g., the English language) found in the immediate and adjacent data. I am using the term gesture loosely. Due to the influences of graphic organizers and rehearsed or repeated interactions with text and content many of the gestures are not spontaneous types of gestures as described by McNeill (1992), known as gesticulation, which I will discuss in a moment. Nor were the gestures produced under the same circumstances as described in some of the other literature reviewed (e.g., McCafferty, 1998). However, as will be seen in the Results, graphic organizers profoundly affected participant interactions with each
other and content. The goal of the literature reviewed on gestures was to glean some of the categories of gestures that have been used in similar circumstances in order to create a categorization scheme for the gestures presented in the Results. I will begin this review with some of the foundational information from McNeill (1992), whose book, *Hand and mind: What gestures reveal about thought*, is cited in other studies relevant to the dissertation research (e.g., McCafferty, 1998, 2002). I will then follow with other relevant research.

One of the most important ideas I encountered in McNeill (1992) is that there are different categories of gestures. This is important for the dissertation research, because I am using the term gesture loosely by McNeill's standard. According to McNeill, the focus of his book is on "spontaneous and idiosyncratic gestures that occur while one speaks" (p. 36). He then goes on to identify five different categories of gestures, of which, gesticulation is the category of gesture that is spontaneous and idiosyncratic and occurs with speech. The other categories include *language-like gestures* where a gesture takes the place of an adjective in a sentence. For example: "Sam's restaurant is good, but Dan's is [gesture]". Another category is *pantomime*, in which case, speech is not a required condition, and the hands "depict objects or actions" (McNeill, 1992, p. 37). Pantomime can also be used to present a sequence of actions, which is not a use of gesticulation. With gesticulation sequences "do not combine" (p. 37). A category that is surely well known by everyone is *emblem*, which McNeill says are mostly associated with insults. The most common one that comes to mind is *flipping someone off* (i.e., *giving them the bird*). In Thailand, I have seen motorcyclists show the bottom of one foot in anger to a driver who has cut them off, and once did it myself. Of course, I have seen plenty of
people flip-off other drivers in the States. McNeill provided the example of the ok emblem, where the thumb and index finger form a circle. If a finger other than the forefinger were used, than it would not be the same. Finally, the last type of gesture McNeill talked about was sign language, which is characterized by a structured system. McNeill presents these 5 types of gestures on a continuum called Kendon's continuum (see Kendon, 1988) with gesticulation at the left extreme and sign languages on the right.

For the dissertation research, I am using the term gesture to characterize the movement of the hands that accompany speech. However, I present these categories from McNeill to further contextualize the data analysis. Some other major types of gestures that McNeill described are also relevant to the dissertation data. These are *iconic, metaphoric, beats, cohesive, and dietic gestures*.

As I summarize each type, keep in mind that McNeill (1992) described these types under the category of gesticulation. They were categorized from data produced when research participants were narrating recalled events. They were spontaneously produced and were idiosyncratic. The gestures in the dissertation data were not completely spontaneous nor idiosyncratic; however, as you shall see, McNeill's and the other research I review are relevant to the Results and Discussion in interesting ways.

Iconic gestures are understood to be those gestures that are very similar to the semantic content of speech. A common example that comes to mind is when I might describe a church steeple to you and bring my hands and fingertips together to form a steeple. According to McNeill (1992), iconic gestures will also reveal the speaker's point of view. For example, suppose I was standing inside an unfinished church and said that the rafters were in place but I could clearly see the peak of the roof over my head while
standing where the church pews would be placed. In that moment I conceivably might bring my hands together in that same gesture I just described, except that this time I might bring my fingertips together in a point over my head, thus revealing my perspective.

A metaphoric gesture is easy to spot. Suppose someone is standing in front of an audience and saying that we have two proposals for saving money. For the moment, put your eyes into the eyes of the speaker. She is standing. She is holding her hands about 15 inches apart, as if she is holding a small, light feather pillow one might find on a couch in someone's living room. As she says, "we can save money by using less paper by turning in and typing homework online"; she is holding this pillow in her hands slightly above her waist in a zone that McNeill called a gesture space. When she is saying we can save paper by typing homework and turning it in online, she will hold this pillow slightly to her left side. As she says "or" and then begins to tell everyone that they can type and hand in hard-copies of their homework and consequently waste paper, she moves this pillow, her hands relaxed, 15-inches apart, over to her right side, slightly to the right of the center of her midsection. In this way, the speaker has presented a pictorial of her argument. This is an abstract metaphoric gesture showing two sides to the argument. These two different sides to the argument are bounded in separate spaces: one in front of her and slightly to her left, and one in front of her and slightly to her right (McNeill, 1992). McCafferty and Ahmed (2000) called this metaphoric type of gesture "splitting the gesture space" (p. 207; Italics in original).

The third major types of gesture presented by McNeill (1992) were beats. "Beats are so named because they look like beating musical time" (p. 15). McNeill explained that
beats are noticeable for their two movements of "in/out, up/down, etc." He also pointed out that beats are "deceptive" (p. 15) in appearance, but are most significant in that beats have a distinctive pragmatic function. Examples are when the discourse shifts and a specific theme is highlighted, such as when I might say, "However, that sentence is convoluted for good reason". If I was sitting down in an armchair, with my hands and forearms resting on the arms of the chair at the periphery of the gesture space, you might see me make a short, barely noticeable up and down movement with one or both of my hands on "however". In this example, I would be highlighting a specific theme, such as support for a convoluted style.

*Cohesive* gestures are those that McNeill (1992) said are "eclectic" (p. 16). These can be iconic, metaphoric, or beats, or pointing gestures. One of the main characteristics of cohesive gestures is that there is some kind of consistency; that is, the same type of gesture is repeated in the same general gesture space. This brings to mind Richard Nixon and his constant making of those V for victory iconic gestures, breaking a statement two or three times to raise his two hands up and making those Vs. In this way he was linking his speech on a topic to the V for victory icon. They are in the same general gesture space above his head, and if I recall correctly, he would lower them to say something that was emphasized with a number of beats, and then raise his hands up again.

McNeill provided (1992) an example of a cohesive gesture with a woman sitting and talking about the wires that hook up the cable cars. She brings her hands together, one hand slightly on top of the other, brings them apart, to say "you know the trolley system" (p. 17), then resumes her previous gesture with her hands brought back together when she says "right and there's a whole network of those wires" (p. 17).
Deictic gestures are the final type of gesture that I am borrowing from McNeill (1992) to frame my departure to a slightly different system. Deictic gestures point somewhere. McNeill provides the example of a man sitting down and saying "Where did you come from before?" The man is pointing to a space between himself and the interlocutor. In a similar kind of circumstance, I found myself in my major advisor's office talking about my dissertation and pointing to my shoulder bag that was lying on the floor at my feet. The dissertation was not in my shoulder bag that day, but it might as well have been. He gave me a funny look and I tried to explain (dissertation dementia). In these ways, deictic gestures point to abstract spaces during discourse.

This is a brief and compact summary of McNeill's (1992) framework. There is much more to it; however, because gesture is not the main focus of the dissertation, it is beyond the scope of the dissertation to go more deeply into his framework at this point. I am using a simpler classification and transcription system. Besides, as I said earlier, the gestures I present in the Results were not generated under the same circumstances. Moreover, McNeill's (1992) focus was not on those whose first language was other than English, although he does use data from participants whose first language is other than English. But this is not the emphasis. McCafferty (1998; 2002) and McCafferty and Ahmed (2000) were informative studies that focused on those whose first language is other than English. Before moving to this research, it is necessary to review Vygotsky's (1986, 1987) notion of private speech and inner speech, which were mentioned in McCafferty's (1998) and some other related research and papers (e.g., Lantolf, 2000; Wertsch, 1979, 1990). Moreover, McNeill (1992) touched on certain aspects of gesture.
and its relationship to inner speech, which I will return to when I sum up this section on gestures.

Inner Speech and Private speech

The term *private speech* first originated in Wertsch (1979) to differentiate Vygotsky's (1986) use of the term egocentric speech with Piaget's use of egocentric speech. Vygotsky and Piaget differed greatly on the function and ultimate character of egocentric speech, and private speech is a useful term to highlight the different understanding that Vygotsky had for private speech.

As is well known, from a Piagetian perspective egocentric speech is associated with development stages of children and their talk-to-themselves during different types of activity. It is what happens to egocentric speech during development that really differentiates Vygotsky and Piaget; egocentric speech "evaporates" (Vygotsky, 1987, p. 69) and egocentric speech does not serve any function. According to Vygotsky (1987) "in contrast to Piaget, egocentric speech begins to play a unique role in child's activity at a very early stage" (p. 69).

From Vygotsky's perspective (1986, 1987), egocentric speech become speech for oneself, known as *private speech* (Wertsch, 1979) and begins to serve the function of regulating activity. This movement from the social, interpsychological plane of development, to the intrapsychological realm continues, as private speech becomes *inner speech* (Vygotsky, 1986, 1987; Wertsch, 1979).

As private speech moves to a deeper level on the intrapsychological plane it is transformed. The three main semantic characteristics of inner speech are "agglutination, the preponderance of sense over meaning, and the influx of sense" (Wertsch, 1979, p.79).
A fourth syntactic feature of inner speech is known as the *psychological predicate* (Wertsch, 1985; 1990), which, as mentioned earlier, McNeill (1992) discussed in relation to gesture. This is not to be confused with a grammatical predicate.

An oft-cited example of the psychological predicate is the occasion of people waiting for a bus to approach. They will not bother to say an entire sentence such as "The bus for which we are waiting is coming" (Vygotsky, p. 236). They will say "coming" or something similar (Vygotsky, p. 236). Another example is when someone is asked if they would like some tea. They do not often say, "No I don't want a cup of tea" (p. 236), they will usually just say "no". The point in these two examples, taken with the semantic parameters of agglutination, influx of sense, and the predominance of sense over meaning, is that inner speech is a condensed transformation of private speech. These two examples of the psychological predicate help to put some of the things that McNeill said about gesture and the psychological predicate in context.

McNeill (1992) brought up the psychological predicate with regards to a sequence of gestures. The structures of gestures are related to what is salient "in the momentary context" (p. 127). In terms of this saliency, gestures "can be used as a tool to infer the speaker's psychological predicate at the moment of speaking" (p. 127). McNeill then described the psychological predicate as "the novel, discontinuous, unpredictable component of current thought" (p. 127). McNeill then pointed out that "the gesture singles out what, to the speaker, are the utterance's least predictable, most discontinuous components. The crucial property that identifies gestures with the psychological predicates is discontinuity from the ongoing context" (p. 128).

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These are important issues that McNeill (1992) brought up, particularly in linking gesture with the psychological predicate. However, as I said earlier, he used the term gesture to indicate gesticulation. Gesticulation is a category of non-verbal speech that is spontaneous, idiosyncratic and accompanies speech (McNeill, 1992). Due to the influence of contextual circumstances in the data presented in the Results, there will be differences. Despite the differences of conditions under which gestures were generated in McNeill’s work and some of the other work on gestures, these studies are relevant to the dissertation data, particularly research on non-verbal speech and participants with languages other than English as their L1. In all of this work, private speech, inner speech, or some other feature of Vygotsky's work was mentioned.

**Non-Verbal Speech and L2 Learners**

McCafferty (1998, 2002) and McCafferty and Ahmed (2000) have produced a relevant body of research on non-verbal speech with mainly participants who are non-native speakers of English. In all three studies, participants who are non-native speakers of English were paired with non-native speakers from different first language foundations (i.e., learned English in a naturalistic or instructional-only context; mainly monolingual or bilingual) (McCafferty & Ahmed, 2000) or a native speaker of English was paired with a non-native speaker of English (McCafferty, 2002), or non-native speakers of English were attempting to communicate with a native speaker of English who was standing next to a video camera. (McCafferty, 1998).

In the McCafferty Ahmed (2000) study, the focus was on the appropriation of abstract gestures that fall under the broad category of metaphoric types of gestures already
presented from McNeill (1992). McNeill's (1992) work and other work from McNeill are frequently cited in all three studies in which McCafferty was involved, although not as frequent in the McCafferty (2002) study. Beats are also presented in McCafferty and Ahmed, again using McNeill's (1992) framework. In this study, as in the McCafferty (1998) study, Vygotsky's notions of private speech and inner speech were introduced, as were theories on the relationships between gestures, private speech, and inner speech (e.g., McNeill, 1992).

The 36 participants in the McCafferty and Ahmed (2000) study were categorized into four different groups: 1) advanced speakers of English with Japanese as their L1, who learned English in a naturalistic context (i.e., in the US or Canada); 2) advanced speakers of English with Japanese as their L1 who learned English in formal instructional contexts in Japan; 3) "largely monolingual" (p. 208) speakers of English, and; 4) "largely monolingual" (p. 208) speakers of Japanese.

The purpose of the study was to investigate the appropriation of abstract gestures (i.e., different types of metaphoric gestures) and discover if there was any relationship between those four different learning and foundational L1 and English proficiency levels. In terms of the context and instruments, participants were paired up and asked to consider a list of seven discussion-types of questions about marriage. During the data analysis, the frequency of metaphoric gestures and other types of gestures (e.g., nodding of the head; shrugging of the shoulders) were coded.

McCafferty and Ahmed (2000) found many differences in gestures that were linked to where and how these 36 participants learned English. Without going into specifics, the findings were stated as follows:
Findings indicated that the naturalistic learners had appropriated American forms of gesture as recorded for the monolingual American participants in relation to container and potential gestures [metaphoric gestures], and beats to some extent as well. Also, the instruction-only learners were much more like the monolingual Japanese speakers than the naturalistic learners in their use of the gestures studied despite their advanced English proficiency. (p. 210)

According to McCafferty and Ahmed (2002) their findings provide support that those living in another culture appropriate some of the metaphoric gestures common in that particular culture. With regards to inner speech going through transformation, the authors suggested that it would be unlikely, considering the close connection between gesture, private speech, and inner speech, that participants' inner speech would not be transformed by the appropriation of a gesture from a different culture from their own. Of course, the authors mention some limitations to these conclusions and suggest that further research in non-verbal speech explore the relationship of gesture and language learning and other related issues.

In a related study that began with a presentation of private speech, inner speech, and gesture, McCafferty (1998) investigated 8 adult ESL learners' use of gesture in a narrative recall of a video and picture narration task that involved six sequential drawings. These participants were enrolled in an Intensive English Program at a university in the US. Four of these participants were from Venezuela and four were from Japan. In this study, careful attention was paid to how the person operating the videotape was positioned to watch for changes in eye-gaze, because there was a concern for specific ways gestures, including eye-movement were related to how the participants were
specifically using their gestures to mediate activity. As in the McCafferty and Ahmed (2000) study, McNeill (1992) was frequently cited and different types of gesture-types that McNeill introduced provided a categorization scheme for this study (e.g., iconic, metaphoric, emblem, beats).

With regards to other features of coding the gestures in the study, McCafferty used three categories known as self-regulation, other-regulation, and object-regulation. Briefly, self-regulation is understood as efforts to regulate an activity without a concrete and immediate external artifact as an aid. Self-regulation can be understood as being more metacognitive than the other types of regulation (McCafferty, 1994). Other-regulation would be the use of someone else in a dialogic sense, an other, to regulate an activity. This category included private speech accompanied by gesture (i.e., self as other). Object-regulation would be when a participant uses some kind of object to regulate activity, as in looking at a sequence of pictures while talking and quoting from the video, their own gestures (see also McCafferty, 1994, for further descriptions of other-, self-, and other-regulation).

In terms of the relationship of gesture and the psychological predicate, McCafferty found that it was "apparent that in their struggles learners did indeed use gestures that were very much tied to what it was they were struggling with" (p. 82). McCafferty provided the example of a participant who had trouble finding the word pear and the verb pick while he was retelling the story of what happened in a short five-minute video he had just seen. McCafferty also found that beats were quite frequent in the data, and these beats occurred in examples where the participants seemed to have difficulty with a particular utterance. McCafferty also found that less proficient speakers of English used
the pictures more than those participants who were more proficient. It is also interesting to note that McCafferty reported that participants self-regulated their activity by "looking within themselves" (p. 88) for a proper English expression. Other results included differences in the types of gestures the Japanese and Venezuelans used, including the more frequent presence of other regulation for the Venezuelan participants than the Japanese participants. Additionally, as already implied, the types of gestures and the way this regulated English production was related to proficiency.

McCafferty's (1992) findings support the notion that language is embodied. Moreover, with regards to the relationship of gesture, thought, and speech "the three (thought, gesture, and speech) are intertwined" (p. 93). In terms of gesture and the psychological predicate, the data from this study support the notion that gesture and the psychological predicate are closely related.

With regards to other-, object-, and self-regulation, beats occurred often as a self-regulatory category in the sense of emphasizing linguistic difficulties. Gaze was a noted form of other regulation, and whether or not gestures were to be regarded as object regulation depended on the way the task was presented to the participant. Ultimately, McCafferty mentions that there is a need for much more research with non-verbal forms of expression and second language learners.

In a third study, McCafferty (2002), I am in the rather unique position of being the anonymous J in the study. As a graduate research assistant, I collected the data and engaged in spontaneous conversations that were largely unplanned with the Asian participant, B. This study, of the three that I am reviewing, is also different from the other two with regards to moving further from the work of McNeill (1992) and previous

During the time of collecting the data for McCafferty's (2002) study (over five years ago from when I am writing the dissertation), I knew very little about gesture and, at that time, did not really consider myself a participant. I have had the opportunity to view the data from McCafferty (2002) many times, and this data, along with the unanticipated prominence of gesture in a central segment of data for the dissertation, has sparked my interest in pursing this avenue of research for some of the data that is beyond the scope of the dissertation. Some of the data presented by McCafferty (2002) might prove to be relevant with regards to the dissertation data.

The purpose of McCafferty (2002) was to investigate gesture and its role, along with speech, in the context of a co-constructed ZPD between two participants, J (myself), and B, the other participant in the study. At the beginning of the study B had only been in the States for about a month. Overall, as reported by McCafferty, the data collection took place over a period of about 8 months, with a long stretch in between while B returned to Taiwan to deal with some personal matters. Altogether, there were 15-videotaped sessions, most lasting about 5 to 10 minutes. In my role as data collector, my instructions were mainly to converse about a variety of topics, mostly that I would spontaneously come up with as we sat and talked with the camera in front of us. B and I became friends, and when I bought an old house in which to live while I continued graduate school, B accompanied me on the day I took possession and helped me fix some things (he was really better at fixing things than me). As I sit here and write the Dissertation, I can look
past my monitor to the patio door and the locks that B fixed. McCafferty talked about the importance of intersubjectivity (Rommetviet, 1974), which I mention in the Introduction. Intersubjectivity was certainly a factor in my interactions with B.

With regards to McCafferty's (2002) findings, an emphasis is made on the situated nature of the ZPD as a co-constructed activity. The role of gestures was important, particularly with regards to iconic gestures and what McCafferty called an *illustrator* gesture, which is similar to an iconic gesture but differs specifically in adding more information to speech (McCafferty, 2002). Argyle (1998) described illustrators as similar to emblems, but more closely related to speech than emblems. There are more parameters of illustrator, but it is beyond the scope and present needs of the dissertation to proceed further on McCafferty's use of this term.

I have viewed the gestures McCafferty analyzed, and do not see the need to use illustrator in my dissertation analysis. Nor do I see the need to use the category illustrator in light of McNeill's (1992) presentation of iconic gestures, and McCafferty's (1998) and McCafferty and Ahmed's (2000) previous uses of the category of iconic gesture. I do, however, wish to present a particular gesture sequence reported by McCafferty, because this sequence has some implications for a segment of data dealing with gesture that I present in the Results.

In discussing this moment in the data, I do not in any way intend to dispute McCafferty's (2002) findings. My intention is to use my participation in previous research on gesture to better understand my present research with the dissertation data. Before going into this specific interaction that B and I enacted, which McCafferty called a "splash gesture" (p. 197), I will present the major findings of his study.
McCafferty found that in a number of places in the data B and I provide numerous examples of deictic gestures, such as pointing at the ground to indicate the city in which the data collection took place, which B did when he said "here" (p. 198); in another example when B pointed to the ground when answering "carpet" (p. 198) to a question I asked about the first thing he would buy for a new home. Thus, one of the findings was our use of the environment and gesture to establish a ZPD.

Overall, McCafferty (2002) found the gestures to be crucial in establishing a ZPD between myself and B. Our ability to imitate (see Tomasello, 1999) each other's gestures was also a prominent feature of our interactions, which led to the activity of the ZPD. According to McCafferty, this imitation of each other's gestures also transformed our activity to one in which we sincerely tried to communicate with each other, which also assisted in establishing a ZPD. This was tied to how our gestures became spontaneous tools for the context of our communicating, with a particular role of pointing to things in our immediate environment in order to communicate. In his conclusions McCafferty suggested that making L2 learners more aware of the use of gesture might aid language learning contexts and some future research might be directed toward investigating how foreign and second language teachers use gesture to teach.

Another important finding from McCafferty (2002), which has implications for the dissertation data, is the notion of joint attentional scenes (Tomasello, 1999 see also Tomasello, 2001). Joint attentional scenes are established through taking the perspective of others by the use of symbolic means. This includes an awareness of the perspective of others, particularly in terms of recognizing intentions. This is alluded to in the central
thesis from Tomasello reviewed as part of the theoretical framework for the dissertation data.

Recall that Tomasello's (1999) overall hypothesis is that through collaboration with artifacts, which includes symbolic means, we appropriate the intentions and mental states of others. McCafferty links his findings to the notion of joint attentional scenes. I return to this concept again in the Results and Discussion. If gesture is recognized as a type of symbolic means, then it surely can be related to the notion of shared attentional scenes. It is also interesting to think of the social and cultural histories of these symbolic means. As Vygotsky (1978) suggested, taking a genetic approach means to understand the origins of development. It is with this in mind that I return to a gesture I enacted in the McCafferty (2002) study.

As I stated earlier, there is one particular moment in this study, the splash gesture, which McCafferty (1998) footnoted after I mentioned something to him about it one day. I would like to take a moment here and examine this particular segment. In the footnote, McCafferty said "Upon viewing this gesture after the study, I suggested that it stemmed from his many years at sea—that the sense of the gesture represented the force and solidity of water as it splashes against a person or object" (p. 201).

When I made this gesture, B was telling me about a trip he made to Sea World and the whale splashed him. The gesture B made while telling me about his trip was described by McCafferty as "B gesturally illustrated water being splashed on him by cupping both palms and "splashing" himself by pumping his arms up from a horizontal position on his lap inward toward himself" (p. 196). When I've seen this gesture it seems
similar to B splashing his face in a sink. McCafferty describes my gesture as "he brought
down his hand, palm flat, as if slapping the surface of the water" (p. 196).

When I mentioned to McCafferty that I thought my gesture was related to my years at
sea I did not expect my comment to emerge in his article. Although he gave me a copy to
read about a year before it came out. This prompted me to think a little more about
gesture in general, although, as I have said, I did not originally intend to investigate
gesture for the dissertation research. As I will be presenting a segment of gestures from
the dissertation data that may have some comparable features and origins as the splash
gestures, it seems necessary to mention the reasons why I see a link to my own work to
someone else's work in which I were data, so to speak. Following a Vygotskian genetic
approach to the data also means looking for the origins of behavior (Vygotsky, 1978).

In this moment of interaction, where I am splashing the water as a hard surface and B
is splashing as if splashing his face at a sink, we can see a fundamental distinction
between our sociocultural/historical activity in the world. Due to my physical day-to-day,
concentrated interactions with water over my years at sea, the word splash is
fundamentally a different word for me than it was for B. This is in addition to this word
as a nascent part of B's L2 vocabulary.

In light of the interpretations McNeill (1992), McCafferty (1998), and McCafferty
and Ahmed (2000) put forth about the relationship between gesture and inner speech, it
seems likely that the influx of sense over meaning and the psychological predicate
underwent transformations due to my physical interaction with water. At that moment of
interaction, B was telling me about Sea World and a whale. Perhaps the following
prompted the semantic sense of my gesture:
Water is a hard surface we violently bucked into when the weather was rough, the waves whorling into the windows of the wheelhouse. I stood with other crewmen and captains and looked at the world outside. We often talked of the scene as if we were standing outside looking into one of those upright washing machines with the round windows, except, the world was inverted now, with us in an almost dry inside looking out, hiding anxiety in a cliché we could all grasp easily. We steered through hardness and resistance of several nautical knots of current as we hauled fish over the rail of the boat, taking our turns at steering the boat closely over the 5/8 inch of longline gear that we slowly and meticulously picked off the side of an Aleutian-trench mountain almost a half-mile down in the sea. It was as if we were standing on a huge steel kite and pulling on the earth from high in the turbulent air, the string heavy with the black-cod we were hauling, the bottom of the string often hung up guitar-string tight, with sharp hooks every 36 inches, hung-up on the side of some unforgiving mountain knarled with miles and miles of old four-strand Japanese line. One wrong move—bang, the gunshot noise of gear parting: no fish, no money, no gear, the sharp teeth of hooks flying by our faces and crotches as our dreams of fat winters zipped into the sea. Water was the hard surface we skipped codfish-heads across during hours and hours of slicing the head off fish after fish: ten-dollar bills feeding our dreams. Water came in hard Mike-Tyson fists that would smash into the hull, momentarily jarring us to our knees, or down into the deck if the fists were tall and strong enough to jump the rail—all this in contrast to B, who splashed his face as if having a wash.

Certainly, in this example of the word "splash" presented in the context of seeing a whale, killer whale or otherwise, of which I saw hundreds over 15 years, there is an
influx of sense, a predominance of sense over meaning, an agglutination, my
psychological predicate was transformed. This gestural moment, the word splash, and the
transformation of inner speech are worth recalling later in the dissertation, particularly
when we get into the Vygotskian genetic domains. Also, participatory appropriation
comes to mind.

This foundation of work offered by McNeill, (1992) McCafferty (1998, 2002), and
McCafferty and Ahmed (2000) offer a good starting point for examining the segments of
dissertation data in which gesture provides significant insight into the mediated
interpretation of concepts. However, recall, most of this work is looking at gesticulation,
a certain type of gesture that is characterized by spontaneity. The episodes of gesture that
I present in the Results are more dependent on the graphic organizers involved, though
the determining force of the graphic organizer varies dramatically over small moments of
time. Consequently, for understanding the gestures occurring in the data, I had to look for
another source for my analysis. That source is Charles Sanders Pierce, known for his
semiotic grammar, his association with pragmatism, and his professional and personal
friendships with John Dewey, George Hebert Mead, and William James (Liszka, 1996;
Pierce, 1991). Before moving on in the literature review and concluding this section on
gestures, it is important to outline some of the fundamental ideas of C.S. Peirce

Icon, Index, Symbol, and Peirce's Triadic

C.S. Peirce is cited many places in the literature when the terms icon, index and
symbols are used (e.g., Duranti, 1997; Kramsch, 2000; Wertsch, 1985). Going deeply
into all the information and interpretations of Peirce's notions of Icons, indexes, and
symbols is beyond the scope of the dissertation. For that reason, I will present the salient features of his theory of signs, which are important for categorizing gestures and for some of the graphic organizers, when applicable. Before introducing Peirce's work into the dissertation, it must be acknowledged that Peirce's triadic is associated with the structuralist work of Saussure (Manning & Cullum-Swan, 1998) and therefore in a theoretical conflict with Bakhtin. Due to my grounding of the dissertation research in an interdisciplinary framework, it is necessary to stop for a moment and acknowledge this conflict and offer a brief rationale for bringing in Peirce's triadic before laying out the basic tenants of Peirce's work that I will be using.

As I have stated before in the Introduction, Bahtin rejected the notion of systematicity and an all encompassing theoretical account for human behavior and language (Morson & Emerson, 1990). I wholeheartedly agree. This skepticism for grand theories has prompted my efforts toward bringing many theorists together here to examine the participant interactions for the dissertation. There is not one single system that exists that can be brought to bear on data as an all-encompassing explanation. Morson and Emerson (1990) refer to an attachment to such a belief as *semiotic totalitarianism* and said that Bakhtin referred to this as *theoretism* and *monologism*. I think that Peirce's system is all those things. I am avoiding theoretism by placing these many different theorists together to construct an interdisciplinary lens to look at the interactions presented by the data. Due to the fact that the gestures that I am looking at are not strictly gesticulations, as outlined by McNeill (1992), I have been prompted to turn to Peirce (Duranti, 1979; Liszka, 1996; Peirce, 1991) for a better understanding of two terms, *icon* and *index* which are appropriate for categorizing the gestures I present in the Results. As stated earlier, this
will be as brief and as simplified as Peirce can be made (I'm not so sure anymore that you can put the words brief and simplified in the same sentence with Peirce).

At the heart of Peirce's theory of signs is the idea that there must be four conditions in order for something to be a sign. As I go through this explanation keep a weathercock in mind. A weathercock is an example that appears in Durnati (1997) and Peirce (1991). A weathercock seems to be an appropriate example for presenting Peirce's theory and the term index and icon. Just in case the term weathercock is not clear, it is defined by Webster's Encyclopedic Unabridged Dictionary of the English Language as "a weather vane with the figure of a rooster on it" (p. 2153) or "any weather vane" (p. 2153).

The four formal conditions for a sign are as follows: 1. A sign must have some character, which is understood as its *ground or presentative condition*. A sign must always present its object as that object in some regard or respect, and so serves to present its object aspectively and partially" (Liska, 1996, p. 20). The weathercock can be seen to present itself as a weathercock, an object that will present the direction of the wind, which brings us to the second condition of a sign. 2. A sign must represent or correlate to an object (Liska, 1996). This is known as the *object of a sign or representative condition*. "An object of a sign can be nearly anything, and what makes something an object of a sign is the fact that it is represented as such by the sign (the result being the so-called immediate object of the sign)"(p. 21). For the moment, when we think of the weathercock and it's second condition, the representative condition, it represents the direction of the wind. In order to represent an object, it must be interpreted as such, the third formal rule of the sign and the third piece to the triadic. 3. A sign must be capable of being interpreted. This is called the *interpretant of the sign or its interpretative condition*. 

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When the weathercock is pointing in a certain direction, that means the wind is coming from that direction. However, in order for the direction of the wind to be presented by the weathercock and interpreted as representing the direction of the wind, all three of these formal rules need to work together, which brings us to the forth and final condition of formal signs. 4. "The relation among sign (in regard to its ground), object and interpretant must be *triadic*, that is, thought of as an irreducible interrelation through which each component gets its sense. . . so that the sign's power to represent is mediated by its grounding and interpretation and, similarly, for each of the other components" (Liska, 1996 p. 19).

To summarize the example of a weathercock and the three formal rules: The weathercock establishes its ground, its presentative condition, by being a weathercock. This presentative condition cannot exist unless it correlates to its second condition, its object, which is its representative condition. The weathercock is a weathercock because it looks like a weathercock and can represent the direction of the wind. This is the immediate object for interpretation. The weathercock cannot exist as such unless it can be interpreted as a weathercock, which is where the interpretative condition comes in. Thus the presentative (the ground), the representative (the object), and the interpretive (the interpretant) all work simultaneously as synthesized product and process.

From this basic triadic condition, Duranti (1997) presented two definitions that are important for the results. The first is *icon*: "An icon is a sign that exhibits or exemplifies its object or referent — this often means that in icon resembles its referent in some respect. Pictures as well as diagrams are typical examples of icons" (p. 205). The second is *index*: "A sign that identifies an object not because of any similarity or analogy with it,
but because of some relationship or contiguity with the object" (p. 207). Duranti then presents an example from of a barometer and weathercock. There are two ways a weathercock operates as an index to the direction of the wind. A weathercock "assumes the same direction as the wind" (p. 208) and a person observing the weathercock has their attention aimed toward the direction in which the weathercock is pointing.

The weathercock is operating here in terms of the triadic. The presentative or ground is expressed by the weathercock appearing as such in its assuming the direction of the wind, which supports its representative condition, and this leads into the person observing the weathercock as interpreting the weathercock as pointing toward the direction from which the wind originates. Of course, this is a very crude and compact summary of a very complex system from Peirce; however it is beyond the scope of the dissertation to present any more of Peirce. His work represents just a small yet significant part of the interpretation of the gestures and graphic organizers presented in the data.

**A Summary of Utterances**

Recall Bakhtin's notion of an utterance linked to a long chain's of utterances (Bakhtin, 1986), which I mentioned at the beginning of the Literature Review. I have tried to bring together several chains of utterances: one originating in the work of Ausubel (1968), Barron (1969), and Earle (1969), another in the work of Mohan (1986), and one originating or related to the work of Vygotsky (1978). These scholars were engaging the sociocultural complexity of their own utterances. They enacted positions in their respective moments of history in which they, graphic organizers, and/or sociocultural theory emerged as links to other chains of utterances.
CHAPTER THREE

METHODOLOGY

Lecompte and Schensul (1999) described a research design as "a detailed set of questions, hunches, and procedures and a plan of action for the conduct of a research project" (p. 61). For the overall research design, I mainly used Merriam's (1998) suggestions for an interpretive, ethnographic case study. My detailed set of questions and purposes for the study prompted an interpretation of the data through the use of the broad theoretical lens as outlined in the Introduction. Within this case study design I also used principles of Vygotsky's developmental method (i.e., genetic method) (Vygotsky, 1978; Wertsch, 1985; Wells, 1999).

The overall case study design with Vygtosky's developmental method at the core was supplemented by a wide array of suggestions for qualitative research design and data analysis, which included parameters for qualitative inquiry and ethnographic research primarily from Altheide and Johnson (1998), Fontana & Frey, (1998), Janesick, (1998), Lecompte and Schensul, (1999), LeCompte and Presslie (1993) and Mitchell (1984).

Of these ideas on qualitative research, LeCompte and Presslie's (1993) definition of empirical data became a primary guiding force in the presentation of the data and the analysis procedures. LeCompte and Presslie define empirical as "whether or not phenomena are capable of being found in the real world and assessed by means of the senses" (p. 31). Consequently, most of the phenomena that was interpreted and analyzed
is presented for the reader; specifically process features of interaction or products of interaction that can be linked to psychological, cultural, social, and historical processes and events. In other words, a major goal of the data presentation and analysis was to make the analysis procedures and interpretations explicit so that the interpretations can be juxtaposed with what can be found in the real world and assessed by means of the senses. A parallel purpose of being very explicit in data collection, analysis, and presentation is to provide for replication of the research design and procedures as can be reasonably expected due to the generally acknowledged situated nature of social, cultural, historical, and psychological events. Following a review of the salient characteristics of the participants and the site, including an overview of the course in which the data collection took place and my teaching strategies, I present more general and specific information concerning the dissertation Methodology.

Participants

As previously stated in the Introduction, there were nine participants from a variety of first languages, cultures, nationalities, and teaching experience. The names used are pseudonyms and these were Chou, Nathane (Nat), Mawngpleurn (Mawng), Mamet, Dan, Andy, Busaba, Lada, and Wanida. Most of this information was presented in the Introduction along with my position in the study.

This information about the participants and myself was mentioned early in the Dissertation in order to contextualize the rationale for the theoretical framework, purpose of the study, and research questions. The rationale, theoretical framework, and purpose of the study were guided by the notion of life as an authored, narrative event (see Bakhtin,
1986; Bruner, 1996; Morson & Emerson, 1990). As an expression of these ideas the Dissertation was also a narrative event comprising numerous unfolding utterances and subjectivities. The interactions of the participants with each other, graphic organizers, and myself are a large part of the data; thus, the necessity for presenting foundational information concerning who we are at the beginning of the Dissertation.

As implied in Table One and general information presented thus far, the participants had a variety of English language proficiency levels, and they came from a wide variety of educational backgrounds. Because I am frequently using the term English proficiency to talk about the participants, particularly in the third section of the Results, it is necessary to define this term as I am using it for the Dissertation.

I am using the term English proficiency in a very broad sense to refer to the participants’ grammatical ability, sociolinguistic competence, and discourse competence (see Cohen, 1994). These three broad parameters refer to the participant’s ability to string utterances together in a comprehensible sequence, use generally acceptable English grammar, and function linguistically in a socially acceptable manner (i.e., grammatical ability, discourse competence, and sociolinguistic competence). However, I consider English proficiency to be a very situated activity. In other words, a student might be very proficient in an oral presentation situation, and not very efficient on a written exam or an exam testing knowledge of English grammar.

Throughout the course, the biggest challenge was working with such a wide variety of English proficiency levels. As presented in the Introduction, their English proficiency levels ranged from a native-speaker of English, Andy, to a participant who did not study English until she was 20, Chou, who normally lives in a very non-English type of
environment, China. If I were to construct a continuum expressing general English proficiency levels, these two would be at the extremes with all of the other participants in between. However, I cannot emphasize enough that these proficiency levels varied depending on the activity, and often with Chou, it was a matter of her having just a little more time to negotiate meaning. Chou was actually the most experienced teacher in the class. This was another facet of their diversity, which is generally acknowledged as present in any class of master-level students of education. Their teaching experience varied widely, as did the contexts in which they taught.

Recall from Table One from the introduction that Chou, the participant from China had been teaching 22 years, but was not actively teaching during the semester of data collection. Andy, the participant from the States, had been teaching for 8 years in South Korea before coming to Thailand to work on his MA. Like Chou, he did not teach during the semester of data collection. Mawngpleurn was teaching full-time at an international school and had been teaching for a total of about 3 years. Nathanee was also teaching full-time during the data collection period at a type of school known as a technical college, which is described in more detail in the Results. She had been teaching for about 2 years when I met her. Mamet and Dan were new to the teaching profession. Mamet had been teaching part-time at two different schools, an elementary school and a high school, for about two months when the semester began, but was basically carrying a full-time teaching load between the two schools. Dan was teaching part-time at the beginning of the semester, but obtained full-time work at an international school around midterm. Like Mamet, he had about two months teaching experience. Busaba was teaching part-time at a private tutorial school for very young elementary school students and had never taught
before this beyond some coursework that occurred as part of her undergraduate degree. Wanida and Lada did not teach during the semester beyond a class assignment they did at Nathanees school. As mentioned, this mix of inservice and preservice teachers was also a challenge.

Altogether there were 5 females and 4 males varying in age from approximately 22 to 44. As stated in the Introduction, teaching experience also varied. In terms of being participants, and in light of the theoretical framework being used, it was a relevant issue if the teachers were teaching during the course, how much experience they had, and the context in which that teaching took place. Along with their English proficiency and competency, specific information about the teaching experience of the participants will be presented as part of the Results.

To summarize the participants, there were 9 participants, 5 male and 4 female representing 5 different first languages and nationalities. These included Thai, Chinese, Turkish, Dutch, and American. They varied in English language proficiency; however, generally, their metalinguistic awareness of English was very high, even though this was not always demonstrated across activities. As I have said previously, I admired their hard work, their ability to grasp abstract concepts, their demonstration of biliteracy and bilingualism, and in some cases triliteracy and trilingualism. I feel I have learned as much about my own teaching through this experience as I have about them. I intend to pursue research projects with some of these participants in the future and am honored to be able to do so. They were truly a gift and made a positive impact on my personal and professional life.
The Site, Course, and Instruction

The Site

Recall from the Introduction that Northern University is located in Northern City near an area of Thailand known as the Golden Triangle, which includes the countries of Laos, Thailand, and Myanmar (Burma). This area is now commonly referred to as the Quadriangle Economic Zone, which includes China along with Laos, Thailand, and Myanmar. Because of its location, Northern University attracts international students, although the University primarily serves a Thai student body. Northern City is located in a large valley surrounded by mountains and is a bustling place with many international schools, a nascent industrial base, and a thriving ex-patriot community from many countries of the world.

Beyond this general information and what is revealed through the presentation of the data, I will not be presenting any more specific information about Northern City and Northern University, although, in a moment, I will be discussing specific information about the course syllabus, which contextualizes the data collected. Anyone familiar with the area will be able to come to a reasonable determination of the city and university.

The main features of the site to consider were the course in which the main body of data were collected and the syllabus that guided the course. The course syllabus, particularly the course objectives and my instructional strategies, guided a large part of the data collected.
The Course and Instructional Strategies

For the purposes of the Dissertation I have chosen to call the main course from which data were collected the advanced reading course (TEFL 742). In addition, I also taught a course, which I call the language learning theory course (TEFL 701). I originally was not intending to collect any data from the TEFL 701 course, but participants produced some graphic organizers in the language learning theory course, which had some relevance for understanding how participants perceived and used GOs. Moreover, nine of the ten students participating in the study were in the language learning theory course.

Consequently, I was able to bring in some of the ideas I was covering in the language learning theory course into the advanced reading course when this was appropriate (e.g., Vygotsky’s theories of language learning; Information Processing Models of language learning). And, as already implied, participants brought some of the content-based instruction covered in the advanced reading course into the language learning theory course. However, as already stated, most of the data collected were from the advanced reading course.

Both courses were part of the MATEFL curriculum, which was aimed at providing students enrolled in the program with a Master of Arts Degree in Teaching English as a Foreign Language. The language learning theory course met on Friday evenings from 5 to 8pm, and the advanced reading comprehension class met on Sundays from 1:30 to 4:30 pm. My days off were Mondays and Tuesdays, and I kept office hours from 8:00 am to 3:30 pm Wednesday through Sunday, with the exception of my teaching time on Sunday. In addition, the entire MATEFL curriculum also used the English language as the
primary language of instruction. The Graduate College had several other master degree programs that also used the English language as the primary language of instruction.

Despite the fact that I was at Northern University to collect dissertation data, I felt that it was my ethical responsibility to primarily follow the objectives of the course and the overall curriculum objectives. Within this context, I positioned graphic organizers as a tool to meet the course and curriculum objectives. In order to contextualize the study, I have pasted part of the syllabus, word-for-word, into the Dissertation (with the name of the course omitted). It should also be stated that the course syllabus, the schedule for instruction, which included a list of course assignments, the midterm exam, final exam, and final grades, were all reviewed and approved by a formal committee process administered by the Graduate College at Northern University. I had to attend these meetings and defend my syllabus, exams, and assignments. I did not change the listed course description or objectives from a previous syllabus I received before arriving. The course description and syllabus were as follows:

1. Course Title
   
   Course Description: Study of the development of learners’ reading skills through English language teaching materials. Emphasis on understanding and making inferences from the texts and applying the knowledge in their teaching methodology. Focus is on being able to summarize a text and lead a discussion in class.

2. Instructor: John A. Unger M.Ed.

3. Course Objectives:
3.1 Understand reading as an interactive involvement of the reader and the text.

3.2 Identify models of the reading process.

3.3 Discuss organizational patterns and their purposes.

3.4 Be able to select a reading text in terms of suitability of content, readability, and appropriateness.

3.5 Evaluate non-traditional material for use in teaching creatively.

3.6 Apply ideas, suggestions, demonstrations, and examples of teaching techniques that are consistent with learned theoretical principles.

3.7 To be able to lead a discussion after reading assigned material.

3.8 To distinguish facts from hypothesis or opinions, recognize unstated assumptions, distinguish a conclusion from supporting statements, and identify cause and effect relationships.

3.9 To improve specific comprehension skills

An additional unstated objective that was emphasized at the Graduate College was to improve students’ oral presentation abilities in the English language, which was incorporated into these objectives through the summarization and the leading of class discussion about the readings. In order to meet these objectives with such a diverse level of English language proficiency and educational backgrounds I primarily used an approach to teaching grounded in the work of Reuven Feuerstien, whom I discussed at some length in the Literature Review (see Kozulin, 1998; Kozulin & Rand, 2000). Before presenting how Feuerstien’s ideas were used, I need to take a moment to discuss the
Figure 6. General seating arrangement and location of the research assistant (RA), video camera, Sony tape recorders, and typical positions of students and moving instructor.
actual physical arrangement of the classroom. This arrangement of the classroom was a crucial factor in both my instructional strategies and methods of data collection.

As you can see in Figure 6, the arrangement of the classroom was ideal for this small group size and for collecting data. The research assistant, Nroot, was placed with the video camera strategically at the back of the room, and during the first class, I had him place the Sony Hi-8 analog camera, mounted on a tall tripod, on one of the long tables that we had in the classroom in order to get a wide view of the classroom. He kept it this way, with the exception of one class, for the remainder of the semester. I will talk more about his role and more specifics about the camera when I present data collection procedures. In addition, the location of the Sony tape recorders at the tops of the U-shape of the long tables should be noted.

Students typically began each class sitting in the arrangement shown in Figure 6. Of course, they did not sit exactly at these seats at the beginning of every class; however, Nat and Chou began almost every class sitting at these seats at the end of the U-shape, and through a review of the 14 classes that were videotaped, this arrangement seemed to be typical of where the other students sat. Of particular importance for my instructional strategies was my ability to constantly move from student-to-student, or group-to-group, depending on what kind of activity was occurring. I had an office chair on wheels, so I could roll around the inside of the U-shape while activities were underway and mediate instruction, which brings me to Feuerstien's strategies for mediated learning.

As presented in the Literature Review, Reuven Feuerstein is an interesting scholar with effective ideas on learning and development, particularly if one is interested in the work of Vygotsky. There are many parallel views in their work; however, one difference

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is the amount of emphasis Feuerstein placed on the role of a mediator rather than on 
artifacts and tools (Hadji, 2000). The mediator has a role in working with participants in 
learning activities in order to prompt a mediated learning experience. The parameters of a 
mediated learning experience were presented in the Literature Review; however, I repeat 
these parameters here for the purpose of immediate relevance. As I roved the U-shaped 
classroom mediating activities, I intended to follow-through with this ideal of a mediated 
learning experience.

Kozulin (1998) selected three general parameters for distinguishing between a regular 
learning experience and a mediated learning experience (MLE). There are more 
parameters (see Burdin, 2000; Costa, 2000), but these three broad parameters Kozulin 
chose seem the most applicable to characterize my instructional strategies with the 
participants in Thailand. These distinguishing parameters of an MLE are as follows: (a) 
intentionality/reciprocity; (b) transcendence; and, (c) meaning.

With regards to intentionality and reciprocity, this is where the mediator transforms 
an incidental moment into a more purposeful, goal-directed moment. For example, the 
mediator provides questions to highlight an aspect of the experience, such as prompting 
participants to notice the size of an object, or how it can be changed or manipulated 
(Kozulin, 1998). For intentionality/reciprocity I would highlight features of a particular 
reading strategy and prompt participants to tell me how the strategy could be adjusted and 
applied to their particular teaching and learning context, or rejected. In all episodes, I 
made sure the participants were explicit on specifically how they would adjust an activity 
that I was introducing, or why they felt it could be rejected in their learning and/or 
teaching context. With the participants who were not teaching or had little teaching
experience, I prompted these participants into noticing how a particular strategy fit into their experience of being learners and to try to put themselves into the role of their teachers who taught them.

In terms of transcendence, the mediator attends to both the object of the activity and the participant and looks for a way to push the experience beyond the present context and activity (Kozulin, 1998). In both courses I taught, I always tried to prompt the participants to take the activity beyond the present moment we were engaging a particular learning/teaching strategy. For example, if we were working on a flow-chart, I would prompt them to tell me how a flow chart would work in their teaching context, for what kind of lesson, and when it should not be used. I would then ask them to tell me how they have seen a flow chart used within educational contexts and beyond educational contexts.

To instill meaning into the experience, I would also frequently ask them to provide examples from their EFL learning or another subject in which something like a flow-chart or other related reading strategy were used. If they had never used the strategy, I would ask them to tell me where it would fit, or not fit into their experiences and why. If they had learned and used a particular reading strategy we were studying, I would ask them to think about when they used it, for what purpose, and in what context. Along these same lines of instilling meaning into the activity, I would often bring up the different theories of language learning we were studying from the other class (e.g., Information Processing model; Universal Grammar model; Vygotskian model), and ask the students to try and place a certain learning activity or teaching strategy in a different theoretical framework and identify the conflicts.
In many of these episodes of mediated learning experiences, we would often have to stop and focus on the English language being used. Keep in mind that for all but one of the students, the medium of instruction, the English language, was a second or third language. We were working with academic vocabulary, and in many of the readings, complex syntax was used to express complex theoretical ideas. Moreover, in these moments of instruction, I was always explicit on the purpose of studying the particular reading strategy or theory with which we were working, and always tried to prompt the students to do the same. As an additional effort to instill meaning into the activity and follow along with the overall objectives of the course, I tried to prompt the students to be skeptical of all the strategies and theories we were encountering in both classes, yet to balance their skepticism with their personal experiences and knowledge gleaned from the different perspectives we encountered.

Within this overall framework of prompting mediated learning experiences, I used two major tools, which also went along well with collecting data for the study. These tools were 48-inch by 35-inch poster-papers and whiteboard marker pens, which are mentioned in the Introduction and are portrayed in different figures throughout the dissertation, (see Figure 2; Figure 8). To deal with the different levels of proficiency, I would usually have students work in 3 dyads and 1 triad, providing all 9 was present. Within these dyads and triads, I would ask students to collaborate and present a specific graphic organizer, reading strategy, or topic from a particular reading, summarize the information on a poster paper, and use this poster paper to present the topic or strategy to the rest of the class. Along with the methods of Feuerstein, I was trying to extend
Palinscar and Brown’s (1986) notion of *reciprocal teaching*, which is grounded in having students teach reading strategies to each other.

In terms of having students work in dyads and triads, I was very conscious of rotating students through different grouping arrangements in the hope that at different times students would be enacting zones of proximal development (Vygotsky, 1978) (see definitions of terms and concepts). This did not always work as planned, and some of this is presented in the Results. Overall, forming dyads and triads seemed to be an effective option considering the vast differences in English language proficiency, teaching experience, and the course objectives I had to meet. As I have said repeatedly, the diverse nature of the participants, particularly in their English proficiency levels and educational backgrounds, was the most challenging part of the course.

While these different dyads and triad were working on an activity, I continually moved from group-to-group within the U-shape, and worked to mediate activity. For the most part, the only times students worked alone in the classroom during the entire 16, three-hour classes, were on their midterm exams, their final exams, and first and second oral presentations.

In terms of introducing students to graphic organizers and integrating these into the course curriculum, I introduced seven basic types of graphic organizers to the participants, six types in the first five classes before midterm. Theses six types were introduced in this order: the Venn diagram, the KWL chart, the flow chart, the matrix, the semantic web, and finally the concept map. The seventh type, a wh-question map that I present in the Results section (see Figure 21), was introduced toward the end of the semester. Along with these seven basic types, related procedures of *pictorial input* and
story mapping were embedded in the materials I used for introducing these other basic
types of graphic organizers (see Herrell, 2000; Peregoy & Boyle, 2001; Walter, 1996).

Graphic organizers were not the only topic introduced during these first five classes
or for the entire course. Graphic organizers were positioned as tools to mediate content
knowledge about various types of reading strategies and other topics emphasized in the
course objectives rather than simply as stand-alone tools for reading. For example, in
order to address the course objective of understanding organizational patterns and their
purposes (see Mohan, 1986; Readence, Bean, & Baldwin, 2000), graphic organizers were
related to different types of text organization; such as flow charts for a historical type of
informational text, a matrix for specific types of science text promoting category
construction, and Venn diagrams as tools to read and write texts that deal with compare
and contrast structures. In addition, the graphic-organizer computer program Inspiration
version 6.0 was introduced to the participants in the Graduate College computer lab on
August 18th. This was also introduced only as a tool for mediating content knowledge.
Throughout the course I emphasized that the research on graphic organizers was
inconclusive and that everything we learned in the course about reading had to be adapted
to local linguistic, cultural, and educational needs.

To sum up my instructional strategies, my primary role was to use the course
description and the course objectives as a guide. Graphic organizers were integrated into
those objectives. I primarily used an approach to teaching guided by the ideas on learning
and development proposed by Reuven Feuerstien, which is congruent with a Vygotskian
approach to learning and development (Kozulin, 1998). Furthermore this approach fit
with the diverse English proficiency levels and educational backgrounds of the
participants, in addition to the advantageous nature of the classroom for these types of teaching strategies. This approach to teaching involved having students mainly work in dyads and triads and continually negotiate content and language. These dyads and triads, in turn, presented ideas to the rest of the class in activities that were intended to be similar to Palinscar and Brown’s (1986) notion of reciprocal teaching. Ultimately, in terms of my instructional strategies, I felt I met the course objectives and everyone learned something, including me. However, meeting the course objectives with this kind of diversity in English proficiency levels and educational backgrounds was a challenge and worthy of future research.

Overall Approach to the Participants and the Research

Due to the cross-cultural nature of the interactions and to reach toward an ideal of involving the participants with the dissertation research, I was open with my research agenda. Although I was not completely specific about Vygotsky's developmental approach, the participants knew that I was interested in process features of graphic organizers, and graphic organizers fit into the objectives of the course and overall MATEFL curriculum. The participants, the Department Chair, the Graduate College Dean, and everyone else who cared, or had the patience to listen to me talk about my dissertation research at Northern University, knew that I wanted to find out about the participants' histories with graphic organizers, how they perceived GOs, including the general use of GOs in educational contexts, and how they could or whether they would use GOs in their teaching contexts.
I took this open posture about my research with the intention of following the ideal of moving toward "interpretation and empathy" (Harre & Gillett, 1994, p.21) rather than the indifferent stance of "prediction and control" (Harre & Gillett, 1994, p. 21) that is commonly associated with studies grounded in positivism and behaviorism. However, this reach toward the ideals of interpretation and empathy did not constrain the goal of a verifiable and credible report gleaned from a systematic inquiry of empirical data (Hubermann & Miles, 1998; Janesick, 1998; LeCompte & Presslie, 1993; LeCompte & Schensul, 1999a).

Even though I knew a lot about the site, as stated previously, I had not been to Thailand for 5 years and 7 months before arriving to conduct the study. I had received a copy of a syllabus and had a formal invitation to collect data from the Department Chair. I also had been told that students were typically teachers who taught in the Thai public school system and that there would be between 6 to 15 students. I did not know how the participants would react to my request to videotape them, audiotape them, and keep copies of all their documents. I also did not know if I would have enough funds for a research assistant, although my intention was to find one. Many specific items were undecided as I left to collect my data. However, I did have "a detailed set of questions, hunches, and procedures and a plan of action for the conduct of a research project" (LeCompte & Schensul, 1999, p. 61). I also had an alternate plan if the participants simply declined to sign the participant forms and chose not to take part in the study. Due to numerous uncertainties and many other reasons, as a researcher, I chose to operate as bricoleur (Levi-Strauss, 1966).
Researcher as Bricoleur

In order to meet challenges of this context and circumstances, and in order to work toward a high level of mutual respect and trust with the participants, as a researcher, I generally operated as *bricoleur*, a concept that originated with Levi-Strauss (1966). According to Denzin and Lincoln (1998a):

The qualitative researcher-as-*bricoleur* uses the tools of his or her methodological trade, deploying whatever strategies, methods, or empirical materials as are at hand (Becker, 1989). If new tools have to be invented, or pieced together, then the researcher will do this. The choice of which tools to use, which research practices to employ, is not set in advance. (p. 3)

Unlike this description of bricoleur, I was able to create a detailed, yet broad and flexible structure for data collection and analysis. I was able to create this plan in advance due to the powerful and ground-breaking work of many scholars who have provided me with a foundation from which to move forward (e.g., Duranti, 1997; Fontana & Frey, 1998; Janesick, 1998; LeCompte & Presslie, 1993; Merriam, 1998; Vygotsky, 1978; Wertsch, 1998) However, all of these theoretical approaches and suggested data collection and analysis techniques were adjusted as I enacted the study. This flexibility that comes with operating as bricoleur was a necessity because of my efforts to cover such a wide range of data and related and tangential theories in one study.

The bricoleur is viewed as a Jack-of-all-trades, who uses "devious means to those of a craftsman" (Levi-Strauss, 1966, pp. 16-17). There is no precise equivalent in English; but in an old sense, the French verb was associated with active contexts like ball games, billiards, hunting, shooting, and riding (Levi-Strauss, 1966). In these contexts of a game,
the verb was always used "with reference to some extraneous movement: a ball
rebounding, a dog straying or a horse swerving from its direct course to avoid an
obstacle" (Levi-Strauss, 1966, p. 16). In this way, I am interpreting the root meaning of
bricoleur as associated with situated and contextually bound resources for adjusting
activity. As mentioned already, I do not see myself as bricoleur in an extreme sense. My
resources for inquiry and analysis are not as bound to the context as the original
characterization of bricoleur from Levi-Strauss (1966); however, it is in these moments
of teaching, data collection and analysis activity, where I have been prompted or have
prompted a swerve or sway from a normal course of events, that I have found
transformations. I needed to operate as bricoleur to prompt and understand
transformations to activity that was enacted in a foreign context.

Even though I borrowed the descriptions of researcher as bricoleur from Levi-Strauss
(1966) and Denzin and Lincoln (1998a), I did not take on the entire framework proposed
by Levi-Strauss (Levi-Straus, 1966), including his structuralist and rationalist position
(Manning & Cullum-Swain, 1998; Shore, 1996), and his distinctions between primitive
and scientific thought. In using bricoleur I only borrowed the characterization of the
bricoleur as one who builds the tools needed from the context. In the case of the
dissertation research, rather than building the tools from scratch, a basic structure was
pre-planned. I have also tried to approach the data beyond structuralism, yet not
completely into the realm of poststructuralism (Manning & Cullum-Swain, 1998). I am
looking for a flexible approach to find my own way, using the scholarship that has come
before me as a path of exploration and discovery.
Ethnographic Case-Study: A Rationale and Parameters

Recall that there were two main purposes of the dissertation research and one parallel purpose. One purpose was to understand how the nine MATEFL students, some of whom were teaching in Northern City during the study, perceived and responded to different types of graphic organizers as tools for working with English language reading materials. A second parallel purpose was to apply a theoretical orientation to human activity that is related or tangential to the work of the famous Russian troika of Vygotsky, Leont'ev, and Luria.

A third, parallel purpose of the study emerged during follow-up stages of the data collection period when I had the occasion to be a guest instructor for the participants' research methods course. This parallel purpose is to provide the participants with an insiders' perspective on qualitative and case study design. At Northern University, qualitative and case study design for educational research is a nascent paradigm. More than any other readers of the dissertation, the participants understand the context and interactions in which we engaged for 16 weeks in the bounded case. When they see glimpses of themselves and my instruction as I viewed these events, the links between my data collection procedures, theoretical lens, data analysis procedures, Literature Review, Results, and Discussion should become more transparent than for any other readers of the Dissertation. I have experienced this unique perspective when I read McCafferty (2002), which I discussed in the Literature Review and return to again in the Results and Discussion. Moreover, this effort to clearly outline the study for the participants follows through with Harré and Gillett’s (1994) and Merriam’s (1998) notions of involving the participants in the research, in addition to making the research...
more meaningful for the participants. Ideally this third purpose of the Dissertation will assist the participants in their own future research endeavors. Some of these glimpses of themselves and my interpretations have already been revealed to a few of them in follow-up conversations and member-check types of activities.

To answer the research questions, various suggestions for ethnographic and case study designs are put together here, along with the theoretical orientation grounded in work linked to the ideas of Vygotsky, Leont'ev, and Luria. However, Merriam's (1998) parameter's for case-study design and Vygotsky's (1978) developmental approach are the primary guiding forces for the research. I will first present specific reasons an overall ethnographic and case-study research design is essential for this context. This will be followed by the general procedures and techniques for data collection and analysis.

There is a broad foundation providing ethnographic, case-study, and qualitative approaches for investigating human learning, development, and activity (e.g., Denzin & Lincoln, 1998a, 1998b; Duranti, 1997; Merriam, 1998; LeCompte & Shensul, 1999a, 1999b). Considering which group of scholars to use for this study was mainly guided by the desire to investigate process features of tools I introduced to English language learners who are also English language teachers. I was also interested in gaining an understanding of the multiple perspectives constituting the various interactions I investigated. In this sense, Duranti (1997) provided some direction. He described a successful ethnography as "a style in which the researcher establishes a dialogue between different viewpoints and voices, including those of the people studied, of the ethnographer, and his disciplinary and theoretical preferences" (p. 87).
Merriam (1998) presented an ethnographic case study as one that examines the culture of a classroom. In the data gathered in the advanced reading course at Northern University, which constitutes the *bounded-case*, I am focusing on one specific artifact from that culture, graphic organizers, which I emphasized for the participants. I then examined the activity of the participants that occurred through and around their use of graphic organizers within the bounded case, and at times, beyond the bounded case. I investigated data outside the bounded case to gain a better understanding of the interactions of the participants, graphic organizers, and myself within the bounded case. This was also part of my overall efforts at data triangulation, which I will return to shortly.

Also from Merriam (1998) I borrowed parameters of an *interpretive case study* in terms of the overall intent of the research. One of the main features of an interpretive case study is to "illustrate, support, or challenge theoretical assumptions held prior to the data gathering" (p. 38). Through this research, I intended to illustrate, support, and at times, challenge, previous research related or tangential to Vygotsky, Luria, and Leont'ev, although I like to think I extended rather than directly challenged some of the previous research. I leave the distinction between “challenge” and “extend” up to readers of the Dissertation. My challenge and/or extension of previous research was intended with respect.

The nature of the site, participants, research questions, the multi-purposes of the study and my dual role as *participant as observer* (Merriam, 1998) and teacher prompted the overall ethnographic, interpretive case study research design. However, the need for flexibility due to my dual role as teacher/research, the unpredictable nature of the site, the
diversity of the participants, and my limited time and financial resources prompted me to supplement Merriam’s suggestions for ethnographic case study research with the work of other scholars (e.g., Schensul, LeCompte, Nastasi, & Borgati, 1999).

In terms of concrete features of the data collection, I mainly drew from LeCompte & Schensul (1999a; 1999b) whose approach to data collection is compatible with Merriam, (1998) and others (e.g., Duranti, 1997). However, I am not using LeCompte & Schensul’s (1999a, 1999b) specific theoretical framework for generating *formative* or *local* theory, which involves aggregating data into dependent- and independent-variable domains (Schensul, Schensul, & LeCompte, 1999). Beyond those parts of their theoretical framework that I think will constrain the overall approach I am taking to the dissertation research, I have been greatly influenced by LeCompte and Schensul’s (1999a, 1999b) and Schensul, Schensul and LeCompte’s (1999) suggestions in other areas of ethnographic data collection and analysis (see also LeCompte & Presslie, 1993), such as general parameters of ethnography and some of their more specific and useful advice on how to collect audiovisual data (see also Schensul, LeCompte, Natasi, Borgatti, 1999).

For the dissertation research, my overall emphasis is on microgenetic, ontogenetic, sociocultural/historical, and phylogenetic domains. Before proceeding into specific descriptions of these domains and methods of the data collection and analysis, a quote from a letter Vygotsky wrote to a student seemed a suitable message to accompany the interactions in the classroom, which I prompted as teacher/researcher, and my position of researcher as bricoleur as I worked through data collection and analysis. This letter was written during one of Vygotsky’s severe episodes of tuberculosis, which would eventually end his life (Vygotskaya, 1999a).
I really want to know what you'll begin with first. It seems to me (between us), that now you have to experiment with the transformations of reactions... You have to experiment on the simplest forms to demonstrate what constitutes a transformation in a given instance. An experimenter must be a detective, inventor, contriver, creator of traps, always flexible and bold. Be well. Your L.V.

(Vygotskaya, 1999a, p. 36)

Data Collection Methods

A concentrated period of data collection began on the afternoon of June 9, 2002, which was the first meeting of the advanced reading comprehension course and the day I asked the participants to sign the human subjects permission forms. This concentrated period of data collection lasted until October 6th, when I administered the final exam. However, I continued to collect data until Sunday November 22nd, two days before my departure from Northern City. Intensive data analysis also occurred during the data collection period. All total, I was in Northern City from Friday May 24th until Tuesday November 24th, a period of six months.

Purposeful Sampling, Interview Data, and Teaching Site Visits

I conducted follow-up interviews with 7 out of the 9 participants and teaching site visits with 4 of the 9 participants. The follow-up interviews generally moved from unstructured to semi-structured (Fontana & Frey, 1998). Due to my intention of keeping a high level of rapport and mutual respect with the participants, I conducted these
interviews as conversations, and called them *formal conversations* as they are cited throughout the Results. However, despite the conversational nature of these interviews, I had a list of formal questions I asked, depending on the participant and whether it was a first or second interview. Moreover, during the formal conversations my questions would also become more focused as the conversation proceeded. In this way the conversations generally moved from unstructured to semi-structured. These were distinguished from informal conversations, which were not recorded.

Recall that 4 of the 9 participants were teaching full-time during the main period of concentrated data collection. I was able to make three visits to two different schools for one of the participants, Mamet, and one visit each to three other schools where three of the participants taught full-time. These participants were Mawngpleum, Nathanee, and Dan.

In addition, recall that I visited and conducted two workshops and a lecture in Southern Yunnan at Chou’s teaching and community context. Although I did not see her teach while I was there, I stayed with her and her husband (a teacher and linguist there), her Dean, and colleagues and friends. Although I did not formally collect data for the dissertation, I learned valuable information about the Chinese writing and Chou’s general community of practice (Wenger, 1999), which is relevant and referred to in the Results.

From this group of 9 participants, I used *purposeful sampling* (Merriam, 1998) to select a *telling case* (Mitchell, 1984) on which to focus as a major portion of the data analysis. A telling case is one "in which the particular circumstances surrounding a case serve to make previously obscure theoretical relationships suddenly apparent" (Mitchell, p. 239). The telling case was Chou. The obscure theoretical relationships I made explicit.
through data from Chou revolve around those already-mentioned theories that are
tangential and related to the foundational work of Vygotsky, Leont’ev, and Luria. More
specific information about this feature of the study will be presented momentarily.

I also purposefully chose other participants as contrasts to the telling case and each
other. These other participants I engaged in more extensive follow-up conversations and
site visits. Along with the telling-case, these follow-up conversations with purposefully
selected participants and site visits were also part of the data triangulation procedures,
which I discuss in more detail later in this chapter.

In terms of the follow-up conversations, the ones that occurred during late stages of
the data collection period served as member-checks (Merriam, 1998) and were more
structured than other conversations. During these formal conversations I discussed my
findings with the participants in addition to broader topics related to the research.

Audiodata, Videodata and Transcribing

All interview data, with the exception of informal conversations, were recorded using
one of two Sony Walkman tape recorders with stereo microphones, which I purchased in
Thailand. Both Sony Walkmans and one Sony Hi-8 analog video camera were running
during 14 of the 16 three-hour class meetings of the advanced reading comprehension
course.

Neroot (a pseudonym), the research assistant I hired, monitored the audiotape
recorders and video camera. I let him use his own judgment concerning where to point
the camera, and how close to zoom in, only telling him after the second week that I was
mainly focusing my research on Nathanee and Chou, and would generally like to see
more of them than the others, and to try and keep the tape players near them. The only class meetings in which audio and video data were not collected were the first class, in which students signed human subject consent forms, and a class in which the midterm exam was administered. I was asked by several of the students not to record videodata during the midterm, although this was not an issue for the final exam.

Transcription procedures and protocol

In order to manage the approximately 35 hours of video data, 70 hours of audio data, and 500 documents I collected, and not become overwhelmed with written transcriptions, I adapted suggestions from Schensul, LeCompte, Nastasi, and Borgatti (1999) and fully transcribed critical incident data. According to Schensul et al., “critical incidents are those that exemplify a code” (p. 22). For the Dissertation, critical incidents were episodes of interaction or products of interaction that exemplified different features of mediated activity. These episodes of interaction and products of interactions were related to categories derived from the broad theoretical framework outlined in the Introduction and summarized in the concept map in Figure 5 in the Introduction. Critical incident data were also those episodes in the data that could be linked to the research questions.

Identifying critical incidents to transcribe were embedded in the procedures for data analysis. Specifics of this procedure, which are crucial for understanding the interpretations derived from the overall Dissertation, are presented in the data analysis section of this chapter, which follows this section on data collection.

For all the transcribed data (i.e., video and audio) I adapted a transcription protocol for audio-data provided by Wells (1999). However, depending on which part of the data to be highlighted, this audio-transcription protocol was adapted. For example, in the
Results there is a large amount of videotaped data that displays gesture. I merged the transcription protocol method from Wells (1999) with suggestions from McNeill (1992).

For all data transcribed from the classroom, there were three sound sources: the two Sony tape recorders, designated Sony I and Sony II, and the video camera, which had a surprisingly good audio microphone. Because there were three sound sources used, each transcription of dialog was checked using each of these three sources.

**Audiotaped transcription protocol**

A letter before a colon designates who is speaking

For example, this letter stands for Mawngpleurn:

M: Where were you Saturday?

Periods indicate the end of a sentence, or, if there are more than one, each period represents an approximate 1 second count or a verbal counting of one one-thousand, two one-thousand, three one-thousand, etc.

For example, the periods in the following indicate an approximate six second pause:

C: I wanted to go. . . . . but I didn’t see the point

Comments in parenthesis usually are my reflections or comments on the actual transcription or on something I saw during the audiotaped or videotaped interaction, which I thought was important.

For example:

C: almost the same for example if I want to teach this is a book and in we Chinese (Chou is writing this sentence in Chinese on a piece of paper. see Figure 8)
An asterisk * indicates a syllable that was unintelligible. Asterisks are also used in the video transcription protocol to highlight a code (this is presented in the example from video tape protocol)

For Example in the following, it sounded like a four-syllable word, which I could not hear:

I: He was asking--yeah go ahead
D: about movement and ah ****

Words enclosed in the less than < symbol and the greater than > symbol are an inconclusive transcription. In other words, the words in the enclosed symbols could not be heard clearly. The words or phrase within the symbols is the best determination that could be made.

For example:
C: He <didn’t think> I could study that much.

Videotaped transcription of gestures

Because the transcription of videotaped data that highlights the use of gesture forms a large portion of the data presented in the Results, protocol for the transcription is explained and presented here, as well as in the Results.

In order for readers of the transcribed data to clearly distinguish the speakers from the description of the gestures, conversation-turns spoken by the two speakers are underlined and numbered. Some of my comments that are part of the original transcription are also underlined. In the italicized sections some words and/or phrases are underlined. I underlined these words because a gesture occurred on that word, around the word, or the underlined word in the italicized description needed to be highlighted for one reason or
another. The overall transcription protocol for the transcription of gestures can be summarized as follows:

Underlined text = the transcribed dialog

(Underlined comments in parenthesis) = My comments about or related to the transcribed dialog

Italicized text = Descriptions of the gestures

Underlined italicized text = Words, clauses, or phrases from the transcribed dialog on which, or around which the description focuses

(Italicized comments in parenthesis) = My comments about or related to the description of the gesture

*(Comments in parenthesis not underlined or italicized and that appears with an asterisk ) = Categories of gesture, for example *(One Iconic gesture)

The following is an example from the Results:

32 C: yeah

33 D: the same sense

34 C: same sense

35 D: so there's overlap so do they--do they conflict with each other--say your eyes or ears aren't working—what does--what kind of effect does it have on another sense?

When Dan says conflict with each other, he puts his elbows on his desk and brings his hands together, fingers straight, so they weave together. It's almost like he's going to bring his hands together to pray, but the fingers remain straight and stiff. No folding of the hands or relaxation of the posture.
*(Iconic gesture on conflict with each other)*

Translation protocol and procedures

A large part of the audiodata gathered in the classroom was in the Thai language. Even though none of these translated and transcribed data were presented in the Dissertation, some of these were used for triangulation purposes, these data generally informed the study, and one piece of translated dialog was directly linked to data presented in the Results.

As can be seen in Figure 6, the tables were arranged in a U-shape. There were two Sony tape recorders, usually placed as shown at the top of the U, which Neroot would move with Nathane or Chou when they moved away from their usual positions. The main challenge of transcribing any of the classroom interactions, translated or not, was the amount of overlap of 9 people talking at once in the classroom, and my constant loud voice as I rotated through the classroom answering questions and otherwise mediating interactions.

Fortunately, I was able to hire a research assistant, who I call Neroot in the Dissertation, who was very competent with technology, exceptionally responsible and timely, and had taken a translation course as an elective as part of his MATEFL program. He came to my apartment on many occasions during my last month in Northern City and we tediously worked our way through some of the critical incident data.

On his first visit to my apartment for transcribing, all we had to use was an inexpensive cassette player that and the VCR and television to crosscheck what we were hearing on the tapes and to see what was going on in the classroom. After this first visit, Neroot suggested he bring his brother-in-law’s computer over for the next visit. Previous
to this visit, Neroot, had downloaded and copied some of the cassette tapes and backed them up on CD. After he brought the computer to my apartment, I learned from Neroot how to use the CD burner and backed up all the audiodata I had on CD. With technology, and in other ways, Neroot far exceeded my foundations.

On this next visit, he brought in the computer and set it up. As we proceeded, he introduced me to a computer program called Wavelab, which really improved our ability to isolate segments of the audiotape. However, we still had to listen to segments repeatedly in order to transcribe and translate them. I kept an ongoing record of these episodes of transcription and translation in my researcher's logbook, and we averaged about one hour of translation and transcription work for about two to three minutes of classroom interaction. At the beginning of these sessions, we averaged about one hour for each two minutes of classroom interaction. Toward the end of these transcription sessions, right before I left Northern City, we managed to increase our transcription speed to about three minutes of classroom interaction per hour.

The procedure we worked out for transcribing consisted of me finding a section of videotape that I determined to be a segment of critical incident data. I would then search through the cassette tapes for that particular class session and determine whether the cassette recorder Sony I or Sony II was closest to the critical incident I was interested in transcribing. I did this part of the procedure before Neroot arrived. After he arrived, we found the segment of critical incident data on the corresponding CD and opened up the computer program Wavelab and began transcribing.

During the transcription process, Neroot would play a small part of the selected segment over the computer speakers. He would then say the words in Thai slowly and
carefully. I would then suggest what this meant in English if I could, or ask him if I did not quite understand. He had to listen to this once or twice, or frequently more times in order to decipher the words from the classroom noise. I would then type this chunk of words in English phonetic script using MS Word on my refurbished 380 ThinkPad. Because I had selected this segment from the videotape, we could usually determine who was speaking from the context. We could also see what the participants were doing. This transcribed chunk was followed by another chunk and so on, until we had the section completed. Thus, we worked segments of the data, chunk by chunk.

During this process, I was often asking him questions to confirm his translation, or what I thought the translation in English was. This became very interesting at times when participants were switching back and forth from English to Thai (i.e., code-switching). Sometimes Neroot would think it was Thai when it would be English, or I would think it was English when it would be Thai, and we would have to go back and forth between the VCR and the computer, and my lesson plans for that day, to determine exactly what the participants were saying. Moreover, occasionally the participants would shift into the local Northern Thai dialect. This provided a further translation challenge. Fortunately, Neroot was also fluent in Northern Thai.

To write the Thai in English phonetic script, I used a general protocol described in Becker (2002a). Because the transcription is not presented beyond this example presented in a moment, I did not use tone markers with the words. I know how the tones are pronounced and what they mean; therefore, due to the way the transcriptions were used for the Dissertation, as references for triangulation and to inform some of the Results, tone marks, which are referred to as diacritics in this context, were not used or presented.
For possible later uses of the translations on other papers generated from the data, I will insert diacritics, and possibly display participant speech in the Thai script. The adapted transcription protocol and circumstances surrounding the transcription procedures was one of the many examples of operating as bricoleur. I had to use the resources available to complete the research.

The following is an example of transcribed and translated data. I basically followed the same general protocol adapted from Wells (1999), but tried to write the English translation as close as possible underneath the corresponding speech. This segment is related to the construction of Figure 39 in the Results.

Nat: uhh, mahntawng clap mah tee process uhh mahntawng clap maa tee sahm mai
it must go back to process uhh it must go back to, repeat again, yes?
layo tawn nee dio gohn, dio gohn keun bpen flow chart ja dy mai, keuy keun if mai then if
and now wait, wait can we write it as a flow chart have you ever written if, then if

Busaba: oh meun ny tee Dr. F. tee kaew hay row tawn nahn ***ta thesis proposal mai
oh like in what Dr. F. gave us at that time *** if the thesis proposal doesn’t pahn
pass

In this example, Dr. F is the Department Chair. As can be seen from this example, there was a lot of code-switching (i.e., switching from one language to another). The
transcribing and translation stage of data collection was a tedious process, but well worth the time and effort considering the information it provided.

Fieldnotes and Documents

Three different types of fieldnotes were taken. I was primarily following suggestions from Merriam (1998) in terms of the general process of writing ethnographic fieldnotes. Well-known characteristics include describing observations in behavioral terms and avoid attributing meaning to these observations. Interpretation is normally kept separate from more strictly framed description. However, due to specific research needs and circumstances and the constant flow of activity, including teaching responsibilities and general work I had to do as a member of the university staff (e.g., serve on committees), I deviated somewhat from standard guidelines. This was another example where I was operating as bricoluer.

The first type of fieldnotes I refer to as video fieldnotes. For the first half of the semester when students were presented with graphic organizers, I would sit in front of the VCR and take notes on what happened in the classroom. These notes were particularly important to find critical incident data for further investigation. Video fieldnotes were not taken as often during the second half of the semester as I returned to earlier segments of the video for repeated viewings and refinement of previous video fieldnotes. In addition, I began doing closer analysis of many different parts of the data I was collecting, including transcribing some of the data, in an effort to determine who would be the telling case. During the second half of the semester, I began follow-up conversations and
school-site visits. The writing of fieldnotes and preparation for these events took priority of my limited time resources.

The second type of fieldnotes I refer to as reflective fieldnotes. Reflective fieldnotes were written when I was unable to take fieldnotes during the observation because I was teaching at a particular site, such as the language learning theory course held on Friday evenings. I also took reflective fieldnotes after follow-up conversations, because I was usually focused on the actual conversation, and the taking of explicit fieldnotes would have been too disruptive to the rapport I was trying to establish. These reflective fieldnotes also included a researcher data collection log and researcher journal, where I was able to keep notes on some of the data collection activities and my general research reflections. However, by the end of the semester, most of these two journals were woven into the reflective fieldnotes.

The third type of fieldnotes was the standard type where observations of interactions were recorded. I took these types of fieldnotes when I could remain a non-participant, which I was able to do on a number of occasions. As with the other types of fieldnotes, these are cited when appropriate in the Results.

I also collected several types of documents during the data collection period. Many of these are displayed in the Results and other parts of the Dissertation. These documents included participants’ writing assignments, scraps of participant writing from formal and informal conversations, and various types of graphic organizers produced by the participants.
Data Analysis

As an overarching approach to the data analysis: I looked across the data from different modalities (e.g., audio, video, written) as it was collected to determine which data were critical incident data (Schensul, LeCompte, Nastasi, & Borgatti 1999). Recall that critical incident data exemplifies a particular code. For the Dissertation, critical incidents were episodes of interaction or products of interaction that exemplified different features of mediated activity. These episodes of interaction and products of interactions were related to categories (codes) derived from the broad theoretical framework outlined in the Introduction and summarized in the concept map in Figure 5 in the Introduction. Critical incident data were also those episodes in the data that could be linked to the research questions.

For the critical incident data, I was looking across the data to purposefully select episodes of interaction that exemplified the following concepts, which I have interpreted as being under the broad category of artifact mediated activity (Tomasello, 1999; Wartofksy, 1979, Wertsch, 1998): participatory appropriation (Rogoff, 1995, Wertsch, 1998); transformation (Davydov, 1999; Rogoff, 1995); signification, including Vygotsky’s (1998) use of the term and Harré and Gillett’s (1994) use of the term; the tension between the agent and mediational means (Burke, 1969; Wertsch, 1998); communities of practice (Wenger, 1999), and finally; how these concepts were related to micro- and macro-levels of self- and other- positions (Harré and van Langenhove, 1999).

For the first two sections of the Results, after I determined the critical incident data, I merged Vygotsky’s (1998) developmental approach (i.e., genetic method) to the data with Merriam’s (1998) general guidelines for content analysis and analytic inductive
strategies. For the third section of the Results, I generally followed Merriam’s guidelines for an ethnographic approach to the data along with a continued concern for the ontogenetic, sociocultural/historical, and phylogentic domains. By using the broad theoretical framework outlined in Chapter One and Vygotsky’s genetic method as an overall approach to the data analysis, I was looking for how the participants activities expressed those concepts under the broad category of artifact mediated activity and what this meant with regards to the four genetic domains from Vygotsky’s (1978) (see also Wertch, 1985; Wells, 1999).

For the purposes of immediate relevance, recall that these four genetic domains are defined in the Literature Review as follows, and also defined and repeatedly mentioned in a similar manner throughout the Dissertation. Microgenesis frames development as unfolding before one’s eyes over short periods of time, as short as seconds or minutes, or longer periods (Wells, 1999). Lantolf (2000) describes the microgenetic domain as follows: "Where interest is in the reorganization and development of mediation over a relatively short span of time (for example, being trained to criteria at the outset of a lab experiment; learning a word, sound, or grammatical feature of a language)” (p. 3).

Because Wertch (1985) provides definitions of two different types of microgeneseis and these definitions influenced the data analysis, they need to be mentioned here. "The first type of microgenesis identified by Vygotsky concerns the short-term formation of a psychological process. The study of this domain requires observations of subjects repeated trials in a task setting" (p. 55). On the same page, this is followed by a second definition. "The second type of microgenesis is the unfolding of an individual perceptual or conceptual act, often for the course of milliseconds” (p.55).
Ontogenesis frames psychological development on an individual level; that is, how an individual's intellectual development unfolds and is transformed (Wells, 1999; Wertsch, 1985). However, this does not mean that the ontogenetic domain is isolated from the other domains. When Vygotsky developed his notions of ontogenesis he was referring to ontogenesis with children (Wertsch, 1985). In terms of using ontogenesis as a term in child psychology, this is the generally acknowledged mainstream approach (Scribner, 1997a). Vygotsky died before moving any further with these ideas with regards to adults (Scribner, 1997a). Moving Vygotsky's ideas to an investigation of ontogenesis with adults is one of suggested openings for extending Vygotsky's ideas (Scribner, 1997a).

Sociocultural/historical features of phenomena would be those linked to social, cultural, and historical forces that shape the phenomena under study. Phylogenesis would be intellectual development across a culture and/or species over time (Wells, 1999; Wertsch, 1985). To describe phylogenesis Wells (1999) provided powerful examples of the interwoven nature of these four genetic domains by using the fiction novel, the Inheritors (1955), by William Goldring, best-known for his novel, Lord of the Flies. In order to make the interwoven nature of these domains more explicit, and to more clearly define phylogenesis from this perspective, the examples from Well's (1999) are worth repeating.

The Inheritors is about the life of a particular tribe of Neanderthal that will become extinct through the emergence of modern humans, who are known as New Men. To illustrate microgenesis and the powerful trajectory of the link between language as a tool and activity, which involved a transformation of cognition and activity, Wells (1999) presented a scene near a river. In this scene two members of a shrinking tribe of
Neanderthals, a male and a female, are attempting to find a way to an island to find out what happened to members of their tribe who have disappeared.

In this telling scene from Goldring's book, the female, Fa, expressed to Lok, the male, an idea she has of moving a log to create a bridge. It takes awhile for Lok to get her point, but she finally is able to change his frightened and bewildered first reaction (see Goldring, 1955, pp. 120-122). In this moment, language is used in a certain way for the first time to direct the attention of others and intentionally plan collaborative activity. On a microgenetic level, in this moment where normal activity has been altered, words were arranged in a unique way to plan activity to meet a new challenge. On a phylogenetic level, we can understand this tool of language spreading across a species and used to mediate activity and cognition, which become even more intertwined with the sociocultural/historical domain as writing comes along (Wells, 1999).

This episode of language to communicate and direct activity also expressed the notion of cognition resulting from goal-directed activity occurring on the social plane of development (i.e., intermental plane of development). In this episode, Fa plans and expresses these plans using language to direct and reflect on the goal-directed activity of finding out what happened to missing members of their tribe. Language begins its long history of mediating activity and the related domains of cognition and culture (Wells, 1999).

In the first two parts of the Results, after identifying critical incident data, I used a microgenetic approach to the data and bounded various interactions. These interactions were bounded through a synthesis of the notions of episode from Harré and Secord (1972) and Bakhtin's (1986) boundaries of an utterance. Once these segments were

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bounded, I went through a process of content analysis and analytic induction as suggested by Merriam (1998) to code (categorize) gestures. On a parallel line of analysis, I was looking for different mediational artifacts that I could see unfolding right before my eyes.

As discussed in the Literature Review and Results, after reviewing the literature on gestures and determining that the gestures I found were contextually different than the previous research, I brought in ideas on sign and symbol systems from Peirce (Duranti, 1997; Liszka, 1996; Peirce 1991) to code the gestures. I was working through an analytic inductive process of moving from the gestures to different types of coding systems, which included work from McNeill (1992), McCafferty (1998), McCafferty and Ahmed (2000), and McCafferty (2002), until I finally rejected these in favor of Peirce's theories of sign systems. Once I understood Peirce's system, I worked a content analysis, analytic inductive process as described in Merriam (1998) of hypothesizing where a particular gesture might fit in a particular description of a code for the gesture derived from Peirce's ideas on signs. I kept adjusting the description of the codes and built new codes as I moved back and forth from the gestures in the videos to the description of the gesture and code until all three matched up.

Once the gestures were coded through this content analysis, analytic inductive process, I backed away to see how the interactions could be categorized as artifact-mediated activity. Under this umbrella of artifact-mediated activity, I performed a content analysis and identified several different types of mediational artifacts, which are more specifically defined in the Results.

In these first two sections of the Results where I was weaving together Merriam (1998) and Vygotsky (1978), I backed away further still from this level of looking at the
interactions of different types of mediational artifacts, and looked for what this data represented in terms of the four domains of microgenesis, ontogenesis, sociocultural/historical, and phylogenesis. In addition, I interpreted these interactions in terms of the theories of social cognition from Tomasello (1999). Specifically, I was looking at Tomasello's notions of *joint attentional scenes* and collaboration with artifacts, which are explicitly laid out in the Introduction, Literature Review, and the Results.

For the third section of the Results I took a slightly different approach to the data analysis, which was more along the lines of an ethnographic approach as suggested by Merriam (1998). However, I still invoked the several salient concepts from the theoretical framework stated earlier (e.g., signification, positionings, transformations). In this third section I moved from the micro-level of the first two sections of the Results to a macro-level of analysis.

In this macro-level presentation, which represents a broad content analysis, I focused on how participants had appropriated, or did not appropriate, the graphic organizer and strategies. I also highlighted the tensions between participants and graphic organizers, what types of transformations occurred or did not occur, caught glimpses of the participants' communities and how these communities of practice seemed to position graphic organizers in different contexts within and beyond the bounded case. In terms of these data representing Merriam's (1998) notion of an ethnographic approach, data in this section of the Results were graphic organizers, interview data, and ethnographic fieldnotes from site visits. I also related some of these data to the Vygotskian genetic domains.
In all three sections of the Results, with the establishment of the broad theoretical framework from theorists related or tangential to Vygotsky, Luria, and Leont’ev, my view of the data is focused along those lines of thinking. In a very real sense, I was enacting Wartofsky’s (1979) central thesis that representations mediate perceptions. In other words, the theoretical framework mediated my perceptions of the data, which also expressed the interpretive nature of the study.

Validity and Reliability

With regards to validity and reliability issues, I primarily used the commonly cited metaphor of triangulation (Janesick, 1998; Merriam, 1998, LeCompte & Schensul, 1999a). I used several triangulation methods for the study. The most salient methods of triangulation I used were multiple methods of data collection. When I transcribed video and audio segments of the data, I triangulated my transcriptions by listening to tapes from both tape recorders, and matched these data with the video data. In addition, the overall context in which these transcribed interactions took place was triangulated through the lesson plans I wrote, the graphic organizers participants created, and other written documents. In addition, with some of the transcribing I was able to accomplish while in Thailand, I was able to ask participants about some difficult segments and use some of the interviews to find gaps in my data that I could fill with later interviews.

Using the videodata as a triangulation tool was an interesting facet to taking video fieldnotes and planning for future lessons. The video fieldnotes proved to be a powerful tool for reflecting on my overall pedagogy and my positioning of graphic organizers, language, and learners.
In addition to having the graphic organizers as products of interactions, I was able to examine process features that were displayed by the video and audio recordings. This was in addition to seeing how participants used graphic organizers within and beyond the bounded case. This included how they used graphic organizers in the language learning theory course and in their teaching contexts when I made site visits to their teaching contexts.

For three of the site visits, I was able to triangulate my fieldnotes with follow-up conversations, in addition to having documents from two of the site visits. With follow-up conversations, I often was able to write up reflective fieldnotes immediately following the conversation.

With regards to member checks, I discussed my tentative findings with four of the nine participants. In addition, I mentioned my findings and ongoing analysis several times to the students while working as a guest instructor for their research methods course, which I taught for four weeks following the end of the regular semester. I received some feedback on my tentative conclusions during this period.

In addition to multiple methods of data collection and member-checks, I used theory and interdisciplinary triangulation (see Janesick, 1998) by bringing together scholars from various disciplines and theoretical orientations. I also used researcher triangulation (Janesick, 1999) for my interpretations and coding of the gesture segments. I met with two other doctoral candidates who were also using variations of analytic induction and we critiqued each others methods of coding. They gave me insights into some things about that data that I had not noticed.
In addition to triangulation, I was very open about the research, and participants became partially involved (Merriam, 1998) in the research by using graphic organizers in their teaching sites and discussing with me the problems they were having. I was open about my research agenda, and in the write up of the Results, I am being very explicit about what I am doing with the data and where my interpretations originate. Being open and explicit about how the data is handled and interpreted is also consistent with notions of validity and reliability (Althiede & Johnson, 1998).

In conclusion, I think that the theoretical framework and the research design I have presented in this Dissertation are replicable, of course, with variations as the context and participants will not be the same. However, after reading the Dissertation, an interested researcher of language and literacy should be able to go into a site with a video camera and tape recorders, and weave together Vygotsky’s (1978) developmental approach and Merriam’s (1998) parameters and suggestions for conducting case-study research.

Through this research design, I have presented phenomena that can be found in the real world. Who I am, who the participants are, my role as teacher/research, and the interwoven nature of the theoretical framework, data collection, data analysis, and interpretations are made explicit. The overall research design is intended to provide for the juxtaposition of the phenomena in the real world and my interpretations. In this way, the links between process and product are made explicit.

Ethical Issues

This research was approved and supervised by the Office for the Protection of Human Subjects at the University of Nevada, Las Vegas. The primary researcher, John Unger,
completed the Human Subjects Assurance Workshop held at the University of Nevada, Las Vegas in the Fall of 2001 and was issued a certificate on October 25, 2001. Human subjects protocol was followed throughout the conduct of the research.
CHAPTER FOUR

RESULTS

As outlined in the methodology the overall research design I used generally follows parameters suggested by Merriam (1998) for ethnographic case-study research. Moreover, this research followed Merriam's (1998) description of an interpretive case study in terms of overall intent. As stated previously in the Methodology, one of the main features of an interpretive case study is to "illustrate, support, or challenge theoretical assumptions held prior to the data gathering" (p. 38).

As outlined in the Introduction and repeated many times throughout the Dissertation, beyond the investigation of graphic organizer use in an EFL context, one of the main purposes of this dissertation research was to explore and synthesize some of the foundational assumptions related to or tangential to the work of Vygotsky, Luria, and Leont'ev. The results I present illustrate and support many of the basic principles of sociocultural theory. Some of the results place more of an emphasis on exploring the theoretical assumptions described throughout the Dissertation, and some of the results place more of an emphasis on exploring participants' interactions with graphic organizers. Ultimately, I have tried to achieve a balance in both of these main purposes of the Dissertation.
In terms of the intent of an interpretive study, I do not wish to use the word "challenge" (Merriam, 1998, p. 38) to describe a major feature of the dissertation results. However, through this process of illustrating some of these theories I have synthesized, I am extending two major concepts that are frequently mentioned in the literature related to Vygotsky's work, and which I discussed in the Introduction and Literature Review. These concepts are mediation and the notion of intermental and intramental planes of development that are called intrapsychological and intrapsychological in the frequently cited general genetic law of cultural development (Vygotsky, 1981; Wertsch, Tulviste & Hagstrom, 1993; Wertsch, 1998). Because the notion of interpsychological and intrapsychological planes are important for the present investigation, I repeat the general genetic law of cultural development:

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regards to voluntary attention, logical memory, the formation of concepts and the development of volition. (Vygotsky 1981 p. 163)

The interpsychological and intrapsychological planes of development are embedded in my understanding of mediation, and mediation is a concept that became central to the Dissertation as the research was undertaken in Northern Thailand. As already stated, I am re-conceptualizing interpsychological and intrapsychological as interdiscursive and intrapersonal in the definition of mediation I am using. I am placing some of the main features of positioning theory and discursive psychology such as signification and

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subjectivity closer to this definition of the general genetic law of cultural development from Vygotsky (1981), which is frequently cited in the literature (intrapersonal is not a new term to use in this context, see McCafferty, 1998). This extension of the concept of mediation and a closer examination of some of the features of positioning theory overlap.

Within this interpretive, ethnographic case study design, as part of the procedure of using multiple methods of data collection and analysis, I am using suggested features of Vygotsky's developmental approach (see also Werner, 1978), also known as the genetic method (Vygotsky, 1978; Wells, 1999; Wertsch, 1985, 1991). For the first two sections of the Results, labeled Chou Data One and Chou Data Two, I mainly present data that fit into the parameters of microgenesis (Vygotsky, 1978; Wells, 1999; Wertsch, 1985).

Also in Chou Data One and Chou Data Two, I move beyond the microanalytic level and present other data that are intended to further illustrate, and in many instances triangulate, results from the sections of data coded as microgenesis. Moreover, these other data have implications for the other three domains discussed in the Methodology: ontogenetic, sociocultural/historical, and the very speculative, phylogenetic.

Also stated in the Methodology was the intention of selecting one participant on which to focus the analysis. I have chosen Chou as a telling case (Mitchell, 1984). Mitchell describes a telling case as one "in which the particular circumstances surrounding a case serve to make previously obscure theoretical relationships suddenly apparent" (p. 239). It is mainly the data gathered with Chou that made many of the theoretical relationships I am exploring from sociocultural and related theories (e.g., discursive psychology; positioning theory) more explicit.
Following the data from Chou Data One and Chou Data Two, I present a third section of the results, A Wider View of the Case and Beyond. This section presents data from the other eight participants including data from outside the boundaries of the case, along with more data from Chou. These data also have implications for ontogenetic, sociocultural/historical and phylogenetic domains; however this third section does not emphasize the microgenetic domain as do Chou Data One and Chou Data Two.

In addition to standing on their own as partial answers to the research questions, these data from the remaining eight participants varies in depth depending on the amount of data I was able to gather. There were many restrictions on my time and movement beyond the boundaries of the case, particularly in terms of going into the teaching contexts of the participants. These constraints will be explained further in the Discussion under Limitations.

Chou

Chou was by far the most experienced teacher of the nine participants in the study. She was also the most interesting with regards to the obvious transformations she experienced in the 24 weeks I was able to interact with her. These interactions and transformations revolved around her thinking on teaching English and her use of English. She also prompted me into having some of the most memorable and unusual moments of my life when I stayed with her and her husband for a week in Southern Yunnan after the semester ended at Northern University.

This visit to Southern Yunnan revolved around my giving two workshops and a lecture to her colleagues and their students at a teachers college. My visit with her, her
husband, and her colleagues altered my thinking about Chinese writing and the potential
of graphic organizers in China. Because I was not visiting for the explicit purpose of data
collection, I do not have the ethical freedom to discuss much of that visit directly in terms
of how this visit impacted my interpretations. However, much of the visit gave me some
general insights into Chou's community of practice (Wenger, 1998) and general features
of Chinese script. This greatly affected my understanding of the data I collected about
Chou.

I also bring up my visit to provide readers with an insight into my relationship with
Chou that went beyond the other participants. It is important to note that Chou very
graciously opened the door of her personal life and home to me, and her husband and
colleagues were equally gracious during my visit and in their efforts to show me this area
of Southern Yunnan.

During our interactions within the context of the study, Chou provided me with data
that is central to my Results, and data that I was not really expecting. Moreover, graphic
organizers, and many of the TEFL/TESL strategies and theoretical ideas about learning
and development I presented in and outside the context of the study (e.g., Vygotsky) were
unknown to her before our encounters (Formal conversations, 8-2 and 10-31).

Chou Data One: A Graphic Organizer, a Hypothesis,

and a Way of Thinking about Both

As in all of the data presented in the Results section and everything that happened
through the duration of the study, there is an interaction of history, culture, and societal
influences. I will first present some of the history for the graphic organizer that dominates
this section of the Results, and then present the graphic organizer along with Chou's interpretations of how it works. For the purposes of this presentation, I call this graphic organizer, the CAH-graphic (see Figure 7). The locally and distantly constructed cultural and societal influences will be brought to the foreground at different points during the presentation of the Results for the telling case, Chou, and information I am able to cover about the other participants. By using the terms "locally" and "distantly" I am distinguishing the classroom interactions that form the bounded-case at Northern University (the local) from those cultural and societal influences at various physical and historical distance beyond the bounded-case (the distant).

CAH stands for contrastive analysis hypothesis. The participants were provided with the following English language definition of the CAH through reading sections of a language learning theory text: "The CAH predicts that where there are similarities between the first and second languages, the learner will acquire second language structures with ease: where there are differences, the learner will have difficulty" (Lightbown & Spada, 1999, p. 172).

I do not think that any of the participants in the study had encountered this explicit definition or knowledge of this theory in the English language before this semester. More specifically, before this semester of study in the MATEFL program, Chou thought she knew this theory, but not in the English language and not in any explicitly defined form, although she knew general ideas from which this theory were was through her teaching experience and as a teaching strategy (Audio Conversation 8-2; Video conversation 9-7). I think this might have been the situation with some of the other students, but this was not something I specifically followed up during the data collection; however, my
thoughts on the participants' prior knowledge of the CAH will become clear as the Results section proceeds.

The CAH graphic presented in this section of the Results, displayed and by itself in Figure 7 and at the top of Figure 8, was not created in the advanced reading course (TEFL 742) where most of the data for the dissertation research were collected. As already stated in the Methodology, besides the advanced reading course, I taught a language learning theory course (TEFL 701), which was also part of the participants' MATEFL program. All of the participants who attended TEFL 742 attended TEFL 701. Only one student in TEFL 701 did not attend the advanced reading course.

Because students were using graphic organizer strategies in the language learning theory course for different course activities, I asked them for permission to use some of this work for my dissertation research. These data are relevant to understanding the participants' responses to graphic organizers with which they interacted as part of the overall study. All participants generously agreed to let me use these other data. At the beginning of the semester, I did not expect to ask them for any of their work from the language learning theory course. After Chou produced the CAH-graphic in the language learning theory course, with another student helping with part of it, this collecting of some data from the language learning theory course became an issue. However, over the duration of the data collection and ongoing analysis, I kept my focus primarily on what was happening in the reading comprehension course. I was collecting an overwhelming amount of data from the reading comprehension course anyway, and simply did not have the logistic and mental resources to widen my scope.
Other than this particular graphic organizer from Chou and a couple of other interesting examples of appropriation that occurred, the small amount of data I collected from TEFL 701 is not emphasized for the Dissertation. The overlap of teaching strategies and students for both courses provides an interesting place to begin laying out the origins and history of the CAH graphic.

Figure 7. The CAH graphic with Chinese and Thai writing samples (Photo by E.J. Haas).
Figure 8: The CAH graphic is at the top. The guiding question is at the bottom. The question in the middle is intended as an anticipatory set question (Photo by E.J. Haas)
The wide range of proficiency levels and cultural diversity prompted me to ask students to work in dyads and one or two triads during a typical class-period. I continually rotated students into different dyad and triad combinations of English language and content proficiency levels. In addition to different dyads and triads I frequently prompted variations of reciprocal teaching (Palinscar & Brown, 1986; see also Herrell, 2000), where students had to present a concept, theory of language, or teaching strategy to the rest of the class. Usually what they presented they had encountered through an assigned reading.

These reciprocal teaching/presentation strategies included the use of brown poster-papers, which are the consistency and texture of brown paper-bag type of material that can be found in the US and other countries (see Figure 7 and 8). I could buy these poster-papers in rolls of 10 for 26 Thai Baht (about 55 cents US). The poster-papers are 48 inches long and 35 inches wide. Figure 8 is a photo of a full-sized poster-papers.

It became a standard routine for me to pass out these poster-papers, along with dark colored whiteboard markers, and have the students use these poster-papers and marker-pens to answer the questions they randomly chose. My routine was to hold questions written on slips of paper in a manner well known in the context of drawing-straws; in other-words, students did not know which questions they were choosing. This use of poster-papers to summarize information created a classroom ecology where students would eventually be prompted to stand next to the poster paper, which I hung up on the wall with masking tape, and refer to information they would place on the poster paper in order to inform the class (i.e., key points of the concept, theory, teaching strategy, or feature of the English language, or all of these factors).
This strategy of using the poster-papers was first implemented in the reading comprehension course to create and answer questions (Video Fieldnotes 6-16), and in that course, graphic organizers were later frequently constructed and displayed on these poster papers (numerous segments of videodata from June 16, through September 29).

This strategy of co-constructing answers to questions or summarizing readings and reporting back to the entire class supported various course objectives and MATEFL curriculum objectives at Northern University, which included the improvement of oral presentations in English. As can be seen throughout the data, the poster-papers provided an interesting platform for the students to construct graphic organizers and become accustomed to displaying information for audiences. Additionally, I had some interesting lessons with Mamet using poster-papers and marking pens at the two schools where he was teaching. Mawngpleum also used a variation of this strategy. I will mention these examples in more detail later in the Results.

For this particular language-learning theory class through which the CAH graphic was created and presented, I asked students to answer questions that might appear on the midterm exam (Reflective Fieldnotes, Lesson-Plan Notes, 7-12). As was usually the case when all ten students were present, I split the class into five dyads. One of these dyads was Chou and Busaba, and I had paired them up for a specific reason, which I will go over briefly.

In the previous reading comprehension class that occurred on Sunday, July 7th, I had rotated Chou to work with Dan on a difficult reading passage. Due to the Vygotskian foundation from which I try to teach, it is usually the case that I am hoping that pairing a more capable learner with a less capable learner will result in them co-constructing a
Zone of Proximal Development (ZPD) (Vygotsky, 1978) (see Definitions of Terms and Concepts at the end of the Introduction). I have often found in my teaching experience that pairing learners of different levels is frequently not a guarantee that a Zone of Proximal Development will happen. The various reasons why this occurs are beyond the scope of the Dissertation (see McCafferty, 2002, for related reasons). For this classroom activity, Chou and Dan were to create a concept map and present this to the rest of the class as a way to summarize a reading passage.

The reading passage was taken from a text to prepare students for the TOEFL exam (Test of English as a Foreign Language), and this passage covered some difficult content (economics) and had some challenging vocabulary and complex sentences in it. As is sometimes the case, one member of the pair dominated the activity. For this activity, Dan dominated the activity, and Chou did not seem to be able to contribute to her potential capabilities, which I thought would be encouraged by this arrangement (Video Fieldnotes Jul-7).

By his own admission at the end of class (he apologized for being difficult), Dan was also not in the greatest of spirits that day and was not being patient with the reading passage and Chou's temporary challenge with the language in the passage (Video Fieldnotes 7-7). Remember that Chou was still only a month into a brand new experience of being in a context where she was continuously expected to communicate in English or was surrounded by the Thai language. In addition, I noticed Chou having difficulties in other dyad and triad arrangements (Video Fieldnotes, Jun-30) and I wanted to give her the opportunity to display her 22 years of teaching experience and potential with the English
concerns in mind, I paired Chou with Busaba for this July 12th Friday-night classroom activity.

It is important to note that the reason I paired Chou with Busaba was a result of intensively reviewing the videotapes of the reading comprehension class in the previous four weeks. As a teacher, this provided me with valuable insight into what was happening with the students and how the lessons seemed to work or not, and how I might improve my own preparation and actual teaching.

I had noticed Chou unable to enter some of the activities because she was generally spending a few moments more on the reading passages than the other students and referring to her dictionary in just a few more instances than the other students. The Thai students were able to communicate in Thai with one another on a reading passage, and when Chou was in a triad with two Thai speakers in these early classes, she would sometimes be left out of the conversations. Although it was obvious that the other students did not purposefully leave her out of anything, the pace of the class just sometimes moved on its own. In these early videos, she can often be seen in the video data working with the text on her own, diligently writing in the margins or checking in a dictionary, or asking someone else or me for an explanation of a term or concept. Andy was a big help to her and it is obvious that he admired Chou as much as I do (Video fieldnotes, Jun-16, Jun-23, Jun-30, and Jul-7).

Remember that there was an interaction with Dan that did not seem particularly productive for Chou (Video fieldnotes 7-7), and in a lesson where Chou was in a triad with Busaba and Mamet, Chou was spending much of this interaction working at the reading passage alone, or looking up words in her dictionary alone (Video fieldnotes 6-
30). However, in this particular lesson, I did notice Busaba and Chou engaged in dialog, and they were both spending equal amounts of time talking while looking at the graphic organizer they were building while Mamet was occupied with the reading passage or writing on the poster-paper hung on the wall. When Chou was talking, Busaba was looking directly at her and then referring to the text or the poster-paper hung up on the wall, and Busaba seemed to be doing a lot of listening and responding to what Chou was saying. (Video Fieldnotes Jun-30)

As stated earlier, Busaba is a Thai in her early-twenties, Chou is much older, and it is generally acknowledged in Thai and Chinese culture that younger people will defer to an older person; although I heard from Thai acquaintances and read complaints in the local press that this was changing. Consequently, it is with these previous observations of the videos from the reading comprehension course and general cultural knowledge that led to my pairing of Busaba with Chou in the TEFL 701 course. I was hoping that this would provide Chou with the opportunity to be more in a position of authority and manage the activity. I had no idea that this would turn out to be one of the most interesting pieces of data collected during my six months in Thailand.

A major part of the lesson plan for this particular class was to have the students review language learning concepts that might be on the midterm exam. I paired-up the students and passed out the questions. I then passed out the poster-papers and marker pens. I told the students to use the poster-papers as a resource to present their answers to the class, and I specifically said that it was not necessary to use a graphic organizer to express the answers. Not all students used graphic organizers; some pairs made lists of bulleted information or drew some pictures that did not seem to add to their presentation of content.
It was impossible for me to take fieldnotes in the language learning theory course while teaching, although I often sat down and wrote some things about the class when I got back to my room, which was usually around 9pm after a hair-raising ride home on my motorcycle with plenty of Friday-night drunks on the road (Friday night drunk-drivers similar to where I am living at the time of writing the Dissertation: North Las Vegas, Nevada, USA). As stated earlier, TEFL 701 was not a focus of the dissertation research, but after getting home this night, I quickly wrote some reflections on the lesson and made a note to have a closer look at the graphic the next day (Reflective fieldnotes Jul-12).

While I was working the classroom that night; moving from pair-to-pair discussing concepts, terms, and the English language, I could not help but notice Chou drawing the diagram shown in Figure 7. I could see her making long sweeps with her arms to make the top V and the upside down V at the bottom (see Figure 7). I also noticed Chou doing most of the talking as the CAH graphic was developed (Reflective fieldnotes Jul-12).

During the presentation phase, Chou discussed the meaning of the Chinese script and its relationship to English, which she discussed again in two different audiotaped follow-up conversations (Formal Conversations Aug-2; Oct-31) and in one videotaped conversation (Videodata transcripts Sep-7). I also clearly remember Busaba discussing the relationship to the Thai language and the present continuous tense (also known as present progressive in American English; that is, verb plus *ing* as in *I am eating*). They both discussed the present continuous tense in relation to the generic lesson plan, which I need to mention briefly here in order to make the context for prompting the CAH graphic clearer.
To provide a framework for a semester assignment for the language learning theory course and in order to contextualize some of the language learning theories covered during the semester, I decided that we needed some type of generic lesson plan as a starting point. Through my experience of teaching in Thailand, giving workshops, talking to teachers, researchers, and colleagues from a variety of Thai and other Asian contexts including elementary, secondary, and tertiary English teaching contexts, a common type of lesson-plan used in Thailand is generally based on a direct-instruction type of model of teaching (see Joyce & Weil, 1996) similar to what is also taught underneath the term, *instructional design* (see Gagné, Briggs, & Wager, 1992). This includes listing objectives, materials, an anticipatory set (i.e., how to open the lesson and gain student-interest), budgeting time, listing materials, providing guided practice and independent practice, and finally extending and evaluating the lesson.

The TEFL 701 class had an assignment due at the end of the semester that called for doing a lesson in a public or private school in Northern city and using this generic lesson plan as a guide. Questions related to the generic lesson plan were going to be a central feature of the midterm. The practice question that Chou and Busaba had picked is listed on the bottom of the chart but I will restate it here for clarity: What is the contrastive analysis hypothesis? Provide at least two examples from your own learning/teaching and explain how this might effect the generic lesson plan if you were to implement this lesson plan locally.

One obvious error in my writing of the question is my use of the word "effect", which in this question should have been written, "affect" (Now that a foolish error is laid-out in a key piece of data for the Dissertation, I will never make this error again as long as I...
live). However, the students understood the question to mean how the use of the contrastive analysis might influence the generic lesson plan. It was clear from Chou and Busaba's presentation of the CAH graphic in this class on July 12th, and from all three follow-up conversations with Chou (Aug-2; Sep-7; Oct-31), and from the CAH itself, that Chou and Busaba interpreted the question to mean: How will they use the contrastive analysis hypothesis to teach the present continuous tense using the parameters of the generic lesson plan? We also discussed the use of affect and effect in class as a result of making this mistake. I recall that they both did a fine job presenting the contrastive analysis hypothesis, its affect on the generic lesson plan, and the relationship of the CAH to teaching the present continuous tense to native-speakers of Chinese and Thai.

Now that the contextual background to the CAH graphic is in place, I can talk about the factors that led to my asking Chou to be videotaped with the poster-paper (Figure 8). These data also provide a glimpse into Chou's ontological and epistemological assumptions as an EFL teacher. The purpose of videotaping her was prompted by something she did at a follow-up conversation that occurred on August 2nd.

As with many students in graduate school and all of the participants in the study, Chou was extremely busy. At the time of writing the Dissertation I have been in steady contact with her: doing some member-checking on some of the data, administering an MATEFL research methods class take-home midterm through e-mail, and sending her an article and other information for her thesis project in response to her inquiries. She is still continuing a busy schedule. Because of her schedule, and mine at the time, it took us almost a month after she originally created the graphic to meet again to talk specifically about the CAH graphic.
Figure 9. Four examples of how Chou frequently present English from the CAH interview on August 2nd.
At the first follow-up conversation I found out a number of different things about Chou that helped me to understand the CAH graphic and her general perceptions of teaching English, which included a strategy presented on the graphic that I had observed in other data she produced. In the first minute of the conversation, I asked her about her use of graphic organizers. She responds by telling me she has never used them for teaching but "I just used the compare, but not use the diagram" (Chou, transcribed conversation, Aug, 2, line 7).

**Dialog excerpt # 1, Aug-2, Chou data one**

12 I: Well show me an example

13 C: For example if I want to teach declarative sentence—

14 I: declarative sentence, yeah

15 C: Because the structure of English and the Chinese structure are the same

16 I: Oh

17 C: almost the same for example if I want to teach this is a book and in we Chinese (Chou is writing this sentence in Chinese on a piece of paper. see Figure 9)

18 I: I wish I could write, it’s very beautiful, Chinese writing, I like it, I wish I could do that. It looks very difficult

19 C: (laughs) not difficult, and this is exactly the same (Chou is pointing to the declarative sentence “This is a book”: see Figure 9)

20 I: Wow... so the structure’s—

21 C: the structure same—the order of the words—sentence--

22 I: right--

23 C: same
I: So that’s the only type of diagram you’ve used before is drawing arrows like that?
C: I just—like this
I: you do arrows
C: yeah. . and the special sentence hmm...(you can hear some thumping which I believe is the sound of her writing in pencil) because if we cannot compare contrastive the students—I will ask them to say English “What’s this?” We cannot say this is what (thump). They say Chinese model. So I just say....if I want to ask them this (the same thumping sound can be heard again; a moment later, she continues) the sentence—that you—this word is this one, and this is this one, and this is this one
I: Ok so you—
C: I just use the diagram like this
I: Right like you used it. . I see so the diagram that you used (you can hear me take the diagram out) the diagram that you and. . you remember this, yeah
C: yeah
I: So this diagram really is, it’s something that you do normally
C: Yeah, I do normally

I asked her what she meant by "I just used the compare" and on lines 12 through 44 she proceeded to write out an explanation with a pencil on a piece of paper. In my collection of documents I brought back from Thailand with me, this is labeled as Chou #2. For the purpose of making the connection between what she did on the CAH graphic
and what this reveals about her way of teaching English, I scanned and cropped this scrap of paper, which is presented in Figure 9.

During the first few moments of the conversation, she drew and wrote the one statement and two questions and arrows, and one inverted question in the bordered area to illustrate how the question is formed in Chinese. The dialog that occurs as she is drawing these figures is worth presenting here (lines 12-44). She is responding to my request for an example of what she meant by "I just used the compare" (see Dialog excerpt #1, Aug-2, Chou data one).

There are a number of things Chou says here that have implications for understanding how she used the arrows in the CAH graphic and how she uses them in her teaching. Recall at the beginning of the Results section when I introduced Chou, that I referenced this conversation as a source for determining that she had never used graphic organizers before. She gave me this information on line 5. The example of dialog I provide here, labeled as Dialog excerpt #1, Aug-2, Chou data one, begins on line 12. This is within the first minute of our recorded conversation. While I go through the process of analyzing and discussing the dialog, please refer to Figure 9 as necessary.

On line 13, in response to my request for an example, Chou begins by telling me that she is going to show me an example of a declarative sentence in which Chinese and English are similar. In linguistic terms, this similarity can be expressed as saying the L1 and the L2 are similar (Chou uses L1 and L2 at the top of the CAH graphic; see Figure 7). She says on line 15, "the structure of English and the Chinese structure are the same". Chou also tells me that the grammatical example that she will show me is the declarative structure as in "This is a book". I note on line 18 that she is writing. I can clearly hear her...
writing on the audiotape. On line 21 when Chou says, "this is exactly the same", I am assuming that she is pointing to the declarative sentence she just wrote, which is the top English sentence with Chinese script underneath in Figure 9. On lines 27 through 31, I am conversing with her in an informal manner, but the impression Chou is giving me in this chunk of dialog is that the only diagrams she used before the reading comprehension course are arrows, as she displays in Figure 9. This is re-affirming what she said in line 5 about never using graphic organizers before.

On line 32, she begins to go into another example. As before, the sound of her writing comes through clearly on the audiotape. From lines 32 through 38 she is beginning to go through the example of the question "What is this?" which involves some clear syntactic differences between Chinese and English. This is illustrated by the second figure down from the top in Figure 9. Notice she is drawing an arrow directly from the English word to the corresponding Chinese character as she did in the previous example; however, in this example the arrows cross to mark the syntactic differences. Additionally, underneath this question Chou wrote "This is what" and drew a border around it (this was done in pencil on the original). As she mentions in lines 37 and 38, Chou is emphasizing a word-by-word method of demonstrating the differences in structure. This is also generally regarded as bottom-up processing (Ellis, 1994).

For the question "What is this?" another noticeable feature of the three arrows, and the three Chinese characters beneath, is that the figure these three sets of arrows form is comparable to the top part of the CAH graphic displayed in Figure 7. If one trimmed the center arrow a bit and cut-off the two extending arrows pointing toward the first and last Chinese characters in the sentence below, one would have the top of the CAH graphic.
This is an interesting relationship between Figure 7 and 9. For the moment, it is important to note that this is a relatively similar figure, and it appears before the CAH graphic is taken out and unrolled in this interview.

On line 40 I begin shifting my attention to the poster-paper, which I am getting ready to grab from the corner of my office cubicle. In line 40 when Chou talks of using a diagram and is characterizing this diagramming experience as the drawing of arrows, I am reaching for the poster paper. As noted in the parenthesis, this taking the chart out and unrolling it is quite audible on the tape recording. On line 41 I take the diagram out. You can clearly hear on the audiotape the unfolding of the poster. On line 43 I express that there is nothing new about the CAH graphic. At this point in my conversation with Chou and my investigation of the CAH graphic, I am thinking that Chou does something like the CAH graphic normally, and she agrees. This is a key point in judging if any transformations are occurring with Chou's use and thinking about the use of graphic organizers.

Later on in this same conversation, around line 52, Chou begins to indicate that the part of the CAH graphic that she has never used before is the top part of the V-shape (see Figure 7), where the lines are coming together. A few lines after that I am talking about this top part of the CAH graphic where the arrows come together, and Chou is responding with short verbal prompts (e.g., yeah; hmm). This goes on until around line 66. Then from line 66 through 89, which I present in a moment, Chou says and does some things with regards to the CAH graphic that are quite startling for me, which also prompt me to investigate further with a videotaped conversation.
I: and the difference is the arrows go apart

C: yeah

I: and that’s very—that’s—see what’s interesting is that describes the idea that
you have in your mind. you know that’s the idea that you have in your mind

C: Ok, because the contrastive analysis hypothesis—this strategy and—before I
taking your classes I don’t know this new strategy—but I often use this
strategy—

I: right you just didn’t—

C: hmm

I: you don’t know the name in English is all. You know it well

C: So I think the contrastive analysis has two ideas: one is similarity and another
is difference

I: Right (It’s right here that I first notice the gestures she does when she
says the words similarity and difference; my tone of voice when I say
“right” here carries a bit of a wonderous long tone to it)

C: So we want the students know what is the first language, what is the second
language what is the similarity and they can learn easy—

I: right, right, right

C: and if they know the difference—what is the difference—and they make some
mistakes—they make mistakes in difference always. So we should let them—

students know the difference so we divide some difference

I: that’s why the arrows go the way they do here
From lines 66 to 89, there are two important points that are made by Chou. The first point, that I stated earlier, which is an important concept to realize when working with those learning content knowledge in a language other than their first language, is that Chou is already aware of the contrastive analysis hypothesis, but has not encountered this hypothesis stated as a formal theory. Moreover, Vygotsky's notion of spontaneous concept knowledge and scientific concept knowledge comes to mind (see Definitions of Terms and Concepts). This drawing of arrows and highlighting differences and contrasts between Chinese and English for students is a strategy she has been using for years. It reveals how she uses the students' knowledge and her knowledge of Chinese to teach the English language.

It is a well-known phenomenon in many EFL contexts that teachers mainly use theirs and their students' LI to teach the English language. By presenting the English above the Chinese, connected by arrows, Chou illustrates her predominant teaching strategy, which she confirmed in other formal conversations (Sep, 7, Oct-31) and in numerous informal conversations. In this conversation (Aug, 2) and in the two others I previously mentioned, she perceived this as a pattern embedded in an approach to language teaching known as the grammar-translation method (Richards & Rodgers, 2001). This method involves studying a foreign or second language through a detailed analysis of its grammar rules. While studying the second or foreign language, students use their L1 as a guide.

The other significant issue that comes out of this conversation occurs on line 76 and 77. When Chou says "the contrastive analysis hypothesis has two ideas: one is similarity
and another is difference", she performs two very distinctive gestures on the words similarity and difference. I do not think I will ever forget this moment, although when it occurred, I just moved on with the conversation because I did not want to disrupt this conversation or any follow-up that I might be able to do concerning this gesture. The smoothness with which two distinct gestures matched the words and the CAH graphic, one inward gesture for similarity, and one outward gesture for difference, was the feature that stood out in my mind (Reflective fieldnotes 8-2). I was thinking of tension between agent and mediational means; the tension was minimal.

When Chou made these gestures, she was sitting alongside my desk in a standard type of cloth-covered, adjustable-height office chair with wheels. On the word similarities, I clearly remember her arms moving toward one another in a V-shape. As you look at the V, think of yourself as looking down from the ceiling. Her body is at the open-end of the V and her arms are moving to form a point. When she made the gesture, her arms moved from her sides to form a point. As she said the word differences, she continued moving from the point of the V-shape outwards until her arms were apart.

As I said, this happened quickly in the midst of the conversation, and so many things were on my mind at the time that my description here of her gesture is not precise. Due to the hectic pace of work that day, I did not have time to write many notes on this episode until that Friday night after 9pm. However, I decided that day to have Chou come back and answer some more questions about the chart, and I would be ready with a video camera. I really just wanted to see if she would do the gesture again, but had no plans in mind to explicitly prompt these gestures. As the conversation finished, I asked her if I could ask more questions about the CAH graphic at a later date. Chou agreed.
Another thing on my mind concerning this gesture episode was that the poster-paper, on which the CAH graphic was drawn (see Figure 8), was hanging on the wall of my office cubicle right behind where I was sitting during our conversation. After I took it out from the corner of my office cubicle and unrolled it soon after the conversation started, I hung it up on the partition wall right behind me. The whole time we were talking, Chou could see it, although I do not have it written in my notes if she looked at it often.

The rest of this conversation of August 2\textsuperscript{nd} mainly consisted of gathering a lot of background information about her life in China, native language, teaching experience, learning experience with the English language, and other related information. Most of this information appears in various other parts of the Dissertation and is embedded in my discussions concerning Chou.

In addition to the proximity of Chou to the CAH graphic when making the gestures, I kept thinking about those arrows she made to describe her way of teaching English. When working with Chou in class I remembered her making arrows like that before, and I thought I remembered the circumstances. On my Monday and Tuesday weekend, I went back through the videos looking for the spot that I thought might be where I had seen Chou make the arrows before and whether I had noted this in my video fieldnotes. This is what I found.

During class on June 30\textsuperscript{th} I had Chou working with Busaba and Mamet. I have already mentioned this triad arrangement as being one of those episodes that prompted me to try pairing Chou with Busaba. After finding the portion of video where I thought Chou made arrows to illustrate an idea, I listened through sections of the two audiotapes.
from that day to find out which tape recorder she sat next to. This tape recorder was the labeled Sony II. I listened to the tape again and watched the video closely.

I cannot hear very well from the videotape, but on the audiotape, you can hear Chou ask me, "Bone, There are two kind of animals. One is with bone. But the other is without". I transcribed part of the audiotape onto the video fieldnotes to make them more complete. I remembered this episode because I originally wrote in my video fieldnotes that the question had me stumped, and I was thinking she was talking about endoskeleton or exoskeleton. We had a number of short TOEFL reading passages from which we were building graphic organizers that day, and animals, coral reefs, and the northern lights were some of the topics that came up, so her question about animals with or without bones was not really out of context. On the videotape, you can hear me make a comment about jellyfish having no bones, but I could not answer her question. This was one of those nagging kinds of general content questions that do not have much to do with anything, but I like to answer. So I made a note of this moment on the video fieldnotes.

On the video fieldnotes that I updated on this second viewing of the activities from June 30th, I marked a spot at about 12219 (1 hour, 22 minutes, and 19 seconds) where I could see Chou writing on a piece of paper, her forearm and hand look like she is making a straight line. This view is from a distance of about 12 feet, though. But I can make out her drawing a line as she is talking to me. I can be seen standing next to her and she is trying to explain what she means by two different animals. I distinctly remember her drawing two arrows that formed an upside down V.

I have an example of this same kind of use of arrows, which form an upside-down V on another piece of scrap paper from this conversation on August 2nd that I have just
presented. On this piece of paper, there is a small rectangular box with two arrows pointing downwards (see Figure 10). This cropped section of notes is a kind of doodling sheet, like people have in front of them when they are on the phone talking, and I remember her writing on this while she was talking to me. By following the transcription and looking at the doodling on this sheet, I determined that she drew Figure 10 toward the end of the overall conversation:

I: I'm wondering—I'll never know—but it'll be interesting to see if you'll use this when you go back—if you can—how you'll use this when you go back (When I say "use this" I'm referring to the CAH graphic hanging on the office cubicle behind me; I can specifically remember turning to look at it often during this conversation)

C: I suppose if I go back to China I'll use this diagram—if we have two roles of the story, two roles of different groups, we can use this, if the article talk about two roles or different group, I can use (Here Chou can be heard writing on the sheet labeled 2A; see Figure 10). Or the article talk about from the main thing and later talk about the different thing, we can use this one

This scrap paper, which is a document labeled Chou 2A, also has some numbers that go along with how many people she went to school with when she learned English, where Chou and her parents lived when she was young, and the number "20", which indicates how old she was when she began studying English. All of these facts came out about her life following this short chunk of conversation that accompanied Figure 10.
Figure 10. A square box with two arrows that express "two roles" of a story from the first follow-up conversation on the chart on August 2nd.

It is from these episodes and other examples where I spotted straight lines with arrows drawn here and there that have lead me to think that this is a predominant part of her overall teaching strategies. Straight lines with arrows drawn on different papers seems to be embedded in the way Chou explains ideas (Sony II side B, 6-30; Video Fieldnotes 6-30; Document marked Chou 2A). And on August 2nd, I became interested in how smoothly her gestures fit with the CAH graphic and with the words similarity and difference. All of these reasons led to the videotape conversation that occurred on September 7th. I now turn to that conversation.
This conversation took place in the same general office area as the other recorded conversations (i.e., Aug-2 and Oct-31), except that I moved this one to an empty office cubicle rather than at my desk. As in many offices these days in different parts of the world, the TEFL office at Northern University was a large room divided up into office cubicles through the use of office dividers. These did not reach to the ceiling, and were about 6 feet high. On this day, nobody was around the office, with the exception of my colleague, Dr. G, who Chou had to see about her course schedule for the following semester.

Before Chou arrived, I went into the empty cubicle and hung up the poster-paper shown in Figure 7. The video camera was positioned about 9 feet from the poster paper. From the camera’s view, the cubicle wall can be seen on the left. To the right is a standard-sized wooden office desk. From the front of the wooden desk on the right to the cubicle wall on the left, there is a space of about 5-and-a-half feet. I put a chair in front of the desk that would position Chou so I would get a camera-shot of her sitting to the right of the chart. I also put a Sony walkman recorder on the desk. The entire videotaped segment lasted slightly more than 17 minutes.

In the 17-minute segment of data, displayed in two formats in Appendix I, and the almost 2 minutes (1 minute and 59 seconds) I present in this section of the Results, the focus is on Chou's gestures that appear to be closely linked to the words similarities and differences or a close variation (e.g., similarity, different). The gestures Chou uses are not only restricted to the words similarities and differences; however, the gestures on which I
focus are closely related to the words similarities and differences. Recall that these two words dominate the CAH graphic (see Figure 7).

When Chou and Busaba presented the CAH graphic in class on July 12th, I did not think to take any notes on the gestures that Chou used. I was preoccupied with the flow of the class, happy that I had made a good choice in pairing Chou and Busaba together, and while they were presenting the CAH graphic and answering the question, I became distracted with my use of "effect" in the question on the bottom of the poster-paper. I also became distracted with the other poster-papers hanging up.

During that Friday night class when the CAH graphic was originally created, there were five other poster-papers taped side-by-side on a wide whiteboard that covered almost the entire length of the front wall of the classroom (this was a much bigger classroom than where the advanced reading class was held). Recall that this was not the course in which the students had learned about using and creating graphic organizers on poster-paper with marking pens. In other words, as a researcher, I was not ready for this data event.

I was a little over four weeks into collecting and writing about the data in the reading comprehension course, and I think I was in some kind of a stunned state of mind, strangely similar to the latter years of my fishing-life when we caught so many fish people were sinking their boats. Beyond my rough reflective fieldnotes I managed to jot down that night after I got home, I do not have much data on what could be considered an episode of microgenesis in terms of the creation of the CAH graphic as it unfolded.

I consider the 2 minutes of data the beginning of a 17-minute episode of microgenesis similar to one of Wertsh's (1985) two types of microgenesis. This type "concerns the
short-term formation of a psychological process" (p. 55). For this definition, Wertsch said that repeated observations of the subject's (in this case participant) learning of this psychological process is necessary. Wertsch likens this to a short-term longitudinal study and refers the reader to Vygotsky (1978), which I have examined in great detail (along with other papers on microgenesis; see Chapter Two). For the most part, however, this videotaped interaction with the CAH graphic comprises repeated trials of mediation at various levels of materiality (Wartofsky, 1979; Wertsch, 1998). I will return to this notion of materiality and other major features of the theoretical framework following a presentation of the transcribed data.

The lines of dialog from the videotaped conversation that include detailed descriptions of the gestures are chunked into what could be considered intended sentences, intended questions, or combinations of chunks that could be bound as a sentence or question. Keep in mind that none of the boundaries are solid, non-penetrable boundaries. I am constructing bounded units for the purposes of analysis. However, I am recognizing boundaries of utterances proposed by Bakhtin, which are discussed in the Introduction and listed in the Definition of Terms and Concepts in the Introduction. Often, several of these sentence-like chunks occurred during a conversation turn. Of course, it is generally acknowledged that people do not talk in complete, neat sentences when they have a conversation. In the data, there are many breaks in speech, new directions, and sudden stops or interruptions from either interlocutor. This is reflected in the transcriptions.

In this section of the Results, I am presenting one 20-line segment from the beginning of the videotape. This segment begins at 2 minutes and 34 seconds into the videotape.
previously stated, this 20-line segment covers a time span of 1 minute and 59 seconds. The entire video segment lasts a total of 17 minutes and 28 seconds, most of which is focused on the CAH graphic. During my presentation of this part of the Results, I refer to the long transcription as the 17-minute segment and the shorter segment as the 2-minute segment. The entire transcriptions, both with and without detailed descriptions of the gestures, are in Appendix I. The detailed transcription of the 20 lines of data takes up about 7 pages of text. The detailed transcription in Appendix I totals 18 pages.

The two transcriptions without any detailed description of data are intended to provide readers with a sequential display of the content of the conversation. The first transcription without descriptions of gestures appears in this section of the Results immediately before the transcription with gestures. In order to refer back to a specific part of the dialog or detailed description, all lines of dialog are numbered.

For various reasons, some of which were outlined in the Literature Review and stated elsewhere in the Results, I am only specifically categorizing those gestures that can be discerned as *iconic* and *indexical* (Duranti, 1997; Liska, 1996, McCafferty, 1998; McNeill, 1992; Peirce, 1991). Some of this information has already been stated in the Literature Review. However, for the purpose of immediate relevance for interpreting the data, repetition is necessary.

According to Duranti (1997) "An icon is a sign that exhibits or exemplifies its object or referent — this often means that an icon resembles its referent in some respect. Pictures as well as diagrams are typical examples of icons" (p. 205). This CAH-graphic expresses this definition of icon from Duranti and definitions and descriptions of icons and indexes proposed by C.S. Peirce (Liszka, 1996; Peirce, 1991). The CAH graphic is
an icon that represents the definition of the contrastive analysis hypothesis from Lightbown and Spada (1999). This was the definition presented to the participants early in the language learning theory course.

Another related term used for categorizing the gestures is index, which is defined by Duranti (1997) as "a sign that identifies an object not because of any similarity or analogy with it, but because of some relationship or contiguity with the object" (p. 207). Duranti then presents a well-known example from Peirce (1940) of a barometer and weathercock (see also Liszka, 1996; Peirce 1991). There are two ways a weathercock operates as an index to the direction of the wind. A weathercock "assumes the same direction as the wind" (Duranti, p. 208) and a person observing the weathercock has their attention aimed toward the direction in which the weathercock is pointing. For the indexical properties of a barometer, the barometer indexes two things: moist air and coming rain (Duranti, 1997). A related term to index that McNeill (1992) and McCafferty (1998) use for gestures is deictic.

In describing deictic gestures, McNeill (1992) and McCafferty (1998) described a speaker pointing toward an abstract space in a conversation. McNeill provided the example of two graduate students who had never met and knew nothing about each other. An illustration shows one student pointing down toward his lap (his own space) when he is asking the other student, "Is this your first year here?" (p. 113). This example of a deictic gesture from McNeill is more abstract than the one I provide from Duranti (1997) for index. This is connected to my reasons for choosing index over deictic for categorizing the gestures produced by Chou.
Due to the proximity of Chou to the CAH graphic, and the iconic nature of the graphic, I do not think that the deictic classifications that McNeill (1992) and McCafferty (1998) offer are appropriate for this 17-minute segment that unfolds with Chou. My hesitancy in using the deictic category is related to the concrete nature of the gestures due to the proximity of Chou to the graphic. The presentation Chou is making of the CAH graphic in response to my inquiry is also fundamentally different than the conversational interactions presented by McNeill and McCafferty. Thus, the gestures Chou produces are outside of the parameter of gesticulation (Kendon, 1988; McNeill, 1992), a type of non-verbal speech already discussed in the Literature Review and which I will return to again in a moment. Other reasons for moving away from the definitions of deictic gestures offered by McNeill and McCafferty will become clearer as I present the detailed transcriptions of Chou's conversation with me about the CAH graphic. However, for iconic gestures, besides Chou's gestures being outside the parameters of gesticulation, which is an issue, they appear close to McNeill and McCafferty's description of iconic gestures.

In describing gestures, McCafferty (1998) and McNeill (1992) classified a type of gesture as *iconic*. Using both of McCafferty and McNeill as sources, iconic gestures could be defined as:

gestures that imitate a specific object or movement. In terms of abstract or concrete, iconic gestures are considered concrete. A common example could be a person talking about a head-on collision and clapping their hands together when saying, "the two cars *crashed* [sharp clap of the hands] head on".
It is also important to again state here that the iconic gestures I highlight in the
gestures are not necessarily as close to pure gestures as described by McNeill (1992).
When McNeill refers to gestures he is referring to a category known as *gesticulation*.
Using the category of gesticulation as a parameter, McNeill defined gestures as
"idiosyncratic spontaneous movements of the hands and arms accompanying speech" (p. 37).

Due to the proximity of the CAH-graphic, which is an *icon*, and the repetitious nature
of my earlier inquiries about the CAH-graphic, my position as instructor/researcher, and
those two definitions of signification discussed earlier (e.g., Harré and Gillett, 1994;
Vygotsky, 1978), most of the gestures that I categorize are not spontaneous. Therefore, it
is necessary for me to present those gestures I categorize using icons and index. Indeed,
the microgenetic analysis reveals Chou transforming her gestures into a systematic
language related to 6 other mediational artifacts. However, this does not mean that all the
gestures in the data are not of the spontaneous gesticulation variety as discussed by
McNeill (1992). The research needs and focus are just different; that is, I am focusing on
non-verbal speech accompanying an explanation of an icon, the CAH graphic.

As stated in the Methodology, the video data were transcribed using modifications of
the transcribing protocol for the audio data. These transcriptions of the video data (i.e.,
the 2 minutes presented in this section of the results and 17 minutes presented in
Appendix I) follow an abbreviated protocol for video transcription proposed by McNeill
(1992). It is beyond the scope and needs of this dissertation research to do as precise a
transcription of the gestures as McNeill's primary protocol and other examples of precise
transcription of non-verbal speech (e.g., McCafferty, 1998, 2002), because my purposes
for investigating the gestures are not the same, nor were the gestures produced under the same circumstances.

McCafferty (1998, 2002) and McNeill (1992) were careful to mark exact pauses and match words on a specific word-gesture moments. I am taking a broader view of the gestures in the data, as previously stated, focusing specifically on iconic and indexical gestures that are clearly related to the CAH graphic. Moreover, my goal is to present the gestures over a wider breadth of time than I would be able to if I followed McNeill or McCafferty's exact protocol and analysis procedures. Nonetheless, my presentation of gestures occurring in the 17 minutes is descriptive enough, precise enough, and in-depth enough for my research purposes and the circumstances under which these gestures were produced (see also the Appendix in McNeill, 1992, p. 387 on less detailed transcriptions of gestures).

There are many more implications for research on gesture in this 17-minute segment of data, which are far beyond the parameters of this dissertation, particularly on gesture and second and/or foreign language learning. Indeed, after reviewing some of the research on gesture (e.g., Kita, 2000; McCafferty, 1998, 2002; McCafferty & Ahmed, 2000; McNeill, 1992), it is apparent that there could be a separate dissertation on the non-verbal speech presented in this 17-minute segment. There could be at least one other dissertation on non-verbal speech, if not more, from just the video and audiotaped data of the participants' oral presentations given once at midterm, and one close to the final examination (18 presentations and a total of 27 graphic organizers). I now turn to the transcribed data.
In order for readers of the transcribed data to clearly distinguish the speakers from the description of the gestures, conversation-turns spoken by the two speakers are underlined and numbered. Some of my comments that are part of the original transcription are also underlined. In the italicized sections some words and/or phrases are underlined. I underlined these words because a gesture occurred on that word, around the word, or the underlined word in the italicized description needed to be highlighted for one reason or another. The overall transcription protocol can be summarized as follows:

**Underlined text** = the transcribed dialog

(Underlined comments in parenthesis) = My comments about or related to the transcribed dialog

*Italicized text* = Descriptions of the gestures

**Underlined italicized text** = Words, clauses, or phrases from the transcribed dialog on which, or around which the description focuses

(Italicized comments in parenthesis) = My comments about or related to the description of the gesture

*(Comments in parenthesis not underlined or italicized and that appears with an asterisk) = Categories of gesture for example *(One Iconic gesture)*

As already stated, I first present the two minutes of data without a detailed description of the gestures in order to provide an unbroken perspective on the content. This is immediately followed by the same two minutes of data with a detailed description of the gestures along with a categorization of these gestures relevant to the CAH-graphic.

Dialog excerpt #3 without gestures, Chou data one 9-7

32 0234 I: (the camera pulls away and there’s a shot of Chou sitting quietly to the
right of the chart) Tell me about the contrastive analysis hypothesis. What is that?

C: Because umm Contrastive Analysis hypothesis... if uh--when we study language, if we find uh some similarity the students can learn easily.

I: What about the similarities—tell me again

C: similarities

I: Similarities in what

C: Language. . ah structure, grammar. . ah like that--something like that

I: Well look at this this chart you have here, we’re talking about the present continuous tense—so tell me how does the chart--how does the chart express the contrastive analysis hypothesis

C: Ah in Chinese we have no--ah we have continuous, present continuous tense but the structure are different. There are some similarities ah in--between Chinese and English. For example for chin ja cheing gu ah this word ching ja.--this word is adverb—a type of adverb—this adverb we can see this is a ah present continuous tense from this word. And the verb, cheing gu but no ah I-n-g—no other things—because just the Chinese character. So ah when the students want to learn Eng ah the present continuous tense in English we first we should find what is the similarity between the first language and the second language

I: right

Dialog excerpt #3 with gestures Chou data one 9-7

0234 I: (the camera pulls away and there’s a shot of Chou sitting quietly to the right of the chart) Tell me about the contrastive analysis hypothesis. What is that?
Because umm Contrastive Analysis hypothesis... if uh--when we study language, if we find uh some similarity the students can learn easily.

As she is saying contrastive analysis hypothesis it's as if she is holding her hands over something, fingers spread apart. The height of her hands over her lap are consistent with Chou putting her hands over a beach ball, her hands and fingers relaxed and slightly curved.

Her fingers spread slightly apart and relaxed after some gesturing that accompanies we find. Her hands move up and apart about 18 inches from her lap on the word some. When her hands come apart and up they are between her chest area and naval. Her hands are more toward her chest level than her midsection (remember she's sitting down). Her elbows are bent slightly upwards, about 5 degrees more than a 45 degree angle. Her hands move together as the word similarity is spoken.

More specifically, her hands come together at the third syllable of the word similarity: sim-i-LAR-i-tv. By the completion of this word, her left hand is covering her right hand. Her right hand is in a relaxed fist, with the knuckles of her right hand resting in the palm of her left hand, but only momentarily.

*(One iconic gesture on similarity)*

With Chou's speaking of the phrase, the students can learn easily, her hands move apart and come together twice. Each time her hands move apart, they move about 6 inches apart, the fingers still relaxed, and the fingers touch both times they come together. Her hands continue to gesture on easily. This coming together on two points in this phrase is not nearly as dramatic as the previous word similarity, in terms of the
width the hands went apart, and her left hand covering the right, similar to what might be considered a gesture to mark the completion of an utterance.

*(Two indexical gestures when the fingers touch together twice on both words in the phrase can learn, but not as deep as the previous iconic gesture on similarity)*

At the end of this conversation turn, her hands are resting in her lap again, relaxed, her fingers slightly curled, palms angled into her body toward her midsection and chin.

36 I: What about the similarities—tell me again

I want to see this gesture again. I am not explicitly doing anything here to prompt a gesture, except asking the question again

37 C: similarities

38 I: Similarities in what

39 C: Language. . ah structure, grammar. . ah like that--something like that

It is noticeable that her hands come together again, three times, in very much the same type of gesture she enacted in the previous conversation turn on the word similarity. As before, the knuckles on the top of her right hand come to rest in the center of the palm of her left hand on each of the words structure and grammar, and the phrase like that, which proceeds the completion of this conversation turn.

*(Three indexical gestures on structure, grammar, and like that)*

The completion of this conversation turn occurs with the phrase something like that. As stated, before the completion of the turn on the phrase, something like that, her hands come together three times on grammar, structure, and like that, as they did on the first gesture of this type that occurred with the word similarity. In each of these three instances of her hands coming together on structure, grammar, and like that, the right
hand seemed to rest deep into the palm of her left hand, the fingers of her left hand touching just below the outside of the wrist of her right hand.

During the phrase something like that, which completes this conversation turn, her hands come together for a fourth and final time, but they do not come together as before. At the end of this phrase they drop in her lap, the left hand cradling the right, but not as deep as before. In contrast, this lack of depth of her right hand embedded in her left is noticeable.

During the movement that occurs as this phrase something like that is spoken, there is a flow on this phrase that is markedly noticeable. The right and left hand do one circle around one another as if she were telling me a car or log took one roll down a hill; or this could be described as something an American football referee might do to signal illegal motion, but shortened to just one circle of the hands around one another. Or this movement of Chou’s hands could be described as how she might roll her hands around one another, once, without touching, in one of those old-style fur handwarmers women are seen with in old movies where a hand goes in either end.

After completing this gesture at the end of the something like that, Chou’s hands then move to a resting position in her lap. Her right hand is now the bottom hand, with the back of her right hand resting in her lap, and the back of her left hand resting loosely in the palm of her right hand. It is noticeable that the overall resting of the hands together is not as deep as before; that is, they are resting together, but one hand is not nearly as deeply cradled by the other as before. Besides the change of which hand is on top of the other, the tips of the fingers of her left hand only seem to be touching where calluses might appear in the palm of her right hand if she had any.
I: Well look at this, this chart you have here—we’re talking about the present continuous tense—so tell me how does the chart—how does the chart express the contrastive analysis hypothesis?

C: Ah in Chinese we have no—ah we have continuous, present continuous tense but the structure are different.

Chou stands here at the phrase we have no and has her left side to the camera. She points to the graphic after she stands up and continues her talk with we have continuous, present continuous tense.

As Chou says but the structure are different, her hands are at waist level, palms down. Her palms are not completely flat and are angled about 5 degrees from a flat position, angled inward toward one another. The palms are in a relaxed manner, fingers slightly curved, also relaxed. On the phrase the structure are different she makes two outward sweeps of her hands. Her hands are moving back and forth as if she were sweeping a light cover of snow, feathers, or something similar off an imaginary table in front of her. Her hands are moving back and forth sideways without crossing one another, like an umpire at a baseball game calling someone safe, but with Chou here, her arms are not crossing each other on the inward sweep, and they are not moving in the pronounced, sure sweep of an umpire. Her movements are in relaxed sweeps that seem to match the cadence of her speech.

*(One indexical gesture on structure, and one iconic gesture on different)*

There are some similarities ah in—between Chinese and English.

Following the completion of the previous gesture and on the end-of-sentence-word different, Chou moves to the phrase there are some similarities. During the chunk, there
are some, she raises her arms from her waist level to midsection. This phrase, there are some, seems to operate as a transition to the gesture position that will occur in a moment when she says the word similarities. When she says, there are some, an upward motion occurs that appears to have three distinguishable steps on each word. Most noticeable is a momentary pause on the word some at the end of this phrase: her forearms and hands are now at a position slightly above the area around her naval, and her palms move to a position facing her body. This is where her hands will come together on the word similarities.

At the completion of the phrase there are some the fingers are slightly curved inwards in a relaxed manner, and it is noticeable that she is preparing to move her hands together. As before, when she was sitting and making a similarity-gesture, her hands are coming together with the left hand moving in front of her right hand.

Her hands come together two times as she says the word similarities. The first time her hands come together on the syllable sim-, the knuckles on the top of her right hand don't appear to be touching the palm of her left hand, although her hands are in the same general position as before, with the left hand in front of the right hand. The second time her hands come together, the knuckles on the top of her right hand go into the palm of her left hand. Comparable to the first example when she was sitting before: her hands seem to come together close to the third syllable [simi-Lar-i-ties] as before. On this third syllable, the knuckles on the top of her right hand come to rest into the palm of her left hand. This is a very momentary resting of the hands.

*(Two iconic gestures on the word similarities)*
On the phrase *in between* that leads into the words *Chinese* and *English*, her hands move from their temporary resting position. Her hands come apart on the word *in*, stop momentarily, and the fingers touch again on the word *between*. On the words *Chinese* and *English*, her hands come to a resting position slightly below her waist, her left hand over her right before they begin to gesture again at the end of *for example*, which begins the next sentence.

For example for *chin ja cheing gu* ah this word *ching ja*—this word is adverb—a type of adverb—this adverb we can see this is a ah present continuous tense from this word.

During most of this sentence, which introduces the next sentence that begins with the word *And*, Chou is pointing at the poster-paper while she talks.

(Cont) And the verb, *cheing gu* but no ah *I-n-g*—no other things—because just the Chinese character.

On this word *no* before *I-n-g*, Chou makes two outward sweeping gestures. One of the outward sweeping gestures is on a pause after the word *no*. Another outward sweeping gesture follows the pause on the morpheme *I-n-g*. So on the phrase *no I-n-g* there is a total of three outward sweeping gestures. These are generally the same outward sweeping gestures that occurred with the word *differences* at the beginning of the dialog.

These outward sweeping gestures only seem to differ in the angle of the palms inward. The palms are more inward-facing, thumbs facing more upward toward the ceiling.

*(Three indexical gestures on the phrase *no I-n-g)*

On the phrase *no other things* Chou repeats two outward sweeping gestures as in the previous four lines. She is also moving away from the graphic as she says this.
So there are five outward sweeping gestures around line 47.

48 So when the students want to learn the present continuous tense in English we--
49 first we should find the similarity between the first language and the second
50 language.

    On the word English her hands move to the waist again and move apart once in a
short and quicker outward sweep.

*(One indexical gesture on the word English)

    On the phrase first we should find, Chou brings her hands together in two short
sweeping motions inward on the phrase, first we should find. Her hands come together on
first and find, which proceeds the word similarity. On these two words, her hands don't
come together completely. The fingers of each hand don't quite touch.

*(Two indexical gestures on first and find)

    The hands come together completely on the word similarity. Again, as before, on this
word similarity, the left hand and right hand come together, the left hand is in front of the
right hand, the knuckles on the top of the right hand are momentarily in the center of the
palm of the left hand.

*(One iconic gesture on the word similarity)

51 I: right

    A macro-view of microgenesis

    In this first two minutes of conversation, we see the beginning of the 17-minute short-
term formation of a psychological process similar to one of the types of microgenesis
identified by Wertsch (1985). The psychological process, which I consider a discursive
process, is the development of Chou’s conceptualizations of the CAH graphic. We glimpsed part of this process in the interview on August 2\textsuperscript{nd}, where Chou was showing me arrows and sentences, and on Friday July 12\textsuperscript{th} the night the CAH graphic was created. Of course, there are many features of social, psychological, and cultural history linked to this episode, particularly in the role of traditional strokes that are a part of Chinese script. I will present some of these factors at the end of this section of the Results.

This current microgenesis unfolding before our eyes involves Chou’s weaving together numerous artifacts into a holistic system for mediating this episode of interaction. We cannot reduce this meaningful holistic system into smaller parts. We can only foreground features of dynamic, mediated activity. Any further reduction brings to mind the well-known Vygotskian description of reducing water into its component parts of oxygen and hydrogen. If we begin to isolate these elements, we are no longer looking at water (Vygotsky, 1986, 1987).

These artifacts mediating Chou’s presentation of the CAH graphic vary in materiality; that is, the artifacts vary from concrete to the abstract in terms of how and where these ideas exist across time and space (Wertsch, 1998). The number of mediational artifacts (i.e., mediational means) Chou synthesizes in this microgenesis is really quite startling. These include: (1) the CAH graphic, which represents the contrastive analysis hypothesis; (2) the contrastive analysis hypothesis, the formal name of which Chou learned in class, but which she has been working with for years and is embedded in her teaching; (3) the present continuous tense, which Chou has taught for her roughly 22 years of teaching English, and which is clearly present in three languages on the poster-paper, two languages that Chou supplied; (4) and (5), two languages, English and Chinese, the
English very explicit because she is having to use that with me, and chunks of Chinese that explicitly appear in writing and are presented through some interjection into English language explanations and some oral pronunciation; (6) Chinese that appears implicitly in the long marker strokes that comprise the upright V-shape and upside down V-shape, which together comprise the CAH graphic, and; (7) the generic lesson plan, which we used frequently in the language learning theory class, and which had been laid out very explicitly for these students in the language learning theory course and was discussed frequently in both courses.

Before further discussion of this 2-minute segment of data, it is necessary to consider where the larger seventeen-minute episode of microgenesis fits into Wertsch's (1998) proposed use of Burke's Pentad. In addition, it is necessary to foreground some terms and concepts from the Theoretical Framework already presented in the Introduction. These terms and concepts need be restated here for the sake of immediate relevance.

Recall that Wertsch (1998) discussed mediated action in terms of act, scene, agent, agency, and purpose. Going through these five concepts with regards to the videotaped conversation that occurred on September 7th, I can discern the following. The act is Chou answering my questions about how she perceived the CAH graphic. In a variety of moments, Chou can be observed positioning herself as teacher, which is directly related to the affordances (Gibson, 1979) constituted by the scene and the interlocutor (remember affordances, e.g., water affords breathing for a fish). The scene is a cubicle in the TEFL Department office at Northern University. I am the interlocutor, the other, who is asking for information about the CAH graphic.
The agent is Chou. Due to my position as researcher/instructor, my purposes and motives dominate the scene. These include finding out more about the CAH graphic and how Chou perceives this in order to find out more about graphic representations of ideas and write the Dissertation. It is not the case that Chou does not have any purposes or motives here, it is just that my purpose of deriving information from this episode is momentarily dominating the interaction.

Chou's agency for responding is interwoven with those seven identifiable artifacts of different materiality previously mentioned. As Wertch (1998) pointed out, we cannot reduce activity to any of these elements alone, nor is this my goal. None of these existing features of activity exist in isolation. All I can do in this form of written text is foreground these features; however, it must be remembered that all five features of the pentad are in a dynamically interactive relationship.

Two primary artifacts with secondary and tertiary artifact implications dominate this scene. These are the poster-paper, which includes the CAH graphic on the poster paper, and the video camera. As I lay out my analysis of the first 2 minutes, keep in mind Wartfoisky's (1979) central thesis, particularly with regards to artifacts and materiality: representations mediate perceptions.

Primary artifacts exist across time and space and are connected to day-day production of human existence. Primary artifacts are highly material. These include maps, hammers, and axes. Secondary artifacts include directions on how to use primary artifacts and can be communicated through any of the sense modalities. These secondary artifacts include gestures. Secondary artifacts are at more abstract levels of materiality than primary artifacts. Tertiary artifacts are imaginary worlds that are created to represent, examine, or
plan human activity in a manner that does not necessarily have to be concerned with immediate consequences. As I go through Chou's activity of responding to my inquiry on the CAH graphic, keep in mind Wartofsky's explanation of the hunter hearing a twig and understanding the meaning of that sound. The hunter's awareness of sound is key to the hunter turning her environment into an arena of action.

For a moment, let us look at Chou as Wartofsky viewed the hunter. Chou is operating in an arena of action, which we are calling the scene. As the two minutes unfold before our eyes, Chou begins to turn the environment into an arena of action. On an explicit level, gesture becomes prominent in mediating the content of her message and is obviously linked to the CAH graphic. Chou is using many features of the poster-paper and the CAH-graphic to mediate my inquiry, which again, (recall the interview on August 2\textsuperscript{nd}), has prompted this explicit conceptualization of the CAH-graphic. This is not the first time she has thought about how to explain the contrastive analysis hypothesis by using the CAH-graphic.

Two other concepts from the theoretical framework need to be restated to bring them into immediate relevance. These are \textit{signification} and \textit{subjectivity}, which are interrelated concepts and can be seen in the 2-minute segment and the entire 17-minute microgenesis. Also what unfolds in this 2-minute segment, and the entire 17, are the different versions of signification from Vygotsky (1978) and Harré and Gillett (1994). For the dissertation research, I have included the tangential notion that our actual physical relation with the world affects the process of categorization (see Clark & Holquist, 1984; Lakoff & Johnson, 1999; Morson & Emerson, 1990), which, in light of acknowledging the close relationship of artifacts with perception, is a relevant issue.
In the conclusion of his chapter on the genetic method that Vygotsky presented signification as a "pervasive regulatory principle of human behavior . . . wherein people create temporary links and give significance to previously neutral stimuli in the context of their problem-solving efforts" (p. 74). When we go through Chou's two-minute segment, she is clearly signifying specific parts of the poster-paper, the CAH graphic on the poster-paper, and specific parts of the CAH graphic. Moreover, she is using her gestures to signify features of her oral speech in concert with the CAH graphic and parts of the poster-paper. The actual physical position of her entire body in relation to the poster-paper, the CAH graphic, and the camera is also an issue. She moves closer to the poster-paper, pointing at different parts, at times even running her hands over the upright V and upside-down V. These are the ways she is bringing meaning to this communicative event that are related to her subjectivity, which brings us to the definition of signification from Harré and Gillett (1994).

Harré and Gillett (1994) use the term signification to indicate the active role of meaning in structuring the interaction between the person and a context so as to define the subjectivity of that person in the situation and their positioning in relation to certain discourses implicit in that subjectivity.

( pp. 23-24)

This definition from Harré and Gillett (1994) is from a broader social foundation than Vygotsky's (1978), but it is very relevant to the 2-minute interaction displayed in this section of the Results and the entire 17 minutes displayed in Appendix A. This definition of signification is also relevant to the entire body of data from the data collection period, all of which I am not able to cover because it is beyond the scope of this dissertation. By
using Harré and Gillett's definition in combination with Vygotsky's (1978) definition, I am striving for a kind of analytic dualism (see Sawyer, 2002), which seems to be a necessity when using an interpretive lens based on theoretical frameworks originating from different disciplinary foundations.

I will return to this issue of analytic dualism in the Discussion section. For the moment, it is important to mention my awareness of the different foundations of these two definitions of signification in order to proceed further with the present analysis. Moreover, these two definitions of signification are embedded in the definition of mediation I am using for mine and all of the participants' interactions presented by the dissertation data.

With regards to the active role of meaning in the structuring of Chou's subjectivity, at many points in the data, Chou is speaking from a position of authority on how the CAH-graphic is intended to express the contrastive analysis hypothesis, the present continuous tense, the genetic lesson plan, and the English and Chinese language presented by the poster-paper. The discourses implicit in that subjectivity revolve around issues of authority. Knowledge of all these theories and linguistic features of language (e.g., the contrastive analysis, the present continuous tense), and the ability to present these theories are generally acknowledged as belonging to an educated class of people. This is in addition to her ability to discuss these theories and features of grammar in a language other than her first language, as Chou is demonstrating in this segment of discourse.

Her acts of signification, from a Vygotskian perspective, are embedded in the signification she enacts from the perspective outlined by Harré and Gillett (1994). In this way, these two types of significations can be seen as constituting her discursively
constructed subjectivity. In this 2-minute segment of data, and the entire 17-minutes presented in Appendix I, we are witnessing the unfolding of subjectivity on interdiscursive and intrapersonal planes of development through these two types of significations, complemented by the notion from Lakoff and Johnson (1999), and Bakhtin (Morson & Emerson, 1990), that this is an embodied process whereby an actual physical location is an issue in this dynamic intersection of meaning and subjectivity. This is a partial summation of a macro perspective on this segment of microgenesis. When we begin to move in a little closer to the entire 17 minutes, and move in closer still to the 2 minute segment I am highlighting, we see some interesting patterns unfolding.

A micro-view and the coding of the gestures

As stated earlier, there are two main categories of gestures coded in the data: iconic and indexical. Iconic gestures in the data are coded as such when these gesture occur on the word similarity or difference or a variation (e.g., similar, difference). There is a distinct pattern of movement that Chou enacts on these words. For similar, there is an inward movement of the arms and hands, which sometimes result in a distinctive, complete clasping of the hands together. For difference there is a distinctive outward sweep of the arms and hands as if Chou had a table in front of her and was lightly sweeping away feathers or dust. These gestures are described in the transcript and identified. Only two gestures that are coded as iconic, which do not occur on the word difference or similarity, appear in the transcript. These two iconic gestures occurred on big and nearer; however, Chou enacted the same general outward and inward motions for these words as occurred on similarity and difference.
Indexical gestures in the data are coded as such when there is an inward or outward sweeping of the hands and arms. Chou enacted these indexical gestures on various words or phrases that occurred in a close textual proximity to the words similarity and/or difference. This proximity of a word on which the same general inward or outward sweeping of the arms frequently occurred was within two or three words in the same conversation turn as the word similar and/or difference or a close variation (e.g., similarities and/or differences). These inward sweeps of the hands and arms frequently resulted in completed clasp of the hands, which is described in the transcripts and subsequent analysis. These are coded as indexical because they exhibit "some relationship or contiguity with the object" (Duranti, 1997, p. 207).

Using iconic and indexical gestures as the main codes for the data, these are further divided into iconic similarity, indexical similarity, iconic difference, and indexical difference. Only two of the gestures coded using this scheme are excluded from being coded specifically as associated with similarity and difference. As stated, these were the two gestures that occurred on big and nearer. Gestures were coded (categorized) using an analytic inductive process as outlined by Merriam (1998).

For these points of indexical gesturing there are several objects with which a relationship is established. Contiguity with these objects also varies from concrete to abstract at different times during the 17 minutes. The objects signified by the gestures are as follows: (I am using the term signified here as an intended derivation from Vygotsky's [1978] term, signification). Throughout the 17-minute episode, Chou signifies the CAH-graphic (see Figure 7), which contains 4 other objects: 1) The top part of the CAH-graphic where the lines converge; 2) The word similarities, strategically placed between
the V-shape; 3) the upside down-V shape made by the two arrows pointing away from the convergent point; 4) the two words different on each arrow. These are the explicit surface objects. There is also a fifth, implicit object represented by the indexical gestures: the contrastive analysis hypothesis, which the entire CAH-graphic holistically represents.

The total number of gestures for the entire 17 minutes is 16 iconic gestures and 32 indexical gestures. All but two of the iconic gestures occur on the words similarity and difference or variations (e.g., similar and different). As stated earlier, in the entire transcript, the only two that are coded as iconic, which do not occur on the words similar or different, occur on the words big and nearer. These two exceptions were coded as iconics because of the outward movement on big, and inward movement on nearer; that is, the gestures worked as signs that exhibited or exemplified the objects, which were the words big and nearer (Duranti, 1997). In terms of the total number of gestures and four main categories, 7 were coded as iconic similarity, 7 as iconic difference, 20 as indexical similarity, and 12 as indexical difference.

In this first 2 minutes of data, a pattern in the types of gestures and the types of words on which these gestures occur begins to develop. As I present these examples and use a number to refer to a line of the transcript, I am referring to the 2 minutes of transcription without the detailed description. If I refer to any of the other transcripts, such as the 2 minutes with detailed descriptions of the data, or the full 17 in Appendix I with or without the detailed descriptions of gestures, I will indicate this. For many of the examples I wish to highlight with detailed descriptions of gestures, I will paste the italicized section of the text into the immediate presentation.
This transcript without detailed descriptions of the data is labeled Dialog excerpt #3 without gestures, Chou data one 9-7. On line 35 Chou says, “if we find some similarity the students can learn easily”. As stated on the transcription with the detailed description of gestures (labeled Dialog excerpt #3 with gestures, Chou data one 9-7), there are three gestures during this part of the conversation turn: One iconic gesture on similarity, and two indexical gestures: one indexical on can and the other on learn. The depth and shape of the iconic gesture occurring on similarity sets a pattern for the remaining iconic gestures that occur on the word similarity or a variation of that word for the entire 17 minutes. Also some of the indexical gestures have comparable depth and shape (by depth here I mean how deep one hand is embedded in another) As stated in Dialog excerpt #3 with gestures Chou data one 9-7:

More specifically, her hands come together at the third syllable of the word similarity: sim-I-LAR-I-tv. By the completion of this word, her left hand is covering her right hand. Her right hand is in a relaxed fist, with the knuckles of her right hand resting in the palm of her left hand, but only momentarily.

The two indexical gestures that follow on the words can and learn seem to have the same general depth. But what is really apparent in the indexical gestures is the actual close proximity (contiguity) of the words on which the indexical gestures occur in relation to the words similarity or difference. This is a pattern that develops with the indexical gestures throughout the 17 minutes: the indexical gestures often occur within a word or two of similarity or difference, usually within the same sentence, and frequently within the same conversation turn. For example, the two indexical gestures on can and
learn occur two words away from the iconic gesture that Chou enacts on the word similarity.

Another example of the close proximity of indexical gestures occurs on line 39. On line 36 I ask Chou again about similarities and differences. I want to see this gesture, which occurred on the word similarities again, although as I mention in the transcript, I am doing nothing explicit to prompt the question: just asking a question. On line 37 she says “similarities”, and the hands move just slightly in her lap. I ask again on line 38, “Similarities in what”. Then on line 39 her hands come together again in three indexical gestures as she answers. From the transcript with the descriptions of gestures:

It is noticeable that her hands come together again, three times, in very much the same type of gesture she enacted in the previous conversation turn on the word similarity. As before, the knuckles on the top of her right hand come to rest in the center of the palm of her left hand on each of the words structure and grammar, and the phrase like that, which proceeds the completion of this conversation turn.

This general pattern of the hands coming together in iconic gestures on the word similarity, and coming together in indexical gestures near the word similarity, generally continues throughout the 17 minutes when both of Chou’s hands are clear and her discourse is oriented toward explaining the CAH graphic. The same remarkable pattern happens with the word differences.

On line 40 I ask Chou to tell me how the chart expresses the contrastive analysis hypothesis. On line 43 she begins her response after standing up and moving in a way that brings her in a closer proximity to the poster-paper. At the beginning of line 44 Chou produces what is generally the iconic gesture for differences in the entire transcript and a
pattern for the indexical gestures for words and phrases contiguous to *differences*. From the transcript:

> As Chou says *but the structure are different*, her hands are at waist level, palms down. Her palms are not completely flat and are angled about 5 degrees from a flat position, angled inward toward one another. The palms are in a relaxed manner, fingers slightly curved, also relaxed. On the phrase *the structure are different* she makes two outward sweeps of her hands. Her hands are moving back and forth as if she were sweeping a light cover of snow, feathers, or something similar off an imaginary table in front of her. Her hands are moving back and forth sideways without crossing one another, like an umpire at a baseball game calling someone safe, but with Chou here, her arms are not crossing each other on the inward sweep, and they are not moving in the pronounced, sure sweep of an umpire. Her movements are in relaxed sweeps that seem to match the cadence of her speech.

This sweeping of the arms outwards is repeated several times on the word *differences* as an iconic gesture, and is also produced as an indexical gesture several times. A couple of interesting indexical gestures that are enacted by Chou around the word *differences* occur later in this conversation turn and are worth highlighting.

On line 47 and 48, when Chou compares the Chinese verb with the English and she says *no I-n-g—no other things*, she makes a total of five outward sweeping gestures on this phrase. These are coded as *indexical gestures difference*. On line 49, when she uses the word *English*, Chou again enacts one more indexical gesture to indicate difference. It seems apparent that these indexical gestures are clearly related to the theme of *difference*,

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as the other indexical gestures presented throughout the 17 minutes are either related to *similarity* or *difference*.

As I said at the beginning of this presentation of the examples of the iconic and indexical categories of gestures, the gestures clearly represent objects on concrete and abstract levels. These concrete and abstract levels of iconic and indexical representations also display glimpses of the other three genetic domains beyond the 17-minute event of microgenesis. Recall Vygotsky's four domains, the microgenetic, the ontogenetic, the sociocultural/historical, and the phylogenetic. Unfolding in this 17-minutes of microgenesis is a convergence of four of these domains; each, of course, separate domains with different explanatory principles, but each, nonetheless interrelated (Vygotsky, 1978). Chou’s writing of Chinese characters expresses these domains. If we look back and forth across different segments of data taken on different dates we can find evidence and speculate on the interrelationships between the four domains.

In the CAH graphic, there is trace evidence of Chou’s manner of writing Chinese in the way the long strokes converge in the center to signify similarities and the way they diverge from the center to signify differences. I will highlight this specifically in a moment. I also think Chou’s manner of writing Chinese is present in Figure 9, of course, as Chinese script, but also in the arrows she used to illustrate her teaching method. Recall that Figure 9 was collected during the follow-up interview on August 2nd when I first saw the iconic gestures. Also from that same interview is Figure 10, in which there are two arrows diverging from a box to indicate two roles of a story. From these data, Figures 9 and 10 and elsewhere, we can see Chou’s method of teaching coming out clearly, combined, of course, with the possibility of the implicit presence of the Chinese strokes.
Before going further, I need to briefly state some fundamental information on the main strokes used in Chinese script.

I began to wonder about the Chinese script early on in my investigation of Chou, because there was an obvious careful and clean aspect to her writing and drawing of lines. I noticed this clean, careful, and systematic characteristic of her writing on a number of occasions when she was making a point, asking a question, or constructing a graphic organizer in class. I asked some specific questions about Chinese script and asked Chou to write down the 5 basic strokes during two of the three formal conversations.

Figure 11. Five basic strokes of Chinese script that Chou drew on 10-31. From left to right these strokes are called *di n, héng, shù, piě, and nà*. From left to right, these names translate into English as follows: *dot, horizontal, vertical, left-falling, and right-falling* (Björkstén 1994)

I also asked a lot of question and looked around (kind of lamely) at Chinese script on my short visit to China in mid-October. There are actually 8 traditional strokes (Björkstén, 1994). Chou told me in a follow-up e-mail that she learned the 8 traditional...
strokes, but used only the 5 presented in Figure 11 for most of her life. Altogether I obtained three samples of these 5 strokes from Chou. One sample, which was obtained during the formal conversation on October 31st, and which I had her do in whiteboard marker pen for clarity, seems to closely represent the other two, which were obtained during the formal conversation on August 2nd, although all three samples look pretty much the same. This sample I present in Figure 11.

These five strokes each have Chinese names, which from left to right are called, diàn, héng, shù, pie, and nà. From left to right, these names translate into English as follows: dot, horizontal, vertical, left-falling, and right-falling (Björkstén 1994).

According to Chou, these five basic strokes are used in writing Chinese script. The two on the far right, left-falling and right-falling, are the two strokes that I see as used in the CAH-graphic, particularly the last stroke, right-falling. To some extent, I see these two strokes, left-falling and right-falling, in the arrows drawn in Figures 9 and 10, although they are drawn straighter in both figures than in the strokes presented in Figure 11. Recall that figure 9 is the listing of four English sentences and questions with the corresponding Chinese characters presented underneath. There are arrows drawn from the Chinese characters to the English words. Figure 10 is the box from which two arrows are drawn downwards.

I also think I can see the influence of the vertical stroke, the third one from the left in Figure 11, in some of arrows drawn directly down to an English word in Figure 9. Notice at the top of Figure 9, there are two slight curves to the left that seem similar to the slight curve to the left exhibited by the vertical stroke example in Figure 11 (middle stroke in Figure 11). According to Björkstén, (1994), this stroke should be absolutely straight. In
Figure 9, on the top sentence, *This is a book*, the line below book that points to the Chinese character seems more characteristic of the standard stroke appearing in Björkstén’s text. Also in the question, *What is this?*, the line going from *is* to the Chinese character looks like a standard stroke. It is interesting that the deviation of the standard horizontal stroke that is displayed in Figure 11, which was provided on October 31st and was written in whiteboard marker pen, shows up earlier in two spots on the sample of a teaching strategy that Chou provided on August 2nd.

Another more apparent feature is the slight nuances Chou displays in the two strokes on the right, called right-falling (all the way on the right) and left-falling (second from the right). Again comparing the sample from Figure 11 with the samples from Björkstén (1994), Chou’s versions of left-falling and right-falling look textbook perfect. In the CAH graphic, she clearly has made a very slight upward slant at the bottom arrow on the right in Figure 7. This slight slant upward on the right-falling stroke is called the “foot”. (Björkstén 1994, p. 36) You can even see this slight upward slant at the end of the bottom right arrow a little clearer when backing off and looking at the poster-paper in Figure 8.

According to Björkstén (1994) to write this stroke "you should feel in the beginning as if you are striving upward and to the right, even though the stroke slopes downward the whole time. At the start of the 'foot', press a little harder with the pen and at the same time change direction to achieve a clear but gentle 'joint' in the stroke" (p. 36). I do not notice any of the distinctive characteristics of left-falling stroke in the chart, but that does not necessarily mean that there are not any of the characteristics of left-falling stroke in any of the arrows going to the left in any of the samples of arrows in Figures 7, 8, 9, and 10.
Even though this foot in the right falling stroke does not come out as clear in the diagrams in Figure 9 and figure 10, there are these basic left-falling and right-falling downward lines in all of the arrows drawn in Figure 7, 8, 9, and 10. Most noticeable, is that slight trace of a foot in the bottom right arrow of the CAH graphic.

In the formal conversation on October 31st, I asked Chou about the presence of Chinese writing in the CAH-graphic. This was before I noticed the presence of a foot or had looked closely at the five basic strokes. Chou did not agree readily, and I wonder if I was too forceful in my questions (which I probably was). This little chunk of the formal conversation on October 31st went like this:

C: because I always write—in Chinese we have the main—
I: here you can write on this
C: In Chinese we have main—how do you say
I: five strokes
C: five strokes—<refers> this (you can hear Chou writing).

This is the moment I obtained the writing sample in Figure 11.

I do not think she actually agreed completely with me on this, and as I am writing the Dissertation, she is back there at Northern University taking a brutal 21 credits, and I do not intend to bother her with this kind of thing, which knowing Chou, she would gladly take the time to answer, but would probably think of me as bit silly for asking. However, I think that the foot appearing in the right-leg of the CAH-graphic can be attributed to the same kind of phenomena as I displayed when I demonstrated the word "splash" for B when I became an unintended participant in the McCafferty (2002) study. Again, this
brings to mind participatory appropriation I will return to this “splash” gesture in a moment.

A short summary and discussion of Chou data one

This is a suitable moment to restate the three research questions. These questions will also be re-stated in other sections of the Dissertation. For the moment, I wish only to restate these for immediate relevance:

1. What did a microanalyses of purposefully selected participant interactions, which were guided by principles from a Vygotskian developmental approach (i.e., Vygotsky's genetic method), reveal about the participants' ontological and epistemological assumptions concerning the use of graphic organizers and/or English language teaching or learning and/or the interaction undergoing analysis?

2. Overall, what kinds of transformations, if any, in appropriating and applying graphic organizers to an oral or written text situation were found in the data?

3. What evidence was found of the participants' ability and/or desire to apply graphic organizers to their own teaching and learning?

With these research questions in mind, I think it is important to summarize what we have learned so far about Chou, gestures, mediation, and artifacts. The circumstances and context in which these gestures were collected do not match the circumstances and context presented by McNeill (1992), McCafferty (1998, 2002) or McCafferty and Ahmed (2000). There are many comparable points, but the interactions with Chou are much more structured in terms of the prompted discourse and context to warrant fully pulling these other frameworks for understanding gesture into the Dissertation. As I have said before, it is beyond the scope of this dissertation to go into the kind of in-depth
examination of speech and gesture that is predominant in this previous work on gestures.

Besides, gesture is not the central research focus and I wanted to take a wider perspective on the interactions. All that said, the relationship between gesture and graphic organizers has become an important finding of the study and an interesting path for future research.

However, there are some relevant issues I discovered after backtracking from McNeill (1992) to Kendon (1988). I found a significant point that Kendon brings up that is worth repeating here. The Kendon (1988) paper that I reviewed is the source for McNeill's use of the term gesticulation, and McNeill's separation of gesticulation from language-like gestures, pantomimes, emblems, and sign languages. After I present this paragraph from Kendon, I will use McNeill (1992) to clarify a couple of terms that Kendon used. These terms are also important for understanding the gestures enacted by Chou and for the study of gesture in general.

In some cases we may be able to observe the transformation of "spontaneous" "global synthetic" gestures into stabilized, coded forms. When this happens we may observe how, as it does so, the meaning of the form also changes. It comes to have a more abstract, general meaning; it is no longer a depiction of a specific action or spatial arrangement or visual appearance, but a device that refers to a unit of conceptual meaning: It has become like a word. (Kendon, 1988, p. 134)

The term "global synthetic" refers to an important distinction between gestures and words. Also recall the use of spontaneous in reference to gesticulation. According to McNeill (1992):

In language, parts (the words) are combined to create a whole (a sentence); the direction is thus from part to whole. In gestures, in contrast, the direction is from
whole to part. The whole determines the meanings of the part (thus it is "global"). In language, moreover, the relationship of words to meaning is analytic. Distinct meanings are attached to distinct words. In gestures, however, one gesture can combine many meanings (it is "synthetic"). (p.19)

It is apparent in the first two minutes of the 17-minute microgenesis that Chou is establishing the gestures into a coded form. The gestures become no longer spontaneous; they become structured and heavily influenced by the CAH graphic. These iconic and indexical gestures might have been more spontaneous in August when I first noticed them, but it does not seem reasonable to consider these gestures spontaneous in this 17-minute segment. We are witnessing the short-term formation of the psychological process of a systematic gestural language developing, which is interwoven with the CAH-graphic. This brings to mind John-Steiner's (2000) remark: "We shape our tools and are shaped by them" (p. 194)

The secondary artifact of gesture has become a constituting feature of a tertiary world. In this tertiary world Chou has transformed the local environment into an arena of action for communicating to me the workings of the CAH-graphic. This tertiary arena of action is a synthesis of the 7 mediational artifacts stated earlier (at least those we can observe): 1) The CAH graphic; 2) The contrastive analysis hypothesis; 3) The present continuous tense 4) The English language; 5) The explicit Chinese language expressed orally and visually; 6) The implicit Chinese in the strokes in the CAH-graphic, and; 7) The genetic lesson plan, embedded in the CAH-graphic and her overall explanation.

All of these artifacts coming together here in this microgenesis also reveal glimpses of the other three genetic domains. Chou's sociocultural/historical domain of her teaching
history is revealed in the grammar translation method, which is illustrated by the arrows in the chart and revealed in this interview. This interpretation is triangulated by the other charts (Figures 9 and 10) and formal conversations (transcripts from 8-2 and 10-31). In terms of ontogenesis, she has said numerous times that the very top of the CAH-graphic is something she has never done before, although this part of the graphic seems to be a synthesis of her ontogeny: a synthesis of her ontogeny as a writer of Chinese script with her sociocultural/historical domain revealed in her manner of writing the strokes in Chinese script, and her ontogeny as a teacher revealed in the arrows and Chinese writing below the CAH-graphic. With regards to Chou’s ontological and epistemological assumptions about teaching; that is, her explicit use of the grammar translation method, are we beginning to see some transformation there? There does seem to be some evidence of transformation in this weaving together of the different mediational artifacts unfolding in this 17 seconds; however, we should find more evidence. I return to this concept of transformation later in the Results and the Discussion. Additionally, in this section of the Results, we see the interwoven nature of the sociocultural/historical domain with her ontogenetic domain in the mutually constitutive nature of the iconic representation of the CAH graphic, the words similarities and differences in English, and her iconic and indexical gestures.

Finally, this data prompts me to speculate about phylogenesis, the most difficult domain to observe. Recall that for phylogenesis we are talking about the merging of the organic nature of cognition with the social/cultural/historical and the ontogenetic. I speculated previously that the splash gesture I enacted in McCafferty (2002) was grounded in a phylogenetic type of transformation, perhaps shared by other fisherman or...
those who work closely with the sea. I could argue that my interactions with the environment had altered my inner speech. The predominance of sense over meaning is constituted by my regard for water as a hard surface. This is reflected in the gesture of my arm swinging down and hitting a hard surface.

I am speculating that the idiosyncratic curve of Chou's horizontal strokes, glimpsed in Figure 9, are an indication of her individual ontogeny as a writer of Chinese script. Beyond her ontogeny, when we look into the CAH-graphic and see the indication of a "foot", which is imbedded in the writing of the stroke known as "right-falling leg", this seems similar to the splash gesture. There is a cultural gesture involved in this stroke, which seems to fit into the realm of emblem (Kendon, 1988; McNeill, 1992). This gesture is perhaps a bit less ecologically prompted than my splash gesture, but perhaps more developed across Chou's culture. Is there not some established pattern in making that same "foot", over and over again in the right-falling leg that can be linked to inner speech? Are we seeing a certain predominance of sense over meaning, an agglutination, an influx of sense every time Chou makes that stroke while writing? It can be argued that this "foot" comes through spontaneously in a different context (i.e., the creation of the graphic organizer in the language theory class on July 12th). She is merging her learning of graphic organizer procedures out of the context in which these procedures were originally learned (i.e., the advanced reading course), and into a different content realm (i.e., second language learning theory).

For Chou and I, is it not possible that both of our interactions with the environment; hers writing a certain way over and over again, mine smacking into, or being smacked by the Northern Pacific, over and over again, have fundamentally altered our representations,
which in turn mediate our perceptions? Again, this brings to mind participatory appropriation.

It should be noted here that I am not promoting the notion of parallelism nor recapitulation (see Wertsch, 1985). Briefly stated, parallelism and recapitulation mean that when one makes a judgment of a transformation happening on the ontogenetic plane, as my splash gesture, or Chou's writing a certain way, this does not mean that it happens on a different plane in the same way. Vygotsky proposed that each genetic domain needed different explanatory principles (Vygotsky, 1978). I am merely engaging in speculation and suggesting we might be gaining glimpses of the phylogenetic domain in these two examples. The reader must assume responsibility for assuming otherwise.

I will return briefly to these speculations in the Discussion. For now, much has been revealed about the four genetic domains through this 17-minute microgenesis. Much of this has been triangulated and verified by looking across the rest of the data in Chou Data One.

For now, this is a suitable time to close Chou Data One on these speculations. In the meantime, there is still more of Chou to see in the next segment of the Results. Following this next section on Chou, I move on to data from the other 8 participants, finally concluding with data from Chou beyond the micro-level.

Chou Data Two: Smelling-NoseDogs and Concept Maps Mediating Subjectivities

Overall, this section of data from Chou represents an overlap of subjectivities. In purposefully selected segments of data I present episodes of intersubjective relations that
evolve through collective, artifact-mediated activity. These episodes of data show how the participants establish different moments of what I label *shared-attention spans* to mediate content knowledge. The term shared-attention span will be defined through this presentation of the data. These moments of shared-attention can be seen as supported through three artifacts that are central to the unfolding activity: 1) Chou's gestures; 2) A concept map, and; 3) The English language. Some episodes in the data represent a number of ideas from the interdisciplinary framework used for the Dissertation. These include the notion of *utterance as mediational artifact* (i.e., Bakhtin, 1986; Wertsch, 1998; Wartofsky, 1979) and the two different uses of the term *signification* (Harré and Gillett, 1994; Vygotsky, 1978). These versions of signification were presented in the Introduction and illustrated in Chou Data One.

The example of utterance as mediational artifact and the unfolding of the two concepts of signification are partially prompted by my narrative, which unfolds as an *immanent storyline* (Davies & Harré, 1999). Before I begin presenting this section of the results, it is necessary to recall the notion of an immanent storyline.

According to positioning theory, when humans enact a conversation, they simultaneously enact self- and other- positions, which were discussed in the Introduction and the Literature Review. Recall that Davies and Harré (1999) view positioning as a "discursive process whereby people are located in conversations as observably and subjectively coherent participants in jointly produced storylines" (p.37). When these jointly produced storylines are enacted; the immanent storyline is a determining force in this discursive process. Immanent here can be interpreted as an intrinsic part of subjectivity (Davies & Harré, 1999).
Recall the example presented in the Literature Review where a man and woman begin to get into an argument because the man was apologizing to the woman for getting her into a bad situation. Thus, the male was assuming a position that it was his fault for placing them both in this bad situation. The woman interpreted the man's assuming a position of responsibility for her presence as a negative comment. This negative position was taken-up because of her immanent storyline as a feminist (Davies & Harré, 1999).

The approximate four-minute classroom interaction presented in this section will appear following information from previous interactions that is necessary to place this section of the data in context. In Chou Data Two I present three short moments of interaction. Each moment I call episodes (Bakhtin, 1986; Harré & Secord 1972). There are boundaries to episodes similar to those proposed by Bakhtin (1986) for utterance, which are stated in several places in the Dissertation (see definition of terms and concepts in the introduction).

As in Chou Data One, these two episodes generally adhere to one of the types of microgenesis as defined by Wertsch (1985). At times, I am working at the periphery of both definitions of microgenesis from Wertch with regards to the amount and types of transformation implied by microgenesis (for more on transformation, see also Davydov, 1999). Wertsch identified these two types of microgenesis: "the unfolding of an individual perceptual act, often for the course of milliseconds" (p. 55) and "the short-term formation of a psychological process. The study of this domain requires observations of the subjects' repeated trials in a task setting" (p. 55).

I am mainly focusing on the unfolding of perceptual acts over very short periods of time. I am also looking for evidence of development implied when looking for repeated
trials in a task setting. At times, I am looking at many developmental processes that have already been fossilized, however, I am looking at combinations of mediational artifacts that mediate shared-attention spans. Genesis occurs that we cannot always directly observe. However, we can look for genesis in the way mediational artifacts are positioned during activity; thus, shaping activity.

This four-minute segment of data, which I am calling, Chou Data Two: Smelling-Nose Dogs and Concept Maps Mediating Subjectivities, occurred on July 21st immediately following Chou's first oral presentation using a graphic organizer (see Figure 12). For this course-assignment students were asked to select an informational text that covered a topic related to literacy and in which they were interested. From this text they were asked to build a flow diagram (see Figure 2 in the Introduction) and either a semantic web or a concept map. They were supposed to use the semantic web or concept map as a main resource for their presentation, both as a resource for themselves and the audience.

A semantic web (see Readence, Moore, & Rickelman, 2000) does not have any phrases between bubbles, squares, or some other kind of border. A concept map has phrases or words between bubbles or squares (see Figure 4 in the Introduction).

I was flexible on these guidelines for oral presentations, and students varied in the amount of notes they took to the front of the room with them and the way they presented the GOs to the audience and to themselves. Some students used overheads, some students used the 48- by 35-inch poster-papers, and some students made copies of their GOs for their classmates and myself. As a group, though, students generally adhered to the guidelines and did effective, well-planned presentations.
One term you will see coming up, which I have not mentioned yet, is a Thai title that often appears before my name in a transcript. This is the title, Ajan. The title Ajan is an English phonetic spelling of a Thai term that is used widely in Thailand and is literally translated as Professor (Becker, 2002a). It is generally well known that this title is not used the same way as the title Professor is used in other countries. The title usually appears in front of the first name when the person addressed is to be so designated by the title, such as in the case of teachers at most levels (e.g., elementary, secondary, university). Using first names rather than last names is also the norm (i.e., Ajan John rather than Ajan Unger). In my years of teaching in Thailand, rarely was my first name used in a teaching context unless the word Ajan preceded it, although from time-to-time I was referred to as Mr. John. Students out of the teaching context also use the title Ajan, and frequently, people will just use the title "Ajan" without a name following the title.

As I write the Dissertation, I am still communicating with most of the students by e-mail and they begin e-mails with Dear Ajan or Ajan John. The implication of an immanent position in any interaction with the students should be clear. It is kind of like being at a university in the States where all the faculty continually refer to each other as Doctor, insist on being called Doctor by the students, or the students do not feel comfortable talking to a faculty member without the title Doctor. In Thai culture, as in the United States and many other countries in the world, it is well known that titles are important.

At the end of Chou's presentation, which was about "sensing information" (e.g., visual, auditory, olfactory, kinesthetic, and tactile) (see the concept map in Figure 12), Chou thought she was finished, and Dan asked her a question. This prompted the 4-minute
interaction presented here. Recall that Chou's presentation occurred on July 21. I begin with some of the background information and data that lead up to the July 21st episode. This includes events that occurred on July 5th, July 6th, and July 7th.

With regards to "smelling-nose dogs", a part of the title of this section of the data, I have often joked about getting a smelling-nose dog because I can't smell. Every once in a while I think I catch a whiff of something, but, as far as I can recall, I have not been able to smell since Navy basic training in the summer of 1975, and I began to notice it around that time. Smelling-nose dogs, and the fact that I can't smell first became known to the participants during one particular class of the language learning theory course that I taught on Friday nights from 5 to 7pm.

As stated in the Methodology section and Chou Date One, I taught this language learning theory course during the semester in which I also taught the advanced reading comprehension course. All the participants in the study were at this particular class. More important, the week of July 5th, my fiancé, Karla, arrived for a visit. This fact is significant for what happened on the next day, Saturday July 6th, and for the students' reaction on Sunday July 7th in the reading comprehension course when I told them what happened on July 6th. Moreover, my olfactory-challenged nature, which under the circumstances of the interaction is an immanent part of my storyline, became a salient feature of the microgenesis that unfolded on July 21st.

On July 5th, I came into the class a little before 5pm to make sure I had everything ready and to review my lesson notes before beginning. As the students shuffled into class (Friday night classes are tough on teachers who work all week), they began to complain of a paint smell. I had not noticed, but when I began to look around, I did notice that the
pale green and light blue cement walls seemed a bit glossier than before. I suggested they open the long sliding-windows. Feeling I owed some kind of explanation for not being able to smell the paint, I told the class I could not smell and I told them the usual reasons.

I told them that I worked in a rivet-distributorship during my high school years on Long Island, not too far from New York City. I sometimes went into the rivet-plating section without any type of breathing apparatus (I never saw any breathing protection for the man working in the plating section, and to my knowledge, there wasn’t any. I wonder if he’s still alive). I told the students about being in Navy basic training and singing in a room filled with tear gas after removing our gas masks (we were "asked" to sing a song about our company commander, the Navy's equivalent of a drill instructor).

As I was talking about these things Karla came into the classroom, and I began to tell them about lighting the gas furnace while Karla was off in Italy studying Italian the previous Fall when it turned colder in Las Vegas. I mentioned turning to our dog, Collette, and asking if she could smell gas and how she just looked at me and wagged her tail. This brought up my usual idea of needing a smelling-nose dog, which got a few laughs from the students.

The subject was dropped and we began class; however, my olfactory-challenged nature became an issue the next day, Saturday July 6th. Rather than repeat the events second hand, I present the transcript from the beginning of class July 7th. In this transcript, I tell the students what happened on July 6th. I only have the tail end of this section of audio on videotape. As it turned out, I was fortunate that my research assistant, Chet, turned on both tape recorders.
The following transcription is primarily taken from a cassette labeled Sony II 4A 7-6. As was usually the case in transcribing, the accuracy of the transcription was double-checked by using a cassette labeled Sony I 4A 7-6. As stated in the Methodology, these two recorders were on opposite sides of the general U arrangement of tables and chairs. One recorder was usually located close to Nathanee and the other was usually located close to Chou. For this recording, Sony II was located next to Nathanee (Nat for short). If any transcription protocol is not clear, see the protocol in the Methodology section. As in all the transcripts presented in the Dissertation: I=Instructor (me), C=Chou, N=Nathanee, D=Dan, A=Andy. Other participants will be named as necessary.

Chou data two, dialog excerpt #1, 7-7

I: You know after I told that story about not being able to smell you know we got--I got my laundry back and ah I opened up the closet, you know, I'm getting dressed and uh, you know, this is a Saturday so I'm going to this--my red shirt

N: uh-huh

I: usually my--you know I had like seven sets of clothes. You know, so I'm gonna put on my red shirt ahh and Karla walks by the closet, and she goes, ahhh, something smells stale

N: (chuckle)

I: and I go what?-- you know so I'm dragging out shirts <does this smell what>?

How's this? and

A: (laughter)

I: I drag one out and it was never washed

Nat and other students: (moan and chuckle)
I: they'd just ahh--they mixed up

Dan: they must have known about your

I: ****(laughter) No don't start that--so they mixed it up at the laundromat and
they just ironed an old sweaty shirt

Nat and other students in chorus: ahhhhhhhhhh

I: (laughter)

D: ********

I: Well they don't know and I'm not gonna know, you know, so if Karla wasn't
there I would have just put it on and worn it to work and--big confounding
variable there isn't it--

Andy: (chuckles)

I: so what do you--so--samut wah men, naksiksah tawng poot nah (suppose I
smell, students should speak, yes?)

N: (laughter)

I: protwah phom clap bahn pleun suuahh--(because I'll go home and change my shirt) you
know so if I come in one day--I mean if I was blind I mean you wouldn't say hey walk
down those--I mean you know it's like--it's a handicap--I didn't realize ah --it's only when
I was lighting the gas alone at home and looking at the dog--when Karla was gone a long
time ago--hey how's it going with the gas, you know, and the dog's looking at me--so... that was interesting. I'd never know the difference, put it on, think I'm all rip-roy (rip-roy
means everything about me personally is in order; squared away) and I'd be--Alright we're
just looking at chapter five cause we're gonna do a little activity here----
The video recording starts right when I say, "think I'm all rip-roy". What I personally recall is the way a number of noses in the room scrunched into upper lips and eyes and this coincided with a very loud "ahhhhhhhhhhh" as I said, "So they just mixed it up at the laundromat and ironed an old sweaty shirt". I remember glancing at Net with Mawng sitting right next to her, their faces folding into themselves on "old sweaty shirt", along with the very audible reaction. If there was any moment in my data collecting that I would like to have something that I don't have, it's video footage of the students' expressions that simultaneously accompanied that very audible moan.

The following Sunday afternoon on July 14th, all of the students did their presentations with their GOs, with the exception of Chou and Andy, because we used up all the class-time. Therefore, Chou did not present her concept map until July 21st: two weeks from first hearing about my olfactory challenged nature and smelling-nose dogs.

Chou's concept map, shown in Figure 12 is similar to the standard template for building concept maps that participants learned in class. This is a pattern described by Robinson (1998), which is similar to the examples to which participants were introduced from Novak and Gowin (1984). For building concept maps, circles or other shapes are used to highlight and identify major concepts and key words from readings. This process is intended to illustrate hierarchies, propositions, and relationships between concepts.

Most of these intended objectives for using a concept map are illustrated in this concept map from Chou, which summarizes an informational text she chose for this oral presentation. Keep in mind when I am talking about intended objectives, these are the objectives presented by Novak and Gowin (1984). I frequently mentioned these intended objectives to the participants.
Figure 12. Concept map Chou’s first oral presentation on 7-21
In addition to the way participants used concept maps to represent semantic information and text structures at the macro level, I noticed that the concept maps were frequently prompting participants into chunking sentences into subject and predicate groups, phrases and clauses. On this concept map Chou made, there are many examples where a simple sentence is divided into its subject and predicate group, often minus articles or prepositions. This is another interesting finding tangential to the present section of the Results: All of the six basic GO designs that I covered in the course prompted them to chunk from the paragraph and concept level into phrase, word and sentence level, thereby summarizing meaning. I will return to this finding as I summarize the work of all the participants in the final section of the Results.

Chou distributed the concept map in Figure 12 to the class right before her oral presentation. Chou abruptly ended her presentation after talking for approximately 3 minutes and 40 seconds. This was the shortest oral presentation from the two each participant did using GOs as a major resource for their presentations (one presentation on 7-21 and one on 9-22). To a great degree in her talk Chou adhered to the information on her concept map. Her sentences did not vary much from the chunks of language on the map. She just added a little more of the structure during her brief talk.

Overall, at this point in her participation in both courses Chou seemed to be struggling with oral and written English communication, but obviously had an excellent grasp of metalinguistic knowledge of the English language (e.g., she knew English grammar, morphology, and syntax). Her second presentation, two months later on September 22nd, was a grand improvement. A glimpse of this improvement in her English
proficiency is exhibited in her explanation of the CAH-graphic on September 7th, which is presented in Chou Data One.

This improvement in her overall English language proficiency provides one of the pieces of the evidence that ontogenesis occurred during the 16-week period of concentrated data collection. However, this ontogenesis is not necessarily directly related to GOs or the courses I taught, although it could be argued the concept maps are a part of the changes Chou experienced; that is, she has more primary and secondary artifacts to use in her teaching practice. I will specifically address more features of Chou's ontogenesis in the Discussion. For now, I present the different segments of a 4-minute classroom interaction, which represent a small part of the transformations Chou experienced during the semester.

As in Chou Data One, I first present a segment of dialog without any gestures, which is labeled Chou data two, dialog excerpt without gestures #2, 7-21. This is followed by the same transcript with a detailed description of gestures included along with the gestures coded. This second transcript is labeled Chou data two, dialog excerpt with gestures #2, 7-21. The same general transcription protocol is used here as in Chou Data One. The transcript without gestures follows the standard transcription protocol I used throughout the study, which is described in the Methodology chapter. For the transcript with gestures, text is underlined to indicate dialog that appears immediately before or after the detailed description and comments about the dialog. These descriptions are italicized. Any comments on gesture coding or the gesture codes themselves (e.g., iconic, indexical) that occur during the italicized portions of text are in standard script bounded
by parenthesis. To make the codes easier to see, an asterisk is places before the parenthesis around codes and comments about these codes.

As before, I=Instructor (me), C= Chou, D=Dan, N=Nat, A=Andy

Chou data two, dialog excerpt without gestures #2, 7-21

1  D: (you can hear Dan start to ask a question, but this is unintelligible from background talking)
2  C: so finish--oh ok--thank you (Chou has just finished her presentation)
3  D: Can I ask you a question?
4  C: oh
5  D: Is the kinesthetic sense related to the auditory information like umm
6  sometimes if people have a problem in one ear they they're not balanced you
7  know if they're--they're where they don't--like if you go very high up the mountain
8  your ears--feel pressure the pressure in your ears
9  N: they pop they're popping, they pop
10  D: Do you know if there's information there
11  C: umm if the olfactory ahh have some problems I think you can you can ask your
12  friends--you can ask your friends to smell what what it like cause
13  A: (laughter)
14  D: He says smelling nose-dog
15  C: you you ask your closest friend to smell--help you
16  A: (laughter)
17  C: I think this is the best way
D: I was talking about the kinesthetic one the
I: He was asking--yeah go ahead
D: about movement and ah ****
C: movement
D: yeah like this one, the kinesthetic sense--body movement air ground, right, that
you feel ah--your body feels which way it's moving.
C: ahhh if you in the car or in the plane ah you—you bodies away from the
ground
D: right
C: away from the ground, you can feel with your body, it is different but, the our
eyes can sense the movement sometimes, we can see the car moving moving so
this is a different kinds on the one hand we can sense -- on one hand we can sense
with our body and the other movement we can sense with our eyes
D: right, so there's there's two organs that we can use for
C: yeah
D: the same sense
C: same sense
D: so there's overlap so do they--do they conflict with each other--say your eyes
or ears aren't working--what kind of effect does it have on another sense?
C: our eyes some-- use of our eyes--vision-- visual but visual movement we can
see the size big or small this is--we can use our eyes this organ, but our body
sometimes can feel the things—the object— object is big or small but it is the
feeling, not the objective I think-- thank you. Any more questions?
feeling, not the objective I think-- thank you. Any more questions?

I: Go ahead and . . . fill out the form and I'll collect them--if they don't all match

up you throw-up is what happens--all your movements--sometimes people get

seasick cause you got the horizon it's your inner ear too

D: *** seasickness, right?

I: People with sinus problems or something get a little seasick

D: right

I: Everybody get's--Almost everybody gets seasick

D: right

I: People that say they don't get seasick are full-of-it--everybody gets a little bit

seasick

D: right

I: then some people--

D: some people react strongly to it than others

I: right

D: because your senses are being knocked around

I: so you have to--you get readjusted then when you come back to land you got

D: it's re-calibrating-- --

I: you walk funny

D: this is what they call re-calibrating

C: but some people--

I: it's your inner ear--your everything
C: but some people probably has a strong sense in this--this area

C: ahh information but he has a ah weak sense in another. Ajan John has a

I: yeah I can't smell, but some of my other senses are better now

C: problem--but I think they're both--

A: (laughter)

D: if you went on--if you went on a ship now, would you get seasick?

I: oh yeah, sure, I always get seasick the first few hours

C: but I think--I think you have another another--

I: depends on how much I've been imbibing in town--

C: but you have a strong another form senses **

I: yeah I've got another sense I don't talk about very much

C: (laughter)

I: that's you know--we don't want to talk about that here.

A: (laughter)

I: ok. . . you guys done with the form, I'll come pick it up

Chou data two, dialog excerpt #2 with gestures, 7-21

D: (you can hear Dan start to ask a question, but this is intelligible from background talking)

C: so finish--oh ok—thank you (Chou has just finished)

Dan: Can I ask you a question?

C: oh
D: Is the kinesthetic sense related to the auditory information like umm

(Chou looks at me twice as the question begins)

Sometimes if people have a problem in one ear they they're not balanced

(she glances my way and purses her lips, then grins)

you know if they're--they're where they don't--like if you go very high up

the mountain your ears--feel pressure the pressure in your ears

N: they pop they're popping, they pop

D: Do you know if there's information there?

C: umm if the olfactory ahh have some problems I think you can you can

ask your friends--you can ask your friends to smell what what it like cause

(Chou is grinning and chuckling)

A: (laughter)

D: He says smelling nose-dog

C: you you ask your closest friend to smell--help you

(grinning here too)

A: (laughter)

C: I think this is the best way

(grinning and laughter)

D: I was talking about the kinesthetic one the—

I: He was asking--yeah go ahead
21 D: about movement and ah ****

22 C: movement

23 D: yeah like this one, the kinesthetic sense--body movement air ground, right, that

24 you feel ah--your body feels which way it's moving . .

Dan first looks down at the concept map and then is pointing at the concept map.

Chou comes over and stands in front of Dan who turns the map over so it is upright and facing Chou. By the content of his speech, and that he can be seen pointing to the bottom of the concept map, I assume he is pointing to the kinesthetic part of the concept map.

(See Figure 12). This is the area of the concept map at the bottom, where "kinesthetic sense" is in an oval. This oval has an arrow pointed toward the oval containing "body".

As Dan is referring to the concept map, you can see Bussaba and Wanida looking at that their copies of the concept maps

25 C: ahhh if you in the car or in the plane ah you—your body's away from the

26 ground

On the phrase ah you she looks quickly down at her copy of the concept map. On the phrase you bodies, she opens both arms in front of her just for an instant (an instant here is between .25 and .50 seconds), in a space in front of her midsection as if she is holding a human body made of ultra-light papier-mâché. The elbows are slightly bent and the palms of her hands are facing her body. It's almost as if she's holding what is commonly thought of as an aura, just for an instant, before dropping her hands.

*(Metaphoric gesture on you bodies)
As she says *away from the ground* she moves her arms first down toward the ground and pulls them up, literally, away from the ground.

*(Iconic gesture on *away from the ground*)

27 D: right

28 C: *away from the ground you can feel with your body it is different but the--our eyes can sense the movement sometimes we can see the car moving, moving so this is a different kinds--on the one hand we can sense -- on one hand we can sense with our body and the other movement we can sense with our eyes*

When she says *our eyes* she points her hand toward her face, her fingertips pointing toward her face. It's almost like Chou is making a kind of puppet with her hands, with the thumb and fingers opening and closing only once to signify something, which I am interpreting to mean the opening and closing of the eyes. She does this kind of movement with her fingers and thumb closing on one another, but pointed toward her eyes. She does this opening and closing as her hand is moving away from her eyes. She only does this opening and closing of the eyes once, in a way as if she were actually grabbing her eye and pulling outward on it.

*(Abstract Indexical gesture on *our eyes*)

On the phrase, *we can see the car moving* she holds one finger up in the air with her arm extended and moves her hand, arm, and finger in the air back and forth.

*(Iconic gesture on *we can see the care moving*)

On the phrase *this is a different kind* she holds her left hand, palm facing Dan who is sitting down in front of her, and she sweeps her hand back and forth in
front of him for a moment, her hand moving in a quick back-and-forth in three very short sweeps. Two short sweeps on different, and one on kind. These back and forth movements are only about 8-inches in distance traveled. It's as if her hand is acting like her head would if she were shaking her head no. She's glancing at the concept map as she's speaking and gesturing.

*(Metaphoric gesture on this is a different kind)*

When she says, our body, she touches her hand to her body, specifically to her upper chest, about 3 to 4 inches to the left of her neck and 3 to 4 inches down from her shoulder-blade.

*(Concrete Indexical gesture on our body)*

When she says our eyes she points, with the index finger of her left hand to her eye.

*(Concrete Indexical gesture on our eyes)*

32 D: right, so there's there's two organs that we can use for

Dan has his finger on the concept map and looks down at it once when he asks about the two organs.

33 C: yeah

34 D: the same sense

35 C: same sense

36 D: so there's overlap so do they--do they conflict with each other--say your eyes or ears aren't working—what does--what kind of effect does it have on another sense?

When Dan says conflict with each other, he puts his elbows on his desk and brings his hands together, fingers straight, so they weave together. It's almost like
he's going to bring his hands together to pray, but the fingers remain straight and stiff. No folding of the hands or relaxation of the posture.

*(Iconic gesture on conflict with each other)*

38 C: our eyes some—we use of our eyes—vision—, visual but visual movement, we
39 can see the size big or small this is—we can use our eyes this organ but our body
40 sometimes can feel the things—the object— object is big or small but it is the
41 feeling, not the objective I think— thank you. Any more questions?

Again here as before, when Chou says we use our eyes, she points her whole left hand, in that puppet-like grasping shape, and pulls outward away from her eyes for a moment, more on the left side of her face than the right.

*(Abstract indexical gesture on we use our eyes)*

When Chou says we can see the size big or small her arms open wide quickly on big with her forearms rising about a foot higher than her head, and about a foot in front of her in this momentary gestural space, her arms spread about 30 inches apart. They come down in front of her on the word small, with her hands at least 8 inches apart, the concept map is held in her right hand. Since her arms were slightly above her head, they come down vertically as much as they do horizontally in the closing of her arms on small. You could say this seems like a V-shape when it comes down.

*(Iconic gestures on big or small)*

When she says, we can use our eyes, her left hand comes up from just above her chest level, where she has the concept map held in her right hand. The concept map is obviously there for her to look at when she needs to, because she glances at this frequently in this conversation turn. Her left thumb is pressing against her fingers as
before, the fingers and thumb pointed inward to her body, but not in the same puppet-
face shape as before. This time, the thumb and finger are in a more pressed together
shape, moving outward and away from her face on the phrase this organ.

This outward movement with the fingers and thumb pinching something on the word
this organ is similar to what she’s done before when she was using the phrase our eyes.
In a way the shape of her hand is like she were telling me to add a pinch of something,
like in a cooking recipe. This time it seems the fingers and thumb are more tightly closed
than before, no beak or puppet-facial type shape of the hand. This is a quicker, less
explicit shape than before. It’s noticeable that when she says organ, the hand moves
away from the eye.

*(Abstract indexical gesture on this organ)*

On the phrase, our body, she is holding the concept map above her chest level, closer
to her eyes, which places her elbows slightly away from her sides. When she says our
body she taps her elbows into her sides, once on our and once on body. On the continuing
part of this phrase, she says sometimes can feel. On can and feel she bounces her elbows
into her sides once on each word, in less pronounced taps then before. The cadence and
rhythm are almost as if she were giving an imitation of a chicken.

*(Concrete Indexical gestures on our body) *(Abstract Indexical gestures on can and
feel)*

On the phrase big or small her arms and hands move outward and inward very
slightly, not far away from her body at all. Maybe 8 to 10 inches away from the sides of
her body. She is looking at the concept map on this use of the phrase big or small.
When she says, *it is the feeling* she brings her hand into just below the nape of her neck, her four fingers touching her upper chest in this area just below the nape of her neck.

*(Concrete Indexical gesture on it is the feeling)*

On the phrase, *it is not the objective*, (I'm sure she means *object* here) she is raising her left hand in the air, the thumb and index finger pinched together as if she's holding something. Almost as if someone were saying, "just a little bit".

*(Metaphoric gesture on it is not the objective)*

42  I: Go ahead and... fill out the form and I'll collect them—if they don't all match up
43  you throw-up is what happens—all your movements—sometimes people get seasick
44  cause you got the horizon it's your inner ear too

*I get up from my seat and I'm moving back to the front of the classroom again. I'm moving around the outside of the U shape of the tables as I'm talking to Dan.*

45  D: *** seasickness, right?  
46  I: People with sinus problems or something get a little seasick
47  D: right
48  I: Everybody get's—Almost everybody gets seasick
49  D: right
50  I: People that say they don't get seasick are full-of-it—everybody gets a little bit seasick
51  
52  D: right
53  I: then some people--
54 D: some people react strongly to it than others
55 I: right
56 D: because your senses are being knocked around
57 I: so you have to--you get readjusted. Than when you come back to land you got

I'm standing at the front of the classroom by this time, pontificating about

seasickness
58 D: it's re-calibrating-- --
59 I: you walk funny
60 D: this is what they call re-calibrating
61 C: but some people--
62 I: it's your inner ear--your everything
63 C: but some people probably has a strong sense in this--this

When Chou says has a strong sense in this information (Lines 62 and 64), her arms are
all the way to her left side, as if she is holding something over on this left side.

*(Metaphoric gesture on has a strong sense in this information)
64 D: area

It's interesting here that Dan says area as Chou is holding an imaginary something
on her left side. It seems he is attempting to finish the statement for her.
65 C: ahh information but he has a ah weak sense in another (laughter) Ajan John has a

Just before she says weak sense in another Chou is reaching across as if she's going
to touch my arm as she's laughing. Something very similar to a gesture I'd make to let
someone know I was really only teasing them.
As she says a weak sense in another she moves her arms all the way over to her right side. The strong sense is located on her left side, and the weak sense is located on her right side.

*(Metaphoric gesture on he has a weak sense in another)*

Immediately following the phrase he has a, Chou brings her left hand up to her nose twice, as she’s laughing. She finishes this statement with laughter and this pointing to her noise.

*(Concrete Indexical gesture replaces the word like in Kendon's (1988) example of a Language-like gesture)*

66 I: yeah I can't smell, but some of my other senses are better now

I'm pretty tongue-in-cheek now. I've mentioned to Chou, and the other students at some point, that my other senses are better because I can't smell.

67 C: problem--but I think they're both—

68 A: (laughter)

69 D: if you went on—if you went on a ship now, would you get seasick?

70 I: oh yeah, sure, I always get seasick the first few hours

I notice my feet spread apart just a little wider here than before as I spoke, and I rock back and forth. It kind of reminds me of the way some of the old Chiefs in the Navy always stood (Chief Petty Officers, E-7s, E-8s, E-9s, very senior enlisted people). Scary.

I'm going to leave this un-coded.

71 C: but I think--I think you have another--(my speech is overlapping with Chou; I'm not listening to her, I'm talking to Dan about seasickness)
As Chou is trying to tell me something, her right hand is raised with five fingers spread apart, kind of like she has something she's pushing against with her hand. It's similar to how a basketball player might hold a basketball in one hand, but with Chou it's more like she is holding something like a beach ball, or something very soft, but firm enough so she doesn't have to curve her hands very much to hold it.

*(Metaphoric gesture on I think you have another)*

72 I: depends on how much I've been imbibing in town—

73 C: but you have a strong another form senses **(laughter)**

During this utterance, she has her right arm in front of her as before, five fingers of her right hand spread apart palm facing outward almost in the emblem of a traffic cop stopping traffic; however her elbow is very slightly bent, her posture relaxed, holding something there, not gripping too hard. Her fingers are wide apart, the tips very slightly curved, hardly noticeable. This is a continuance of the gesture she was using on the previous conversation turn when she was trying to tell me this. It's like she's holding a beach ball for me to see in front of her, but the beach ball is very light and is held easily, almost as if it were Velcro, and it's stuck lightly to her hand, but she still has to make some effort in holding it.

*(Metaphoric gesture on but you have a strong another form senses)*

74 I: yeah I've got another sense I don't talk about very much

75 C: (laughter)

76 I: that's you know--we don't want to talk about that here.

77 A: (laughter)
I: ok... you guys done with the form, I'll come pick it up

I previously stated that I am presenting three different episodes of microgenesis. Two of these are unfolding in this 4-minute section following her speech (i.e., lines 1 through 78, which has just been presented). A third 20-second segment is from the end of her oral presentation, which I will display shortly. I will first present the episode of microgenesis that occurs between lines 1 though 19, where Chou is using my olfactory-challenged nature to momentarily mediate the activity of answering Dan's inquiry.

Before going further in my interpretation and analysis of these 19 lines of dialog, which occur over a time-span of 53 seconds, it is necessary to re-state some specific ideas about utterance from Bakhtin (1986) and artifacts from Wartofsky (1979). These ideas concerning utterance and artifact are immediately relevant for understanding the individual perceptual act that unfolds as Chou uses my immanent storyline to mediate Dan's question.

Recall from the Introduction that an utterance can be a word, sentence, paragraph, movie, scientific paper, and a novel, which in common all have

so to speak, an absolute beginning and an absolute end: its beginning is preceded by the utterances of others, and its end is followed by the responsive utterances of others (or although it may be silent, others' active responsive understanding, or finally, a responsive action based on this understanding). (Bakhtin, 1986 p. 71)

Bakhtin also pointed out the importance of the listener as an active respondent to the utterance. As listeners engage the utterance, they begin to formulate a posture toward the utterance and a response: they will be agreeing and disagreeing, adding or subtracting to the speaker's meaning according to where they are situated and situate themselves in the
exchange. The speaker is also adjusting the tone of the utterance according to the effect she can observe or infer from what is implicitly or explicitly being indicated in a listener's posture to the utterance (Bakthin, 1986).

As in Chou Data One, also recall Wartofsky's (1979) notion of tertiary artifact, where there is a hunter turning the environment into an arena of action. She hears the snap of a twig, the rustle of leaves, and these are signified (Harré & Gillett, 1994; Vygotsky, 1978).

Perhaps the hunter formulates an active response to the sounds she hears. The utterances of her ancestors, who taught her to hunt, are a part of what is guiding her in the signification she assigns to different artifacts that vary in levels of materiality. The representations of the environment become a tool of the hunt and prompt her to signify some things while ignoring others: representations mediate perception.

These ideas from both Bakhtin (1986) and Wartofsky (1979) can be seen in lines 1 through 19. Here is a segment of data in which I describe Chou's responsive posture to Dan's question. Chou's responsive postures are generally close to where they occurred in terms of Dan's speech (i.e., the description of the responsive posture appears in italics underneath Dan's speech).

D: Is the kinesthetic sense related to the auditory information like umm

*(Chou looks at me twice as the question begins)*

sometimes if people have a problem in one ear they they're not balanced

*(she glances my way and purses her lips, then grins)*

you know if they're--they're where they don't--like if you go very high up

the mountain your ears--feel pressure the pressure in your ears
A number of different ideas about the utterance are present in this particular segment. Dan is directing his question to Chou. During this interaction I am sitting next to Dan. On looking closely at the video, you can clearly see Chou look at me and begin to smile. This is an illustrative moment of Bakhtin's (1986) notion of the listener taking an active responsive posture toward the speaker. Chou is listening to Dan and formulating a response. Considering what follows, it also seems apparent by her glance to me, the pursing of the lips, and the subsequent smile, that she is getting ready to take an utterance she first became aware of on July 5th, which she heard about again in a different context on July 7th, and use this utterance on July 21st to mediate a response for Dan.

Part of the utterance is presented when Chou says "umm if the olfactory ahh have some problems I think you can ask your closest friends, you can ask your friends to smell what what it's like cause" (Chou data two, dialog excerpt with gestures #2, 7-21). Andy pops in with laughter on line 14, and Dan pops in with "He says smelling-nose dog" on line 15. Then on line 16 Chou says, "you can ask your closest friend to smell--help you", followed by Andy's laughter on line 17, and finally Chou says, "I think this is the best way" on line 18. The boundary of this utterance is established on lines 19 and 20 when first Dan and then myself direct Chou and everyone's attention back to the original question. It's noticeable that Chou is laughing while she's answering the question and it is kind of funny. This 53-second utterance is "preceded by the utterances of others, and its end is followed by the responsive utterances of others" (Bakhtin, 1986, p. 71)

My olfactory-challenged nature is a part of my life's narrative. This utterance is the part of my narrative that is known to the participants as my inability to smell. In terms of Wartosky's (1979) tertiary artifact, through Chou's interactions with my narrative she is...
able to use this narrative of my life to mediate the activity of answering Dan's question.

My olfactory challenged nature at this moment is positioned as an immanent storyline.

Chou also knows that everyone in the class knows I cannot smell, so she understands that intersubjectivity can be readily established. Even though she might not explicitly know the name of the concept intersubjectivity; nonetheless, she has created a shared-attention span that displays some of the characteristics of intersubjectivity.

Overall, "the individual perceptual act" (Wertsch, 1985, p.55) unfolding is Chou's perception of an utterance, which is the part of my narrative that she makes salient, prompted in part by the topic she is presenting. I remember her saying to me one day in the TEFL office that I need to ask my closest friends to smell for me, and she and I both chuckled. I do not have this written down in my notes anywhere. How would I ever guess that my olfactory issues would end up as data? I think it can be said that Chou appropriated the utterance I expressed to the class, and she uses it. For a moment we can look at Chou as Wartofsky's (1986) hunter, and we see she looks out on the environment, spots me, knows it's ok to use part of my narrative to joke about and use it to answer part of Dan's question. Or, at the very least, she was trying to get a laugh out of everybody.

For these reasons and many others I have already stated, the utterance here, which I am referring to as my olfactory challenged nature, unfolds as a mediating artifact in a co-constructed tertiary world. This utterance is also mediating the presence of an audience that shares a fairly high degree of intersubjectivity with Chou at this moment due to past utterances, including this utterance positioned as an immanent storyline.

Following this 53-second episode on line 19, Dan returns to his question about the overlap of senses. For this bounded episode, which begins when Dan returns the topic to
his original question, another artifact becomes an observable central component to the interaction. This artifact is the concept map in Figure 12. At the boundary of the previous utterance when Dan brings the interaction back around to his question, Chou moves from the front of the classroom to stand in front of the table where Dan and I are sitting. This moment can be seen unfolding on line 24.

Line 24 is where the boundary of the second microgenesis begins. The central focus of this microgenesis is on the ways Chou uses gestures and the concept map as artifacts to mediate content knowledge in the English language. For this microgenesis, which lasts for approximately 2 minutes and 8 seconds, I am looking for any functional links she is establishing in this very short period of time. By functional links I mean that the artifacts we can see unfolding in this episode have different functions in terms of mediating content. Generally, we can see links with these different artifacts. Specifically, the content knowledge Chou is mediating is in response to Dan's question on the interrelated nature of all the senses. Chou has introduced this topic of Dan's question through her 3 minute and 40 second oral presentation and the information displayed on the concept map. During this oral presentation, she also used gestures. Remember the materiality of artifacts (see Wertsch, 1998). The concept map, and the topic of Chou’s oral presentation are functioning at interwoven levels of materiality to mediate the interactions.

This microgenetic episode is displayed on lines 21 to line 42. Following this 2 minute and 8 second microgenesis, gestures are coded for the remainder of the 4-minute interaction. Before turning to this episode I have categorized as microgenesis, it is necessary to again discuss the coding of the gestures.
This prefacing of the coding procedure is necessary for two reasons. First, there are some differences in the codes used here than in Chou Data One. Secondly, I am following along with suggestions concerning validity from Altheide and Johnson (1998) in making my interpretive procedures clear to the reading audience.

For the coding of the gestures in the data, recall that McNeill (1992) created a continuum from Kendon (1988) to distinguish different type of gestures. Kendon (1988) identified gesticulations, language-like gestures, pantomimes, emblems, and sign-languages. As stated in Chou Data One, McNeill's (1992) use of the term gesture specifically refers to gesticulations, which are idiosyncratic and spontaneous.

McCafferetey (1998) and McCafferty and Ahmed (2000) used McNeill's (1992) framework, and McCafferty (2002) departs slightly from his own earlier work to use Argyle (1988). Looking through all of this literature, including Argyle (1988), I decided to work from McNeill's (1992) framework and foundational work on signs from Peirce (Duranti, 1997; Liszka, 1996; Peirce 1991) to code the gestures in this segment of data. This use of Pierce is mainly due to the central place of graphic organizers in the study (see Pierce, 1991, on diagrams).

However, as in Chou Data One the gestures that occur during this 2 minute and 8 second segment of microgenesis are not as spontaneous as the gesticulations McNeill (1992) presented in his text. This is because Chou is continually referring to the concept map in Figure 12 as she is talking until line 42. At this point she concludes the answer to Dan's question and returns to her seat. Up to this point of concluding her answer to Dan's speech by saying "thank you. Any more questions? (Transcript A, line 42), she is holding the concept map in one hand while she talks and is referring to it frequently. This frequent
referral to the concept map seems to bring the gestures into a partially lexicalized state (see Kendon, 1988). That is, the gestures seem more intended to stand for abstract general meaning, and the gestures seem to function to assist the word meanings that are grounded in the reading and concept map more than in the way word meanings and gestures are linked in the category of gesticulations illustrated in the work of McNeill (1992). Sometimes the gestures are almost like pantomimes and language-like gestures, both of which are categories where gestures take the place of words, although I do not think all of the gestures can take the place of words, as in Kendon's (1988) use of this category.

Ultimately though, this may have implications in terms of the gestures moving into the category of symbol, which is linked through the triadic that is convolutedly explicated by C.S. Peirce (Peirce, 1991). For these and other reasons I am staying close to Peirce's use of the terms icon and index for the gesture coding as these terms are rendered accessible by Duranti (1997), Liszka (1996) and Peirce (1991) (although at times reading Pierce I feel like a dog chasing his tail).

I am merging this foundation on signs grounded in Peirce with McNeill's (1992) description of iconic, metaphoric, and deictic gestures. Although as I stated previously, I am prefacing the use of McNeill's terms with the acknowledgement that the gestures in this data are not as spontaneous and idiosyncratic as McNeill's examples of gestures and his specific use of the term gesticulation. However, the gestures in Chou Data Two, particularly at the end of this 4-minute segment when Chou puts the concept map down, generally seem more spontaneous and idiosyncratic than the gestures in Chou Data One. Though the gestures in Chou Data One were more pronounced and exaggerated at times than the gestures in Chou Data Two.
As in Chou Data One, this process of coding the gestures is not one that is solely analytic inductive (see also editing analysis style and immersion/crystallization analysis style in Miller & Crabtree, 1998). However, the codes were delineated by working in a direction more from the data to the codes than an imposition of the codes on the data. Imposing the codes on the data would have been an easier process than the constant referencing and crosschecking from the data to the sources for the codes (e.g., Duranti, 1997; Liszka, 1996; McCafferty, 1998; McNeill, 1992; Peirce, 1991).

Ultimately though, in Vygotskian (1978) terms, the transforming of activity through the use of intersubjective relations and artifacts (see also Lektorsky, 1999) is unfolding in front of my eyes through the video and audio tapes and in front of your eyes in the transcripts presented in the Dissertation. The following are descriptions of the categories for gestures used for Chou Data Two; some of these have been stated earlier, some have not:

**Iconic gestures:** Gestures that imitate a specific object or movement. In terms of abstract and concrete, iconic gestures are more concrete. A common example could be a person talking about a head-on collision and clapping his hands together when saying, "the two cars crashed [sharp clap of the hands] head on"

An example of an iconic gesture from Chou data two, dialog excerpt #2 with gestures, 7-21:

*As she says away from the ground she moves her arms first down toward the ground and pulls them up, literally, away from the ground* (following line 25)

*(Iconic gesture on away from the ground)*
Metaphoric gestures: Similar to iconic gestures in that they are pictorial; however, metaphoric gestures present an image of the abstract. People speaking can often be seen creating/presenting a bounded space in front of them (McNeill, 1992; McCafferty, 1998). McNeill (1992) presented an example of a participant talking about a good guy and a bad guy. The participant assigned a certain area on his left for one type of moral status, and other spaces as non-left for another moral status. Recall from the Literature Review the notion of "splitting the gesture space" (McCafferty and Ahmed, 2000, p. 207, Italics in original).

The following example of a metaphoric gesture is from Chou data two, dialog excerpt #2 with gestures, 7-21. This example is from a segment of data that immediately follows the 2 minute and 8 second microgenesis (lines 21 through 42). This is also after she has put the concept map down. However this is pretty typical of the metaphoric gestures that take place throughout the entire 4 minutes:

C: but you have a strong another form senses **(laughter)

During this utterance, she has her right arm in front of her as before, five fingers of her right hand spread apart the tips of her fingers very slightly curved, hardly noticeable. Her palm is facing outward almost in the emblem of a traffic cop stopping traffic; however; her elbow is very slightly bent, her posture relaxed, and it's as if she's holding something there, not gripping too hard. This is a continuance of the gesture she was using on the previous conversation turn when she was trying to tell me this. It's like she's holding a beach ball for me to see in front of her, but the beach ball is very light and is held easily, almost as if it were Velcro, and it's stuck lightly to her hand, but she still has to make some effort in holding it (this description follows line 73).
* (Metaphoric gesture on but you have a strong another form senses)

Indexical gesture: This is a gesture that points toward an object in some concrete or abstract manner and shares some type of relationship or contiguity with an object that can be inferred from the gesture (see index and deixis in Duranti, 1997, pp 207-209). Peirce (1991) talks of finding a trace of the icon in the index. Indexes "furnish the positive reality of the nearness of their Objects. But with the assurance goes no insight into the nature of those Objects" (p. 251-252). In other words, an index does not normally share an analogy or similarity with an object (Duranti, 1997; Pierce, 1991), but in the indexical sign there's a trace of the object.

In Chou Data Two, there are two types of Indexical gestures coded, and both types are similar to McNeill's (1992) notion of deictic gestures, discussed earlier in the Literature Review and elsewhere in the Dissertation. However the indexical gestures in the data are more concrete than the category of deictic presented by McNeill. Many of the indexical gestures coded in this segment of data index parts of Chou's body in more of a concrete manner than the examples presented by McNeill (1992). Those that seem more directly linked to the object denoted by the gesture are coded as concrete indexical gestures. Those that seem less directly connected to the object denoted by the gesture are coded as abstract indexical gestures.

An example of a concrete indexical gesture from Chou data two, dialog excerpt #2 with gestures, 7-21:

and the other movement we can sense with our eyes

When she says our eyes she points, with the index finger of her left hand to her eye (this description follows lines 27-31).
*(Concrete Indexical gesture on our eyes)*

An example of an abstract indexical gesture from Chou data two, dialog excerpt #2 with gestures, 7-21:

and the other movement we can sense with our eyes

*When she says our eyes she points her hand toward her face, her fingertips pointing toward her face. It's almost like Chou is making a kind of puppet with her hands, with the thumb and fingers opening and closing only once to signify something, which I am interpreting to mean the opening and closing of the eyes. She does this kind of movement with her fingers and thumb closing on one another, but pointed toward her eyes. She does this opening and closing as her hand is moving away from her eyes. She only does this opening and closing of the eyes once, in a way as if she were actually grabbing her eye and pulling outward on it (this description follows lines 26-30).*

*(Abstract Indexical gesture on our eyes)*

Remember that the central focus of this 2 minute 8 second microgenesis is on the ways Chou uses gestures and her concept map to mediate content knowledge in the English language. However, I am also looking for functional links between the gestures, concept maps, and the English language she is using to mediate the interaction.

In Chou Data One I identified 7 different mediational artifacts at different levels of materiality that worked to mediate the interaction. In this 2 minute and 8 second interaction in Chou Data Two, as I said previously, there are 3 salient mediational artifacts: 1) the gestures; 2) the concept map, and; 3) the English language.

This particular 2 minute 8 second interaction is prompted by Dan's wanting to know the interrelated nature of the senses, specifically this leads to the kinesthetic sense, which
Dan emphasizes by physically pointing to that section of the concept map. Chou looks at this section too, and Busaba and Wanida can be seen looking at this section of the concept map (see the description following lines 19 through 24 in the transcription with gestures). For a moment, there are at least 4 people observable on the videotape signifying (Vygotsky, 1978) this particular section of the concept map. I cannot say for certain how deeply focused Busaba and Wanida are on this particular section of the concept map, but it is clear through the discourse that follows that both Dan and Chou are thematically focused on the kinesthetic sense and movement.

In this present 2 minute and 8 second moment, we are witnessing the concept map weave into the contextual discursive scene and provide a concrete platform from which Chou and Dan can build an abstract mental space to negotiate content knowledge in the English language. Just for a moment, let's break from this 2 minute 8 second episode and go to a 20 second episode of microgenesis, where tensions emerge between the English language, the concept map, and gesture. In this 20 second moment, we are also going to see some of the ideas from McNeill (1992) concerning gesture and the psychological predicate. We will also see if there are any salient links in the 20 second moment of history with the present negotiation of meaning enacted by Chou and Dan (by present negotiation I am referring to the 2 minute 8 second segment enacted from lines 21 through 42).

This 20-second episode is 1 minute and 24 seconds back in history from the current negotiation (the 2 minutes and 8 seconds that unfolds from lines 21 thorough 42). This 20-second section of data is at the end of the last 47 seconds of Chou's oral presentation. This 20-second segment I selected for further analysis is underlined and comprises the
concluding line of Chou's presentation before Dan asks her a question. Recall that Chou is alternating from looking at the concept map and directing her attention to the audience, which she has been doing throughout her entire oral presentation.

The last thing is ah kinesthetic ah kinesthetic sense is we use the body ah—we use the body—ah we use the body to feel movement such as when we ahh in the car—we drove the car and we ahh use our body to feel the car is moving or is ahh—ahh stopped. So ah this is ah-ah kinesthetic sense and sometimes we feel ahh the ground ride--or ground ride or in-uh in the plane ah on the plane so ah finish it.

It's interesting to jump several seconds forward in history, just beyond these concluding lines and note the following. Right after the end of Chou's talk Dan refers to ears popping on lines 6 through 12, which Nat affirms on line 12. This is immediately following the end of Chou's talk. Planes are not mentioned anywhere on the concept map (see Figure 12). Chou is the first one to specifically position planes in the context of kinesthetic movement. However, height is abstractly represented on the bottom of the concept map by the term fairground ride, although the type of fairground ride is not specifically described. Then Dan brings up pressure in the ear and Nat affirms this information. The only thing on the concept map related to height is the fairground ride.

I think we can stop for a moment and speculate about Dan, Nat, and Chou’s inner speech. We have both "height" and "movement" present in the participants’ discourse and on the concept map. Where else are height and movement present in the interaction? We can move for a closer view of the 20-second segment and perhaps see "height" and "movement". Are we seeing a merging of psychological predicate and an influx of sense
over meaning? Here is the last line of Chou's oral presentation, a 20-second moment of discursive history.

Dialog excerpt #3 with gestures, Chou data two, 7-21

1 C: so this is ah kinesthetic sense and sometimes we feel ahh the ground ride—

2 or ground ride or in-uh in the plane ah on the plane so ah finish it

On line 1: Chou is holding the concept map in her right hand as she reads. Her left hand is free. Her right elbow is bent so her hand and forearm form more than a 45-degree angle. It is bent to hold the A4-sized concept map slightly above chest level in a common pose seen when people are standing, holding a piece of paper, and using it to read aloud to an audience. Her left elbow is also bent, except since this hand is not holding the concept map. This hand and forearm are slightly lower than her right hand, her elbow and forearm not quite shaping a perfect right angle. Her fingers are curled in a very loose fist in a space slightly lower than parallel with the concept map, held steady in her right hand. Her eyes seem to be looking at the bottom of the concept map as she reads, and her loosely clenched hand seems to bob up and down a little as she reads. Her fingers unfold from their loose fist on feel ahh the ground ride on line 1 as she simultaneously looks up.

Her hands unfold as she looks up; the fingers straighten out and her left palm is facing her chest. Overall, after looking up from the concept map, she seems a little less rigid, shoulders relax a little, and her left hand begins to move more.

On the phrase ground ride on line one, she chops once gently with the side of her left hand in soft karate chops on ground, then twice more on ride. On each chop, her hand makes distinctive movements downward, as if gently dividing up the space before her. In
these series of three chops, her hand moves about two inches lower than when she
initially looked up and began gesturing more on the phrase ground ride.

On line 2: On the phrase, or the ground ride (the second time this phrase appears in
this 20-second segment), her left hand dips down once, a little lower than where it was at
before on line 1 when she said ground ride. Her hand then lightly bounces upwards
chopping the air in front of her, in two gentle strokes. Her hand ends up about 12-inches
higher than the lowest position reached on the first time she said ground ride.

This upward movement that begins on the phrase ground ride changes into a more
upward and active movement on uh in the plane ah on the plane. Her left hand begins to
make soft, relaxed circular motions as it continues upward, finally reaching a height of
about two inches above and in front of her forehead at the end of the phrase in the plane.

At the end of the phrase on the plane her hand drops down to the paper again and she
looks at the concept map once more before looking over to her right and laughing a little
as she says ah finish it, which abruptly closes her talk.

In the first part of this 20-second utterance Chou is looking at the concept map when
she says, "ground ride". It appears she is looking at the word "fairground ride", but we
cannot be absolutely sure of this. When she looks up and says, "ground ride" for a second
time, her hand is going upwards. Her hand bounded to a higher position with more
movement when she said "plane".

Without matching each gesture-stroke with each word, it can be perceived that in this
20-second segment of data, her gestures generally precede her speech. This increase in
gestures seems to occur when she looks up from the concept map, and this also seems to
be the area when her gestures noticeably precede speech, particularly when she seems to be looking for the word.

I raise these questions again: Are we glimpsing the psychological predicate in this gesturing? In this 20-second moment, are we seeing the predominance of sense over meaning, the influx of sense, an agglutination of "height" and "movement"? Can we say the psychological predicate is "rise", but its explicit oral presence has been undermined by the term "fairground ride" on the concept map?

McNeill (1992) talked about gestures as global synthetic and words as analytic; that is, gestures and meaning reflect a whole-to parts relationship (analytic) whereas words to sentences reflect a parts-to-whole relationship (global). It could be argued that the global synthetic nature of gesture is in a conflicting state with the analytic and fairly rigid nature of word meaning represented on the concept map. I do not mean to imply that the concept map is a rigid artifact in terms of presenting meaning on an analytic word level, but there seems to be a disruption of the functional relationships between one mediational artifact (the concept map) and the other two mediational artifacts (Chou's gestures and the English language) in this part of the activity. It should also be noted that during this 20-second episode the quality of the concept map in promoting a shared attentional space is diminished. Dan and Chou are not sharing each other's perspectives to as great a degree as in the 2 minute and 8 second segment in which they are negotiating meaning. The genesis in this 20 second microgenesis is one of disruption. Let's go forward in history and return to the 2 minute and 8 second segment.

In the 2 minute and 8 second segment, Chou says "yeah like this one, the kinesthetic body movement air ground, right, that your body feels which way it's moving"(lines 23
through 25). As I pointed out earlier, movement through the air is not specifically mentioned on the concept map, although it's inferred in that last 47 seconds of Chou's presentation.

However, if we look at Figure 12 and the area of the concept map below the bubble, “kinesthetic sense”, as a chunk of language represented by the two bubbles and the line connecting and words connecting them, we might read "body-feel-movement"; we might begin to think of airplanes. It's interesting to note the two nouns "movement" and "fairground ride" are positioned next to each other. The verb “feel” connects these two nouns to the noun "body". These are the predominant words and phrases on this section of the concept map that first Dan, then Chou signifies.

At the beginning of the 2 minute and 8 second episode, which begins on line 21, Dan refers to air-ground movement on line 23. After looking at the map, Chou begins to talk about movement in terms of a car or plane. She is talking about "movement" and "height". There seem to be a merging here of the concept map, gesture, and the oral language that seem to express "height" and "movement". I keep thinking of the verb "rise" as predominant in this moment as the previously oft-cited word "coming" uttered as a possible response to a bus coming (see Vygotsky, 1986, p. 236).

It could be argued that Chou and Dan are building meaning on the interdiscursive plane of development through the mediational artifacts of gesture, the concept map, and the English language, all of which carry the social and cultural histories of the participants. This pattern of gesture, the concept map, and the English language working together to build moments of shared attention continues throughout the rest of the 2 minute 8-second segment of microgenesis. In other words, on an interdiscursive plane
Dan and Chou dialogically weave gesture, the concept map, and the English language to mediate content information. This example relates to the transformational nature of mediation that is emphasized in the definition of mediation I am using for the Dissertation.

In another illustrative moment of interaction on line 25, Chou is looking at the concept map when she says "ahh you in the car or in the plane ah you—you bodies away from the ground". She looks away from the concept map and begins gesturing. She enacts a metaphoric gesture on "you bodies" with both hands, and an iconic gesture with her whole body, forearms and hands when she says "away from the ground". A continual semantic "rising" dominates this moment. Again, as in other examples unfolding before our eyes, there is a synthesis of gesture and language, and, we might be glimpsing the psychological predicate.

This pattern is common during the 2 minute 8 second episode and the entire 4-minutes presented in Chou data two, dialog excerpt #2 with gestures, 7-21. There is a continual repositioning of gesture, the concept map and the English language to mediate content knowledge.

Another gesture that should be highlighted is a gesture that occurred twice in this 2 minute 8 second segment and 3 times during Chou's oral presentation. On line 26 Chou says "the--our eyes can sense the movement sometimes we can see the car". Here is the description of that gesture:

*When she says* our eyes *she points her hand toward her face, her fingertips pointing toward her face. It's almost like Chou is making a kind of puppet with her hands, with the thumb and fingers opening and closing*
only once to signify speech. She does this kind of movement with her fingers and thumb closing on one another, but pointed toward her eyes. She does this opening and closing as her hand is moving away from her eyes. She only does this opening and closing of the eyes once, in a way as if she were actually grabbing her eye and pulling outward on it.

*(Abstract Indexical gesture on our eyes)*

The other 4 times similar gestures were enacted by Chou around two words, "eye" and "movement". In each of the four episodes, this gesture occurred on or around the word "eye" and "movement" or within a word or two of these words, the next line, or near the word "organ" and "movement". Notice that the gesture actually involves the eye and movement.

In some ways, this prompts me to think Chou is moving these gestures to the level of symbol (Peirce, 1991), or through Kendon's (1988) perspective, we are seeing the transformation of gesture and language into a conventional system. Perhaps this gesture represents something similar to the data presented in Chou Data One, where the graphic organizer (i.e., the CAH-graphic) worked together to establish a relatively stable symbol-like stage of language formation, further away from the gesticulation end of the continuum and into the realm of sign language. Perhaps this pulling away from the eye and the position of the hand is a glimpse of the psychological predicate constituted by "eye" and "movement".

The notion of joint attentional scenes is important here, and I restate the parameters from the Literature Review for immediate relevance (Tomasello, 1999). Joint attentional scenes are established through taking the perspective of others through the use of
symbolic means. This includes an awareness of the perspective of others, particularly in terms of recognizing intentions. Tomasello defines joint attentional scenes as follows:

"Joint attentional scenes are social interactions in which the child and the adult are jointly attending to some third thing, and to one another’s attention to that third thing, for some reasonably extended length of time" (p. 97) Tomasello elaborates further in saying that attentional scenes provide “the intersubjective context within which the symbolization process occurs” (p. 98).

In much of the data presented by Chou Data Two the gestures and the concept map work together, perhaps in a more concrete primary manner than the English language to establish joint attentional scenes. There are clearly observable efforts by the participants to jointly attend to some third area, which in most episodes is content knowledge. These episodes of joint attention are supported by gesture and the concept maps, or in other examples provided in different sections of the Results; these joint attentional scenes are supported by a variety of graphic organizers. Due to the specific nature of the data for the Dissertation, which is data from adults in contexts where they are using their second and third languages, I am calling these episodes shared attention spans. I am using a different term for a number of reasons.

Tomasello’s concept of joint attentional scenes was established through empirical data from the interaction of children with adults. As repeatedly noted throughout the Dissertation, adults and adolescents are different than children. I am not comfortable leaping from theories established by studies using children and applying these theories to adults, particularly educated adults using second, third, and in some cases fourth languages to communicate. Adults who are using their second and third languages to
communicate are in different contexts than those described by Tomasello (1999). Indeed, the adults I am looking at are also preservice and inservice teachers. Far different than those participants from Tomasello.

However, Tomasello (1999) provides a speculative example of adults “to highlight the general principles involved” for joint attentional scenes. He used the example of an American in a Hungarian train station being approached by a native speaker of Hungarian who then talks to the American in Hungarian. The American has no idea what the Hungarian is saying. Tomasello then switches to a context in the same train station where the American goes to the ticket window. Goals become more contextual. In this example, the goal is to find out information about train schedules, destinations, etc. In this example, the interlocutors are able to establish a joint attentional scene because the goal of the activity can be mutually established due to the context. Despite this example, which is a stated example to describe how joint attentional scenes applies to adults, I am still not comfortable for the Dissertation in making that leap from children to adults.

I will return to these findings concerning inner speech, joint attentional scenes, shared-attention spans, gestures, concept maps, icons, indexes, symbols, and the tension between agents and mediational means in the Discussion. For now, this is a good moment to move beyond the microanalysis represented through Chou Data One and Chou Data Two into the work of the other participants and data outside the boundaries of the case.

The data from the other 8 participants provides insight into ways the participants appropriated and transformed graphic organizers within the boundaries of the case and in the local context of Northern City. After presenting these data from the other participants, I return to some additional data from Chou. This look beyond the microanalytic level to
other classroom interactions of the participants and beyond the bounded case will conclude the Results section of the Dissertation.

A Wider View of the Case and Beyond

For this section of the Results, I repeat some general information about the participants, which was presented in the Introduction and Methodology. I also present more specific information about their general English proficiency levels. Following this brief review of general information about the participants, I group them into four groups, discuss information about their general history with graphic organizers and teaching, and display some of the graphic organizers they produced, some of which occurred outside of the bounded case. I conclude this section of results by returning to more examples of graphic organizers that Chou produced, some of which also occurred outside of the classroom interactions.

Before moving forward to look at more fixed presentations of written text, which are presented in a variety of ways on different types of graphic organizers, it is necessary to recall the parameters of the term English proficiency. I am applying this term more broadly and more frequently in this section of the Dissertation than in others.

Recall from the definitions of terms and concepts and Methodology that I am using the notions of grammatical ability, sociolinguistic competence, and discourse competence (see Cohen, 1994) to describe the participants’ English proficiency. I am using these three general terms under the umbrella term of proficiency to refer to the participant's ability to string utterances together in a comprehensible sequence, use generally acceptable English grammar, and function linguistically in a socially acceptable manner (i.e., discourse...
competence, grammatical ability, sociolinguistic competence). I bring up this broad term of proficiency again because some of the data in this section makes participant syntax, grammar, and discourse mistakes more explicit due to the way the graphic organizers generally *chunk* language. Before proceeding further, it is necessary to describe what I mean by chunk language.

Chunking, also known as *parsing*, is basically the process by which sentences are divided into constituent parts, such as separating a prepositional phrase, noun clause, relative clause, etc., within a sentence (Irwin, 1991). This is in contrast to the use of the term chunking to indicate features of working memory, such as discussing the capacity of working memory as holding seven chunks of information, plus or minus two (Novak & Gowin, 1984).

This display of chunked language is an interesting tangential finding that is represented in many of the graphic organizers presented in this section. The graphic organizers are prompting participants to chunk language in a variety of ways; subject groups are separated from predicate groups, linking verbs are isolated, prepositional phrases and different types of clauses are highlighted. As we move beyond the micro-level and take a broader view of the participants' interactions with graphic organizers, this chunking-of-language feature is something to keep in mind.

Because I am now moving beyond a microanalytic perspective of the data, this section of the Results will take a broader view in an effort to summarize data that are relevant for research questions two and three. Recall that research questions two and three are as follows:
2. Overall, what kinds of transformations, if any, in appropriating and applying graphic organizers to an oral or written text situation were found in the data?

3. What evidence was found of the participants' ability and/or desire to apply graphic organizers to their own teaching and learning?

By displaying the product of interactions more than process features of interactions in this section of the results, in contrast to the microgenesis presented in the first two sections of the results, I am applying the term "transformation", used in question two, with more flexibility. Previous to this section of the Results, I have been conceptualizing transformation as participation (see John-Steiner & Meehan, 2000; Rogoff, 1995), which was discussed in the theoretical framework section of the Introduction. I am now working on a synthesis of this previous understanding of transformation with a perspective more grounded in activity theory.

Transformation is defined in the definitions of terms and concepts as follows:
"Transformation means changing an object internally, making evident its essences and altering it" (Davydov, 1999, p. 42). Davydov then goes on to talk about humans selecting a certain type of wheat, sowing the wheat, creating favorable conditions, and then reaping a good harvest, "this process is an example of real transformation of some part of nature by humans, or purposeful human activity" (p. 43). Through human intervention the essence of the process of the growth of wheat was altered, and we can glimpse transformation resulting from the human choice of a particular seed and nurturing the growth process. Of course, the finer points of this definition of transformation are still being argued, and Davydov lists this as one of the unsolved problems of activity theory. I am not trying to solve this problem of activity theory here. However, transformation is a
nebulous term, and I need to talk about my deviations from Davydov's definition for this section of the results as these data apply to research question two.

When I am looking for transformation in this section of the results, I am looking for some creativity or rupture in the participants' use of graphic organizers; this includes their previous experience with particular types of graphic organizers if they had any. This transformation I am looking for involves notions of intervention in the larger sphere of activity, but I am attempting a duality in looking at the individual participants' interactions. Overall, I am attempting to prompt transformation, and I view the situation as follows.

I have positioned graphic organizers in a specific manner, which is displayed in approximately 35 hours of video data and 70 hours of audio data. My positioning of graphic organizers or my intentions in terms of how I wanted the participants to perceive graphic organizers is made fairly explicit in this data. However, I am not the only cause of this positioning of graphic organizers. As discussed earlier, positioning is a dialogic, discursive process. Moreover, as stated in the Methodology I am using instructional strategies from Reuvan Feuerstein and Lev Vygotsky to teach approaches to graphic organizers. In terms of specifically introducing graphic organizers to the participants, I am also drawing from work on graphic organizers that is grounded in cognitive psychology frameworks presented by Irwin and Baker, (1989) and Novak and Gowin (1984). As stated in the Methodology, my first priority is to meet the course and curriculum objectives, which involved teaching different theories and strategies of reading.

With regards to segments of the course in which graphic organizers were introduced and used for classroom interactions and assignments, participants worked with seven
basic types of graphic organizers, one of which I used in Thailand before and did not use
frequently with these participants. Recall that these graphic organizers are concept maps,
semantic webs, flow charts, matrices, Venn diagrams, KWL charts, and a graphic
organizer I introduced to the students as a Spider Map (see Figure 21).

Spider Map is a name my students in two content-based EFL classes at Northern
University in 1994 called this graphic organizer. However, when I did a Google search
during my trip to China when I presented this strategy to Chou's colleagues in China, I
found this name has been used before by other ESL/EFL educators, and I believe it is
copyrighted. When I want to mention this graphic organizer in the Dissertation I refer to it
as a Wh-question/answer map.

When I am presenting the graphic organizers in this section and giving an overall
view of the circumstances in which they were created, it is important to think of these
graphic organizers as a synthesis of two related and flexible parameters. The first
parameter is that the graphic organizers in this section of the data occur either close or
distant from my instruction; the GOs participants produced are a synthesis of their general
experiences with graphic organizers and responses to my instruction. In other words,
participants created graphic organizers similar to the ways these different types of graphic
organizers were introduced or they moved away from the initial instruction. For the most
part, participants followed general parameters, although participants did invest part of
themselves and their teaching contexts in many examples. Moreover, participants
exhibited distinctive styles. The second flexible parameter to recognize is that participants
either seemed to have a lot, some, or no previous experience with graphic organizers (I
learned this through various formal and informal conversations).
Consequently, when I am talking about transformations, I am looking in many different psychological, social, cultural, and historical directions, which includes how I presented the graphic organizers in the course and what kind of graphic organizers participants created, for what purpose, and in what context. In this section of the results, I am not looking as deep into the activity of transformation in terms of the essence of the object, although I might find transformation as Davydov (1999) described. In addition I am also noting examples of a lack of change when that occurs.

In addition to transformations, which is the focus of question two, question three is asking about evidence of the participants' ability and/or desire to apply graphic organizers to their own teaching and learning. It is difficult to gauge "desire to apply", because I keep thinking that participants obviously wanted to make me happy, and I wanted to make them happy. We were all happier if they were using graphic organizers. More important, my position as instructor/researcher makes me very aware of this term "desire" in question two. I will return to these issues in the Discussion, particularly in the Limitations section. For now, though, some of the data in this section of the Results display episodes of participants applying graphic organizers to their teaching and learning contexts.

With some of the nuances from the research questions laid out and other issues covered, I can now turn to this final section of the Results. As stated, I begin with recalling some of the background information concerning the participants, then move on to displaying a vast array of graphic organizers that they produced. I begin again with Chou.
A Broad Review of the Participants

Chou's educational background was grounded in the Chinese educational system, as was her undergraduate work in the English language and teaching methods. This was her first time out of China to study. She had not spent much time in contexts where English was continuously spoken, if ever. She generally seemed to have a difficult time understanding and responding to the English language at the beginning of the course. I gave Chou a tape recorder I bought and could not use because it picked up too much background noise. Chou used this continuously throughout the course to record and review classroom interactions. She said to me one day toward the end of course that she understood about eighty percent of what I was saying in the lectures. However, like many hard-working people I have known, she had a habit of being very critical of herself. Her written work, questions she asked me, and conversations we had about reading and the material I was teaching all demonstrated that she understood more than she believed.

Lada, one of the five Thai students, also seemed to be challenged by the constant stream of the English language coming from me (I rarely used Thai, except to cajole the students or joke around). In many instances in the data, I can see and hear other students translating my English into Thai for her. Some of these episodes of translated discourse cover everything I am saying; others are only partial translations.

At one point I mentioned to the students that I was seeing this constant translation on the video and it might not be such a good idea in the long run. My thinking was that Lada was missing the opportunity to improve her listening skills. However, these students are adults at varying levels of bilingualism, biliteracy, and/or trilingual and triliterate, and they were dealing with some challenging concepts in both the courses I was teaching. So I
left these episodes of translation up to them and never raised the issue again. Besides, she was collaborating with her classmates and still grasping the content material.

Nathanee, Mawngpleum, Busaba, Lada, and Wanida, the five Thais in the study, all came from the Thai educational system, and, with the exception of Mawngpleum, all went to Northern University for their undergraduate majors in English. Mawng attended a different well-known university in Northern City. With the exception of Lada, all five Thais grew up in Northern City. Lada grew up in a city in central Thailand.

Of these five, Mawng seemed to be at a comparable proficiency level with the three demonstrably most English proficient in the class, Andy, Dan, and Mamet. Recall from the Introduction that Andy was an American citizen and a native-speaker. Andy also had an undergraduate degree in English from an American university with an emphasis in creative writing. He also told me he could read and write the Korean language. Dan had native-like proficiency in English and had a BA in English from the University of California, Berkeley. He was at least tri-literate and trilingual in English, Dutch, and German, and he told me that he knew quite a bit of French. Throughout the course, he demonstrated a tremendous amount of metalinguistic awareness of language in general. As previously stated, Mamet was tri-literate and trilingual in Thai, Turkish, and English. I was continuously impressed by his grasp of the English language and the content knowledge I was teaching in both courses.

Overall, the participants could be grouped into four different groups, although these groups are not to be considered completely exclusive of one another in terms of English proficiency or high levels of content knowledge (always keep in mind that I am using the term proficiency in a very general manner; English proficiency is a situated activity).
These groupings are a generality based on repeated interactions with the students in person, with videodata, audiodata, and written documents (e.g., exams, reading-response papers, graphic organizers). Much of this written data and some of the video and audio data were explicitly part of the grading process, which, as in many institutions in the world, was tied to external standards.

I present examples of the graphic organizers in this section of the Results by using these four groups as a loose parameter. Recall that I was constantly shifting students around the room, so there is some overlap between groups in the data (i.e., one or more participants from different groups worked on a specific activity involving GOs together). Toward the end of the semester, I came to think of the participants in these groups, and as I have looked across the patterns in English language proficiency and the way the graphic organizers are laid out, this grouping scheme makes sense. More explicit reasons for grouping the students this way will become clear as I present more specific information on the participants’ GOs and the contexts in which they used GOs and the English language, particularly their different communities of practice.

**The Scholarship Group**

One of the groups I think of as the scholarship group. Recall that three of the students were on a scholarship program from Northern University to get their MATEFL degrees. In return, they had to make a commitment to teach for Northern University after their graduation. These three were Wanida, Busaba, and Lada. I would also frequently see them walking around campus together, sitting at one of the study tables in the Graduate College courtyard together, coming to see me for help together. They almost always sat
together in class, and they always seemed to be helping one another. Recall that the only one who taught in this group was Busaba, who taught young elementary school-aged students part-time at a private tutorial school. Lada did not have any teaching experience beyond some class assignments she had when she was an undergraduate at Northern University. Wanida did not teach during the semester either, but her parents were teachers. As mentioned previously, all three of these participants attended Northern University.

Wanida

With regards to their experience with graphic organizers, Wanida seemed to have had the most experience as a learner with graphic organizers of any of the nine participants. She learned about them in high school, and had used concept maps quite a bit. She said that she used them mainly for science and math, and had used a Venn diagram, but not as much as the others (Group Conversation 11-24).

Both Lada and Busaba had variety of experiences with graphic organizers, though not as extensive as Wanida. Busaba had seen a Venn diagram but did not know how to use it until the advanced reading comprehension course. Lada vaguely remembered using a concept map in high school, remembered seeing a concept map in a history book, and thought that the concept map she did was probably related to history. Busaba had never really used a flow chart or KWL chart before the class, and the only graphic organizer type of strategy she used with the elementary school students was something called pictorial input (Walker, 1996). This is a strategy in which learners draw pictures and words together, similar to a strategy known as story-mapping (Peregoy & Boyle, 2001).
Recall from the Methodology that we briefly covered these pictorial input and story-mapping strategies in the advanced reading course.

It is interesting that Wanida seemed to have the most conscious history of public schooling with graphic organizers than any of the other participants. Moreover, she seemed very consciously aware of her history with graphic organizers. That is, she did not hesitate for a moment when I asked her which ones she worked with and when. Other students in various follow-up formal and informal conversations always hesitated, often were not sure of which GOs they used, and which type of context; not Wanida. She knew right away. Like many others, Wanidia had a consistent style in the way her graphic organizers looked and seemed to be used, particularly in her use of very large chunks of speech in each of her circles. And on each of the oral presentations, she used a concept map with numbers linking many of the bubbles instead of words (see Figure 13).

In these oral presentations, she is often reading a line of dialog directly from the concept map, which was not difficult considering how much text was in each bubble. But considering the amount of semantic material on the 48 X 35-inch poster paper, it is impressive how smoothly she kept moving her presentations along. In both the first and second oral presentations, she used this combination of numbers and the linking verbs to mediate the content of her talk. The numbers, which she sometimes called out as she was moving through her talk (e.g., the first point is, the second thing is), led her into a group of words, then a linking verb, then on to another group of words (Videotape and Video-Fieldnotes, 7-14 & 9-22).
Figure 13. Concept Map—Wanida’s first oral presentation on 7-14.
Figure 15. Tree diagram type of semantic Web-Lada's first oral presentation 7-14
Figure 16. Semantic web-Lada's second oral presentation 9-22
Figure 17. Concept Map-Lada's Final Examination 10-6

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As I said earlier, one of the interesting patterns that develop with these participants is the continuous chunking of text, although, as you will see as we move on to other samples, Wanida seems to put more lines of text in circles than others did in circles or squares, or other shapes they used. Often, as in Figure 14 from the research article about parent's literacy and their children's success in school, Wanida took a line of text and chopped between the subject and predicate group. The research article from which Figure 14 and the other concept maps from the final exam displayed in this section of the Results is in Appendix II.

With the final exams, the participants created these on legal-sized paper, approximately 8.5 inch by 14 inch. These were too large to be scanned. I had to shrink these on a copy machine to 8.5 inch by 11.5 inch before scanning. Consequently, some of the concept maps from the final exam are harder to read than others.

Lada

The concept maps that Wanida used, and her style of organizing text, is in contrast to the two semantic webs that Lada used for her oral presentations. Although there was an obvious improvement in her second semantic web and her presentation than the first (see Figures 15 and 16), she had problems using both of these graphic organizers to mediate her oral presentations. Particularly in the first oral presentation using a GO that is a combination of a tree diagram and a semantic web (see Figure 15), she became lost a number of times and could no longer follow her GO. Even though the jpeg of Figure 15 might not be clear (also depending on the quality of the copy you have before you), you can see that the tree diagram does not clearly indicate direction very well in terms of the actual structure of the graphic organizer. In addition, the semantic sense of the reading
passage Lada is trying to talk about is not clearly laid out on the GO. Some of the squares are so close together the borders merge together and the lines are crooked. However, there is a major-concept to minor concept hierarchy to it, but as I said, not clearly laid out. As I have watched the video of this presentation several times, I kept thinking of the tension between the agent and mediational means. Lots of tension here (Videotape and Video Fieldnotes 7-14).

Even though the graphic organizer used for the second oral presentation (see Figure 16) looks cleaner than the first, Lada ignored it for most of the approximately 12 minutes she spoke. This was a 31.25 inch long by 21.50 inch wide semantic web drawn on thick construction paper. After the first few minutes of referring to the graphic organizer and relating her talk to a member of the audience, she moves back to her notes. At times during the talk she is looking up at the semantic web as if to check what she just read. I have it written in my video fieldnotes that she might have too many mediational means here. Also, the stickers that did not come out very clear in the jpeg are not serving any purpose; at least no easily identifiable purpose. They say things like "give me a high five", "smile" "way to go"; the kinds of stickers you put on a students paper for encouragement. Perhaps this was her intention. As in her first presentation, there were a number of times she stopped in confusion. (Videotape and Video fieldnotes 9-22).

The two oral presentations are in contrast to some of the other quality work Lada did in both classes. On the final exam, Lada's concept map (see Figure 17) is more like Wanida's than earlier concept maps she made, although the linking words used to
connect major concepts with subordinate concepts seem to be predominantly one-word phrases. On Wanida's concept map we can see many multi-word phrases such as "found that", "concluded that", "challenged, and suggested that", "reviewed" and many more. Generally there's more variety of linking words and divisions of chunks of language that illustrate more complex ideas from the reading.

Overall, Lada demonstrated continual improvement in English proficiency compared with her work at the beginning of the advanced reading course. This concept map (Figure 17), and the accompanying essay, which is beyond the scope of the Dissertation to display and analyze, provides part of the evidence for this improvement.

Busaba

Busaba, the third member of the scholarship group, was one of those students who talked very quietly when she was answering a question, making a point, or giving an oral presentation. Several times during the semester when she began to speak I would interrupt and say "speak up! Use the yellative method; Use screamative strategies" (a running joke with students). She was an impressive speaker once she spoke up, and her writing and grasp of abstract concepts in the English language were equally impressive.

The first oral presentation and the accompanying concept map (see Figure 18) are a nice example of a balance between the agent and multiple mediational artifacts: the concept map, gestures, and the English language. Busaba's talk followed her concept map in a step-by-step fashion through the entire presentation that lasted approximately 22 minutes. (Videotape and Video fieldnotes, 7-14)
Unlike the others from this group, Busaba had her concept map on an overhead transparency. She followed a pattern of pointing down at a particular bubble on the concept map. The audience could see the shadow of her finger on the overhead screen. She would usually read a section, when the chunks fit together in a sentence, adding a missing preposition if necessary. For example such as on the right side of the concept map off to the right of the “process of event's bubble”, Busaba read: "the process of events has a kind of communication with a large group" (she added the preposition “of”). Then she looked up at the audience and gave an example prompted by this chunk of language. In other words, following her reading of an example, she would talk directly to the audience without using any visible observable speaking aids beyond gesture. In the examples from this presentation, as with many of the other students, her speech was accompanied by lots of gesturing (Videotape and Video Fieldnotes 7-14).

There are some overall patterns of gesturing with all the participants, a close examination of which is beyond the scope of the dissertation. For Busaba, her gesturing was quite prominent. Of these three participants in this group, Busaba seemed to do the most gesturing while speaking, and her first oral presentation was smoother than the Lada and Wanida's presentations. What is salient in this gesturing of Busaba's is the shift in the amount and quality of the gesturing when she is reading from the graphic organizer compared to when she is looking or pointing at the concept map. This makes sense because she is more focused on the concept map while looking at it for prompts than when she is focused on the audience while speaking and looking at the audience.
Figure 18. Semantic web-Busaba’s first oral presentation 7-14
Figure 19. Tree diagram for Busaba’s final presentation. Generated using Inspiration 6.0
Also, gestures seem more determined by the map than by the audience when she is attending to the map.

Joint attentional scenes and shared-attention spans apply here, which I spoke about in Chou Data Two. Wertsch’s use of Burke’s Pentad also applies here with regards to the interrelated nature of act, scene agent, agency, and purpose. These issues come to mind when I am watching Busaba looking down at the concept map, then turn to the audience and begin gesturing and talking. She is prompting the beginning of a shared attention span with her audience by first prompting her own attention through the use of the concept map. Her attention then begins to shift to the audience. Her gestures become more prominent as she turns to the audience. She then looks up at the audience, and further attempts to enhance this shared-attention span through the example she is providing in English. These oral examples she provides following her looking and gesturing at the concept map on the overhead projector are often not explicitly stated on the concept map. These examples are in English, and at the moment she turns her attention from the concept map to the audience, these English language examples are supported by her gestures.

Many of these moments of the three mediational artifacts of the concept map, the English language, and gesture present episodes of microgenesis, but it is beyond the scope of this dissertation to pursue a microgenetic analysis of all the participants and all the episodes that demonstrate microgenesis, although a closer examination is warranted in the future. For the moment, it is important to note this shift in the amount of gesturing when Busaba moves from the graphic organizer to the audience, back to the graphic organizer, then back to the audience again (Videotape and Video fieldnotes, 9-22).
Overall, with Busaba there does not seem to be much tension between the agent and multiple mediational artifacts during the entire presentation.

Another item that should be mentioned about this concept map and first oral presentation: it is noticeable that she grins at me and almost begins to laugh when she gets to the olfactory sense bubble. This happens when she is going in a counter clockwise direction through various descriptors in the “signals that form messages” section (Video, 7-14). This section of the concept map, “signals before messages”, is located in the bottom center section, and uses arrows as connecting lines, marked with the copula "is", which is arrayed symmetrically pointing outwards to the bubbles. These connecting lines drawn as arrows between bubbles seem to be a significant mediating artifact, although I cannot determine how significant the arrows are as a mediating artifact without a closer analysis, which is beyond the scope of the Dissertation at this point. However, the arrows should be noted as another mediating artifact, though not as salient to an observer as the English language, gestures, and the overall concept map.

The presentation and concept map from Busaba’s second oral presentation on September 22nd provides an interesting contrast to the first presentation. One of the parameters I gave students for this second presentation was for them to use the graphic organizer as their only tool for the presentation. As is sometimes the case in all the classes I have ever taught, students do not exactly follow the exact parameters provided. I am not a stickler for these things, unless they severely interfere with the learning objectives. In this second oral presentation, many students brought notes with them. The presentations varied considerably from student to student, in the amount of attention they directed toward their notes and the audience, and the types of graphic organizers they used.
Once Busaba put her tree diagram up on the overhead (see Figure 19), it was rarely referred to for the rest of the approximately 27 minutes of her presentation (the students were supposed to keep the presentation to around 15 minutes) (Video and Video fieldnotes 9-22)

Overall, as in her first oral presentation, she did a fine job speaking (I prompted her again to speak-up). She did go on longer than I expected, but one of the curriculum objectives was to improve oral presentation abilities, so I had no problem with letting students go over the time limits. Most stayed within this parameter, surprisingly almost to an exact 15-minute time limit. As in the other times she spoke in class, including class presentations, her gestures were particularly noticeable. Indeed, more noticeable in this talk: beyond referring to her notes, and an occasional glance to the overhead screen, she was speaking directly to the audience.

It should be noted that the graphic organizer for this presentation was created through Inspiration, version 6.0, a graphic organizer program. The students were introduced to this program in the Graduate College computer lab on August 18th. Other students obtained copies of the program earlier than this, but I did not want them to use a computer program to produce the graphic organizers for the first oral presentation. As seems to be a common occurrence, students did not have equal access to computers, and I wanted everyone to be on fairly equal terms for the first presentation, although it appears Mawngpleurn used Inspiration anyway. Although this could have been generated by MS word or another program. The graphic organizer, which is presented in Figure 19, is a graphic organizer Busaba turned in about a week after the presentation. I did not receive
Figure 20. Concept map from Busaba's final examination, 10-6-02
the overhead transparency she actually used in the presentation, and I neglected to ask for it. The one she used for the presentation is just like the one in Figure 19, except the writing and lines below the icons were written by hand with overhead transparency pens and the boxes were hand drawn (Videotape 9-22).

During the presentation she moves down through the tree diagram and then from left to right, starting at the far left at the clock icon. In this way, the graphic organizer reflects the overall structure of her talk. It is also noticeable, when comparing the first and second videos, that her shoulders seemed less rigid, her overall stance less rigid, and at times she leans on the desk, leaning forward with her body toward the audience. This overall posture seems to indicate a more relaxed atmosphere than in her first presentation. As I mentioned before, both of her presentations were effective.

With regards to her concept map for the final examination (see Figure 20), Busaba displays a similar pattern of putting large amounts of text in the bubbles. She uses simple connecting words, like Lada, in connecting the bubbles. In fact, there is not one multi-word connecting phrase on the entire concept map. Overall, Lada and Busaba's concept map show less hierarchical divisions of concepts and less information than Wanida's maps.

In summary, these three students from the scholarship group illustrated some interesting similarities and differences in their mapping strategies and how they used them in their presentations and writing. Only one of these three taught during the semester they were a part of the study, and Wanida seemed to have more personal experience than the rest of the class using graphic organizers in learning situations. There are many more paths of research that these data from this group provides, which are...
beyond the scope of the Dissertation. Overall, these three students were a pleasure to work with, I am still in touch with them as I am writing the Dissertation, and hope to be involved in their research and careers in the future.

The Native and Near Native English Proficient Group

This next group I think of as the native English-speaking or near-native speaker group. I also think of this group as the most English proficient. This group is composed of Mamet, Mawngpleurn, Dan, and Andy. As with other places I am using this term English proficient, I mean this in a very general way based on my interactions with student writing, presentations, and both formal and informal conversations, including e-mails. Recall that Andy is a native-speaker, and Dan has native-like proficiency. Mawng repeatedly demonstrated excellent English language oral and written abilities, as did Mamet.

If I ranked them starting at the most proficient, I would rank them as follows: Andy, Dan, Mawng, and Mamet. Although, I wish to reiterate again that I view English language proficiency as a situated activity. Also recall that Mamet and Mawng were teaching full-time at the beginning of the semester, and Dan moved from being a part-time teacher teaching adults to a full-time teacher assisting Elementary school teachers at an international school about 8 weeks into the semester.

With regards to experiences with graphic organizers in this group, Mawng seemed to have the most conscious experience with graphic organizers specifically as a teaching and learning tool. Mamet, Dan, and Andy seemed aware of having a history with graphic organizers, but all seemed not consciously aware of focusing on graphic organizers as a
teaching and learning tool in their English language teaching or learning before taking the advanced reading comprehension course. In other words, they knew of graphic organizers in books and in classes they had, but could not be specific beyond matrix types of graphics and bubbles in textbooks they had used during the course of their public education. Mamet, Dan, and Andy considered graphic organizers new tools for learning and teaching, although I use the term "new" in a tentative way here.

As Dan pointed out in one our formal conversations (8-5), he had seen them in textbooks but had not really thought of graphic organizers as I was presenting them as tools for teaching and learning content and language. He said that you really had to make one for yourself or your teaching to become aware of their potential.

Even though Dan, Andy, and Mamet did not seem explicitly aware of their interactions with graphic organizers in their teaching and learning before the course. I am sure they had more experience than they were aware of or thinking of when I asked them. Mamet went to Northern University in the same graduating class as Busaba, Wanida, and Lada, Dan went to UC Berkeley, and Andy had a U.S.-based education. These contexts all use graphic organizers in various degrees of frequency and depth (Formal Conversations, 7-15, 8-5, 8-6, 8-13; 9-2; 11-13, 11-14, and informal conversations throughout the semester).

All four of these participants used graphic organizers outside of the bounded case. Rather then focus on the way these four participants used graphic organizers in their oral presentations in the bounded case as I did with the Scholarship Group, I display and/or discuss examples of their use of graphic organizers outside of the bounded case. Additionally, for the purposes of providing a sense of contrast, I also display each of these
four participants' concept maps they produced on the final exam from the US Government research report cited previously (i.e., Benjamin, 1993). I begin with Mamet's use of GOs outside the case.

Mamet

I do not have a jpeg or scanned display of any of the graphic organizers Mamet used beyond the case. However, I spent more time with Mamet at his teaching contexts than I did with any of the other participants. Therefore, for the data concerning Mamet beyond the boundaries of the case, I depend more on my fieldnotes. Altogether, I made three visits to two different schools where Mamet taught. These visits occurred on August 21, August, 22nd, and September, 11th. In different ways, each visit expressed how Mamet was positioning graphic organizers within his teaching contexts, in addition to how he and I were positioning each other.

When the semester began, Mamet had been teaching for about 2 months. Recall that he was a graduate of Northern University and was literate and fluent in Thai, English, and Turkish. He was teaching in two different contexts in Northern City. The first was a private elementary school with about 1500 students. For the purposes of talking about this school, I will call this Northern Elementary School. The second context he taught was a private Islamic High School, which I will call Northern High School.

I need to stop here for a moment and mention the religious context on the periphery of the data, but nonetheless present. Northern University receives funding from organized Christian sources along with US AID (Aid for International Development) monies. Mawng taught at an international school with a Christian theme that was emphasized to a
great degree, and Dan taught at an international school with a Christian theme that was emphasized to a lesser extent than Mawng's school.

I was not at Mamet's school long enough to understand the depth of the Islamic theme. I do not deny that the religious influence was profound at any of the institutions in which I interacted. However, remember that my primary focus is on graphic organizers. Of course, because my framework is derived from sociocultural theory and related and tangential theorists, the social and cultural contexts are important. However, there is simply too much baggage, so to speak, to bring religious issues into the Dissertation beyond mentioning that Northern High School was Islamic, or that Northern University had a Christian theme, or that Mawng or Dan's schools had Christian themes. There was evidence of the religion at all four of these sites, although this evidence varied in depth.

With regards to the participant-data I am now presenting (data from Mamet). I only made one visit to Northern High School, unintentionally scheduled for September 11th. I scheduled all my visits with Mamet on Wednesdays, which were my Mondays because my workweek was Wednesday through Sunday. As mentioned in the Methodology, most of the graduate classes for the TEFL department at Northern University were scheduled on the weekends. This visit on September 11th was a non-issue, beyond my own private angst, which was foolish.

There will be no more discussion of religion in the Dissertation. This is a periphery issue that I have to leave in the background; however, it needs to be mentioned due to the nature of the study and my wish to be as open as possible about the contexts and issues that arose through the course of the study. Overall, religion does not seem to be an issue with regards to graphic organizer use in the data. Because this is not a study grounded in
critical theory, I feel comfortable with leaving religion alone. I pray that readers of the Dissertation understand. I now return to Mamet.

I made two visits to Northern Elementary School to a very crowded 5th grade class of 40 students. During the first visit Mamet involved me in a lesson where he used the Venn diagram to demonstrate the comparative form. He used the same types of poster-papers I used and cut them in half and distributed them around the room. During the part of the lesson that involved the Venn diagram, I stood at the front of the room with drawings Mamet had done of a zebra, an elephant, a platypus, a giraffe, a hippopotamus, and a leopard. Mamet had positioned me as the instructor on this one because (as he told me later) my voice was loud. (Reflective Fieldnotes 8-21)

Apparently, students had done a lesson with the Venn diagram before, which Mamet had done with them, so this was not a completely new activity. Large halves of the poster-papers were distributed around the room, along with marker pens. I began with a giraffe and a zebra. I drew two large circles on the board, with the circles intersecting at the middle like you do with a Venn diagram (see Figure 25 for an example of a Venn diagram). I asked students to do the same. I stood at the front of the room holding up a picture of the Giraffe, asked the group as a whole what it was, and they all yelled out "giraffe" almost in unison. I repeated this with the zebra, turned to the board and wrote "giraffe" above one circle, "zebra" above the other, and the word similarities in the middle. I then went through a routine of eliciting responses by putting a blank in an oral announcement, for example, "a giraffe is ________ than a zebra". Mamet had also developed an interesting symbol system of prompts that I have not mentioned yet. (Reflective Fieldnotes 8-21)
In addition to the pictures of a hippopotamus, giraffe, etc., Mamet had a picture of a tall tree and a short tree, a picture of a fat snake and a skinny snake, a fast looking race care (racing stripes, fat tires), a bicycle, a big circle, and a small circle. All of these were hand-drawn like the animals with different colored marker pens. At the beginning of the class, before we started the Venn diagram activity, he was standing at the front of the room drilling adjectives in English by holding up these pieces of paper. The fast car prompted "faster", the bicycle "slower", the skinny snake prompted "thiner", the tall tree "taller", etc. Keep in mind he was trying to keep the attention of 40 ten-year olds who seemed antsy enough to climb right out of their skins. If the students failed to respond to my leaving the blank in the oral prompt, Mamet instructed me to use the hand-drawn pictures, which I did a couple of times. (Reflective Fieldnotes 8-21)

Now this scene of me using the yellative method was unfolding in a room with 40 ten-year-old boys and girls in a temperature of about 85 degrees at a little after 10am in the morning. There were two squeaky 14-inch electric fans mounted near the ceiling on each of the side walls of the classroom, weakly puffing away at the room. I had a necktie and long-sleeved shirt on. The room was about 20 feet by 20 feet, with the students sitting at old wooden desks connected together in three sections. There were other hot, crowded, noisy classrooms, with open doors and open windows, and a courtyard below our second-story room with about 200 students yelling prompted responses in some kind of organized game. Everyone, meaning other instructors and students, with the exception of Mamet and myself, were in green and brown girl- and boy-scout types of uniforms: girls in green, boys in brown, girls with green over-the-knee skirts, boys with khaki shorts. Two adjectives go through my mind when I think of this experience: NOISY, CROWDED.
Mamet did not have a particularly loud voice; hence, his reason for tapping me, with a grin on his face, for helping with the lesson. He and I seemed on friendly terms, so he knew I would not say no; I didn't. So there I was standing before a group of 40 ten-year-olds, marveling at how well they were responding and following my directions. I was also marveling at the symbol system Mamet had developed for the adjectives using trees, snakes, a car, a bicycle, etc, although I am not an elementary school teacher so maybe this is a common thing. (Reflective Fieldnotes 8-21)

Mamet said afterwards that students were well behaved the day I was there because they do not have many Farang (Thai word for foreigner) teachers. I think he was referring to native-speakers of English, which might have been a problem for him because of the generally acknowledged false perceptions of non-native speakers of English who are English teachers, but we never spoke of this. The students also knew I was his teacher from Northern University, which has some status in Northern City, and my voice was loud. (Reflective Fieldnotes 8-21)

I went through the different animals and the routine of leaving a blank in a sentence and students dutifully responded. We then divided the class into about 10 groups of four students per piece of poster-paper. The students knew the Venn diagram strategy and each group seemed to have one member in charge. As I was in the front of the room with the pictures and prompting comparative forms, students put words into the different sides of the Venn diagram, words in the middle, and generally seemed to be on-task. However, toward the end of the 50-minute class, it seemed as if all four students in each group were not occupied and some began to do other tasks (draw pictures on paper), wander around
the room (boys making fun of one of the girls), and Mamet had to talk sternly to students. (Reflective Fieldnotes 8-21)

At the end of class, students hung up their Venn diagrams in the little bit of wall space available, and they nosily departed. All the other classrooms were departing at the same time, and the noise increased. All in all, things went quite well, which was in contrast to the next visit the following week. (Reflective Fieldnotes 8-21, 8-28)

On this visit, I mentioned to Mamet that I wanted to just take notes. I sat down at the side of the classroom, which was a bit awkward, because students could see me sitting there. It would have been better in the back, but this was the only place to sit. (Fieldnotes 8-28)

Mamet began the class by handing out tests from a previous class, and then he went into an activity for teaching past tense. This activity involved someone playing detective, and someone playing the thief. After this activity, he went through another similar activity, which at one point had students put their heads on their desks. Both of these activities did not go over very smoothly. Lots of students ignored Mamet’s instructions as he gave sideways glances at me taking notes. Finally, we reached the point where he was going to do an activity using graphic organizers. A number of things went wrong with this activity. (Fieldnotes 8-28).

As before, Mamet brought in large pieces of poster-paper cut in half. He distributed these around the room, but it seemed as if there were going to be groups of 4 to 6 students per poster-paper, which did not keep everyone in each group busy. He then passed out three different reading passages and began to draw a semantic web on the board. Each of the three reading passages had a general theme of sequence. Here was Mamet using a
semantic-web to teach structure of sequence that would have been more effectively shown using a flow chart. However, he drew circles connected by lines to the center circle, and as things were unfolding, we talked about how he could arrange events in a clockwise sequence by using these other circles. In other words, we could put a different sequence of the event in a different circle. The reading passage he was using as an example was about a woman getting into her car, adjusting the seatbelt, putting the key in the ignition, etc. (Fieldnotes 8-28)

So I was up from my seat talking to Mamet about how to fix this and the ten different groups in the room had three different reading passages. Only one of the reading passages matched the example that was happening on the board in the front of the room. Students becoming confused, copying the example on the board and not using the semantic web for the reading passage they had in front of them. (Reflective Fieldnotes 8-28)

Mamet and I had a talk about the differences in the types of graphic organizers. He seemed distressed about the whole episode, but I pointed out to him how I had messed up in our reading class the previous week, and in the language learning class one night using the wrong graphic organizer, and that I had made the same types of mistakes. He seemed ok as we were leaving and reminded me that I had agreed a couple of weeks previous to come to Northern High School to an EFL class he had at 8am, two Wednesdays from now. I said fine, and mentally made a note that I would be at Northern High School two weeks from then and help him with a lesson. (Reflective Fieldnotes 8-28)

I went to Northern High School on September 11th. This was a class of 20 adolescents who were in the 10th grade. As this was a more-advanced group of students, Mamet had said that he wanted to try out a graphic organizer I had worked on earlier, which was
directed toward upper-level students. As we arrived on the fifth floor classroom, which had a great view of the city, Mamet said to me "So do you want to demonstrate the spider map?"

I took another look out the open windows to the gray of the late rainy-season sky. The sky starkly contrasted the deep green of the mountains I could see in the distance at the edge of the valley. I do not know why in these kinds of situations I just simply go ahead, but I wanted to show Mamet how this particular graphic organizer activity was supposed to work. The day I had introduced this to the advanced reading class, the lesson did not go very well. I rushed through the way to use it because I was behind on some of the other material that day of class. Now here I was in front of 20 tenth-grade boys, all waiting for the farang Ajan from Northern University to do something. I took one more look out the window, took a deep breath, and said, "ok", and Mamet distributed the blank wh-question/answer maps (the Spider-Web maps) around the room along with poster-papers, markers, and tape. (Reflective Fieldnotes 9-11)

I do not have any examples of the student work that day because they needed to keep the graphic organizers, and I am not authorized to collect that data for this study. This particular graphic organizer has a wh-question side to it and a wh-answer side to it (see Figure 21). It involved having students go back and forth from poster-papers with question written on the tops, to writing these questions and answers on the poster-papers, then to the two halves of the Wh question/answer map. The entire process of using the Wh question/answer map is intended to generate a thesis question from the reading, work collaboratively, promote top-down reading strategies, and chunk sentences.
Figure 21. Wh-Question/Answer Map that Lada related to her final paper, similar to the one used at Northern High School.
Mamet had written in a reader-response paper that he had used the chunking and poster-papers at Northern Elementary School, although I know this was the first time he had used the poster-papers with the wh-question/answer maps. (Reflective Fieldnotes 9-11) Figure 21 is a Wh question/answer map completed by Lada from her reading passage for her final presentation. I asked some of the participants to do these wh question/answer maps for their reading passages before their final presentations. Of course, the Wh-question/answer maps the students generated in the class at Northern High School were not as densely filled in as the one shown in Figure 21. I provide Figure 21 as an example.

In Mamet's class at Northern High School, we divided the class into 5 groups of 4 students each. Mamet, the class, and myself generated different questions from the reading passage, which was about a hunter and a rabbit. We wrote these on the board. I had previously written the standard wh-question words on the board (e.g., who, what, when, where, why, how).

We then assigned each group a question, which they placed at the top of their poster-papers. I instructed each group to look at the question they were assigned, answer the question individually at their desks, and then compare their answers among themselves. Then as a group, I asked them to choose which answer they thought was the most correct and write this on their poster-paper. The catch to this activity is that students have to go to the board with a chunk of the answer, or the entire answer memorized, but I was always encouraging students to work with chunks. This part of the activity was intended to prompt students to chunk sentences and notice the constituent parts of sentences (e.g., phrases, clauses, subject groups, predicate groups). Mamet and I went around the room prompting students to generate questions from the story, answer the questions
individually, then prompt the students in their groups to choose a correct answer and write this on their poster-papers. This took us most of the 45-minute class period.

(Reflective Fieldnotes 9-11)

The last five minutes of class were pretty rushed. I did not have time to go through all of the answers to the questions and the questions themselves. There were a couple of memorable things that happened while this part of the lesson was unfolding. One group filled out the Wh question/answer map with all of the questions and answers packed in one particular area of the map. The subject-nouns were written in the right place, but the answers to the questions were listed, one right after the other, crammed in one portion of the graphic (in this case it looked like everything was all crammed in the central area of the question side). Another memorable event was that the story was about a hunter hunting a “tricky rabbit”. Funny, that expression tricky rabbit: I will always wonder if this expression used in the story was from Bugs Bunny, which I’m sure it must be (Reflective Fieldnotes 9-11)

One of the more abstract questions that the students made was “How did the hunter kill the rabbit?” They created this question at the beginning of the activity. I had not read the story before this class, and I do not think they all did. In the story the hunter does not kill the rabbit. This came out while we were going through the answers. It is not particularly odd really to think that a hunter would kill a rabbit in a story with a rabbit and hunter in it. I never did get a copy of the story from Mamet. (Reflective Fieldnotes 9-11)

We rushed through examining the different responses arrayed by the poster papers around the room. At this point we were down to 3 minutes or so, but naturally, as things frequently are in Northern City, it was going to be ok to be a little late. I decided that the
best thing for Mamet and I to do was to guide the students in copying the answers to the questions from the poster on to their Wh question/answer maps, which is what we spent the last few minutes of class doing. (Reflective Fieldnotes, 9-11)

Remember that each student did not have a Wh question/answer map, they were sharing in their rows. This was a drawback. The same thing that had happened in some of the other large groups of students I had worked before with Mamet was happening (i.e., at Northern Elementary School). Those who could not really get close enough to the Wh question/answer map at their table in order to make adjustments while writing the answers to the questions were talking and jockeying around. There were a few who seemed pretty focused on the writing of the Wh question/answer map and were paying attention, but too many were not attending to the lesson. They all should have had Wh question/answer maps to work on. All that said, at least we were able to do the swapping activity with the poster-papers, and Mamet and the students had a model for how the Wh question/answer maps worked. (Reflective Fieldnotes 9-11)

Overall, in the data from Mamet I found his biggest challenge seemed to be maintaining a balance between classroom management and being able to implement the teaching strategies he was learning, which included graphic organizers. He brought in some Venn diagrams that his students at Northern Elementary School did and presented these as part of an oral presentation for the language learning theory course. He spoke to the entire class about trying to use the semantic web to display sequence when a flow chart would have been more effective on the visit I made to his class on August 28th. He also spoke about how it was awkward for things to go badly with his teacher there. I mentioned that they did not go all that badly and I had done things just as bad, if not
worse, with all of them on occasion in the advanced reading course, and I could look at myself making mistakes over and over again on videotape.

However, he was smiling at the class and everyone was oohing and aahing at his presentation of the Venn diagrams the students had done at Northern Elementary School. As stated earlier, I did not have clearance to collect this data from Northern Elementary School for the Dissertation, and can only mention it here as evidence that Mamet was making an effort to apply graphic organizers to his teaching. One particularly memorable Venn diagram was drawn in the shape of a butterfly, with the wings being the equivalent of the left and right circles, and the body of the butterfly being the central part where similarities go. It is interesting to note that I was positioned as the teacher at two out of the three class visits I made to Mamet's teaching contexts.

To conclude this segment on Mamet, I present his concept map from the final exam (see Figure 22). As in other participants’ maps, Mamet's shows how language and concepts are chunked in a particular way that highlights salient parts of the research article. It is noticeable that he frequently used multiword linking words, which when put together with the text in the bubbles, often creates complete sentences.

Mawngpleurn

The next participant who was teaching and belonged to this group of students who seemed to operate at high levels of general English proficiency was Mawngpleurn. Mawng also used graphic organizers for her teaching in two different contexts outside of the bounded case. Of all the participants, Mawng seemed to have the most supportive community of practice in terms of using the English language in her day-to-day living and teaching situation and her general history with the English language.
Figure 22. Concept map from Mamet's final exam, 10-6
One of the follow-up conversations I did with Nathanee and Mawng was at Mawng's rented house, which was located in a western-type of housing development built in Thailand's expansive hey-day in the 90s. At that time I went to Mawng's home, she had an English-speaking boyfriend, whom I met for dinner that evening after the follow-up conversations, an Australian roommate who taught PE at the international school at which Mawng taught, and she had a Malaysian roommate whom I did not meet. More than any other participant, excluding Dan and Andy, the English language surrounded Mawng. This was also apparent at the international school where she worked. (Reflective Fieldnotes 11-13)

It was interesting to note that the international school, which I will call New Northern International School (NNIS), was taking over a huge health-club and spa building and grounds that was within the modern development in which Mawng lived. The school was located only about two or three miles from her house. This was one of the newest international schools in Northern City. (Reflective Fieldnotes 11-13)

When I walked through the doors, the cool fresh breath of conditioned air washed over me. As I went to the front reception office to which a sign directed me for a visitor pass, I could not help but feel that I was walking into a plush private school in the States. After getting a pass, I was led up a wide staircase and passed a huge picture window that looked out on an Olympic-sized swimming pool. The hallway leading to Mawng's classroom was carpeted in an indoor-outdoor type of carpet. If I went to the left part of the expansive building while going up the stairs, I would be going into the fitness club; going up the right stairs brought me into the international school classrooms. Some workmen were putting up a permanent divider at the bottom of the stairs, which Mawng
told me later was intended to keep club members from wandering into the international school part of the building. (Reflective Fieldnotes 11-13)

When I entered Mawng’s class the first things that I noticed were the abundance books in bookshelves along the wall, student work on the walls, and the long tables for students. Chairs were neatly arranged along each side of the tables, and there was a lot of empty space between the tables. Mawng was sitting at her desk at the front of the room. Her desk was located in front of the whiteboard, slightly off to the side. When she was sitting at her desk, it looked like she could turn her head to the left and look at what was written on the board. We sat and talked for a few minutes before the door opened and another teacher delivered the first group of students into the room. (Reflective Fieldnotes 11-13)

The first class was a third-grade class with 16 students. Overall, I was pretty impressed with their understanding of spoken and written Thai, which became apparent over the next 50 minutes of class. Mawng was teaching the Thai language to this varied group of foreign children, some from Japan, China, Korea, Australia, the UK, and the US. Indeed, a challenging teaching situation. Mawng later said that she was trying to place the more advanced learners with the weaker learners. Mawng told me that the classroom constantly had students coming and going over the course of the semester because these third-graders were mostly the children of missionaries. (Fieldnotes 11-13)

Their main activity for this class was to translate and categorize words written in the Thai writing system and a Roman phonetic system consistent with the work of Becker (2002b). The students were arranged in four tables. Their task was to categorize words and place them into columns with headings (see Figure 23). (Fieldnotes 11-13)
After the good morning greetings in Thai, she introduced the first activity: a worksheet with four columns ("worksheet" was a word that Mawng used). One column was filled with a mixture of nouns: words for occupations and words for animals. Also mixed with these words were the words spelled in Thai, and the words in the well-known spelling system using the Roman alphabet from Becker (2002b). The morning greeting and the instructions for the activity were all delivered in the Thai language. (Fieldnotes 11-13)

The worksheet looked similar to the representation I re-constructed in MS Word (see Figure 23). This example in Figure 23 is far shorter than the A4-sized sheet of paper that was used in class. The worksheet was also lined, unlike Figure 23. As mentioned, the words in the mixed word column appeared in the Thai writing system and in the phonetic system from Becker (2002b). The worksheet prompted the students to move a word from one column into another, thereby classifying the word as either a noun for an occupation or a noun of an animal. Either before or after the Thai-word was placed in the correct column, the English translation was written in the English translation column. (Fieldnotes 11-13)

This was a particularly lively group of students, which seemed even livelier with them working together in collaborative groups: lots of laughing and smiling as they practiced the Thai sounds and words. Many of the students sounded surprisingly fluent and literate, able to write words quickly and correctly, and I could clearly hear the different tones of the Thai language. However, in order to be as unobtrusive as possible, I stayed in the front of the classroom, which limited my overall view. (Fieldnotes 11-13)
Mawng's classroom management seemed effective; that is, students responded with silence when she went through a clapping routine to get their attention. They also seemed to begin a task when she asked them to, and when she talked to them in Thai, they responded in Thai. When they responded in English, she often asked them “what language are you speaking?” With this small bit of prompting, they switched back to Thai. (Fieldnotes 11-13)

To summarize the morning group’s activity, particularly in relationship to any graphic organizers used, the matrix-like worksheet prompted students to classify words in two different categories and translate these words into English. The students worked in groups to complete this task and communication within and between groups did not seem constrained and was often encouraged. According to Mawng, within groups, students were arranged in order to encourage more capable Thai-language learners to assist less capable and newer students (Vygotsky’s, 1978, ZPD was discussed extensively in both of the courses I was teaching at Northern University). Students were collaborating in an
activity that involved the completion of a type of graphic organizer. (Reflective Fieldnotes 11-13)

Of the four general classifications of graphic organizers from Robinson (1998), which are summarized in the Introduction, these worksheets most closely resembled a matrix. Even though most of the directional flow of the graphic was in columns, when words were translated into English, a reader would be prompted to move left to right or right to left along an x-axis, as well as going top to bottom along a y-axis. Because students collaborated and displayed a lot of spoken Thai, the matrix seemed to be taken out of the passive realm in which most worksheets can be placed (Reflective Fieldnotes 11-13). The kind of salient mental activity the graphic prompted, as mentioned, was the classification of nouns.

After lunch, I attended Mawng's 5th grade class, where again, graphic organizers formed the core of the lesson. This 5th grade class was much smaller, six students: three boys and three girls. They came in breathless from lunch. As soon as they came in it was clear that the three boys were going to be horsing around, to use a cliché that seems appropriate here. For the entire class, the girls were more focused on the activity. Mawng spent much of her time managing the group of boys. (Fieldnotes 11-13)

Mawng was using an intermediate Thai language book I have seen at various locations in Northern City (see Becker 2002c). This is the series of texts that Mawng was using for all of her classes. The set of books has beginning, intermediate, and advanced levels. For this group of 5th graders, they were using the intermediate-level book and working with a story about different types of hilltribes in Thailand. (Fieldnotes 11-13)
Mawng opened up with some standard pre-reading questions while the students were settling down: Do you know of any of the hilltribes? Where do they live? etc. These questions were posed to the class in Thai, the speech not necessarily slow, but clear in a gentle pace so the tones were easily discerned. Mawng then shifted the students' attention to a Venn diagram, which she drew on the whiteboard using large circles. It seemed like most of them had worked with it before, and I e-mailed Mawng during the writing of the Dissertation and she confirmed that this was the second time these students had worked with a Venn diagram. Mawng labeled the circle that made the up the left side of the Venn diagram Lisu, and the right side of the circle Akha. Again, keep in mind that Mawng is writing and speaking Thai while labeling each side of the Venn diagram. She spent about five minutes on this Venn diagram and had no problem eliciting attributes about the hilltribes from the students. Mawng was moving the students' attention back and forth from the book to the Venn diagram. These shifts in attention were prompting student-teacher interaction. (Fieldnotes 11-13)

As Mawng finished with the Venn diagram, she began passing out pieces of white construction paper and different colored pens. Students had also done this activity before, which was evident when she was asking students if they remembered the semantic web. When the students began this activity, it became clear that the group of three boys would be the ones not focused completely on the activity. For example, one of the boys kept talking in English and had to be continually reminded by Mawng to speak Thai and work on the semantic web. (Fieldnotes 11-13)

These three boys each assumed a certain role in the activity: one of the boys did hardly anything, just looking on; another was drawing the circles using the top of a can of
air freshener. He was drawing these in pencil. The other boy was then reaching over and coloring in the penciled outline with a colored marker. This boy doing the coloring also seemed largely responsible for the key words in Thai they were writing in the circles. The boy who was generally doing nothing would spray the can of air freshener between the other boys' efforts to work on the task; although the other boys seemed easily dissuaded from working on the task. (Fieldnotes 11-13)

Despite the horsing around, the semantic web was interesting in a couple of different ways. The students used a different color to differentiate major concepts and subordinate concepts. Color was a part of mediating hierarchy. I could not read the Thai, but listening to their conversation in Thai and knowing a few letters, I could discern which topics from the reading they were putting in various places on the semantic web. (Fieldnotes 11-13)

Toward the end of the activity, I decided to wander over to the girls' table, which I had been frequently looking toward while I was watching the boys work. From where I was sitting in the front of the room, I was within 3 feet of the boy's table. The girls' table was about 13 feet from where I sat. (Fieldnotes 11-13)

In contrast to the boys, the girls seemed focused and diligent. They had obviously divided up the tasks needed to complete the activity. One girl was mainly looking through the story for key words, and the other two were laying out the semantic web. Instead of doing bubbles, they started their center with a large rectangular area. They were also writing their Thai letters very large, and in a fancy type of almost medieval European script. The letters were also colorful. In a later informal conversation with Mawng, she told me that these girls did a lot more coloring on this particular semantic web (Fieldnotes 11-13; Reflective Fieldnotes 11-13). As the class progressed, I could see that the girls...
found that they were making their main rectangle and other rectangles so large that they would need to extend the sheet of construction paper. They did extend this piece of construction paper by the end of class. (Fieldnotes 11-13)

Overall, it was interesting to see Mawng use the semantic web strategies to teach Thai. It was also interesting to see her use the Venn diagram. One thing that stood out during my visits with Mawng at her school that day and visits with her during two formal conversations: the English language surrounded Mawng, and at her school, teaching strategies emphasized interaction rather than the well-known passive way of positioning students. Positioning learners in a passive way is something that all of the participants, including Chou, mentioned as being what they considered to be the most prominent teaching strategy they encountered in their histories of teaching and learning in China and Thailand. (Formal and Informal Conversations).

While at New Northern International School Mawng spoke English consistently outside of the context of her teaching Thai to students and speaking to two Thai colleagues at lunch in the faculty/student cafeteria. When we sat down to lunch, we were sitting with native English speaking teachers from Australia, New Zealand, Canada, and the States. Along with Mawng, there were a few other Thai teachers scattered around the room. The conversation at the table was in English. When we went to other classrooms during the day there were English word-walls and English writing everywhere.

Considering Mawng's home and social life, the most salient finding concerning Mawng is that she belonged to a different community of practice than the other participants in the study. I think this is particularly true with regards to the strategies of teaching she actively sought out, as well as her personal educational English-language
history. In addition to what I have already mentioned, Mawng’s mother is in the import/export business, and Mawng indicated that this was a major factor that placed English in the foreground of her life (Formal Conversation 7-15). Moreover, some of her other teaching endeavors over the data collection period expressed this different community of practice.

As stated previously, Mawng worked with advanced English students in another teaching context in Northern city. In this context she used semantic webs and concept maps generated through the computer program Inspiration 6.0. I did not formerly introduce Inspiration to the students until after the midterm, but Mawng was very explicit on wanting to use it sooner with her university-level students, and I finally relented and let her use my copy of the program. As a result, she began to use Inspiration right away and talked about it extensively during a formal conversation I had with her in July (Formal Conversation 7-15). One of these examples is in the Introduction and is labeled as Figure 4. She had a number of similar examples that she showed me. One of these examples is displayed in Figure 24.

During two formal conversations I had with Mawng (7-15; 9-2) I asked her what she thought was particularly effective with these semantic webs. On both occasions, she mentioned that students were able to answer multiple-choice types of questions faster after using the graphic organizers. She said the graphic organizers provided students with an illustration of the content of the reading passage. (Formal Conversations 7-15).
Another salient feature of Mawng's attitude toward teaching, graphic organizers, and learning in general, was her willingness to seek out scholarship on teaching. During my first formal conversation with Mawng, she showed me a book by a nationally recognized Thai teacher who lives in Southern Thailand. It was interesting to find a 1995 citation from Amy Seeley in the reference pages, which stood out because it was the only English language text in that particular page of the references. Amy Seely is now Amy Seely Flynt, and I have come across her work and name in some top-tier literacy journals in the States. Mawng also told me that she read about Vygotsky in this book and that this author
had advocated the use of graphic organizers. I think this outside reading, along with her own personal history with graphic organizers and her colleagues at the international school, contributed to her willingness to use them in her own teaching practice.

During the three formal conversations I had with Mawng (7-15; 9-2; 11-13) I asked her about her history with GOs as a teacher and a learner. She said that she knew of semantic webs and the KWL charts from working with her colleagues at the international school and had come across them while working on her BA in English. Mawng also said she had come across GOs in other books about teaching, like the one mentioned earlier that cited Amy Seely. Matrices were something she had been using for a long time. Mawng thought that the Venn diagram and the concept map were new to her, and she thought these strategies were new as tools for reading comprehension for the advanced students she was teaching (Formal Conversations 7-15; 11-13).

When I asked her about using GOs as an English learner, she said she could not remember any specifically: "not in my head" (Formal Conversation 7-15). Although she did mention that showing a sequence of events through the use of a flow diagram was something she could remember using as a learner.

Mawng also said she used a graphic to show rising-action and falling-action in her literature classes as an undergraduate (Formal Conversation 11-15). She had never used graphic organizers for classroom presentations like we were doing in the advanced reading class and the language-learning course (Formal conversation 7-15). That is; she had not paired up with someone or worked individually to create a graphic organizer to present content to a group.
Figure 25. Venn diagram from Mawng's language learning theory exam in October
Figure 26. Concept map from Mawng's final exam. 10-6

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To sum up Mawng’s experience with graphic organizers, she had some experience using these as an English language learner. As a teacher, the concept map and Venn diagram were new to her, the semantic web, matrices, and KWL chart were not new.

In our last formal conversation (11-13), she mentioned using the Venn diagram to study the night before the final exam of the language learning theory class. I had noticed a Venn written on the back of her exam sheet. Because she specifically mentions this strategy as a recent one that she has used as an English language learner, I asked her for permission to use this in the Dissertation (after final grades were submitted). This Venn diagram is displayed in Figure 25. I noted two other students scratching out Venn diagrams on scraps of paper while writing compare and contrast essays comparing different types of language learning theories. These were Mamet and Busaba, and Lada put one in her exam booklet along with her essay. However, I did not keep these other examples because I was trying to keep data-collecting to a minimum in the language learning theory course, particularly anything to do with formal exams.

To conclude this segment of the Results I present the concept map Mawng did as part of the final exam for the advanced reading course (see Figure 26). As in the other examples provided thus far, you can see the division of major concepts and subordinate concepts and a consistent use of single-word linking words, with an occasional use of multiple-word phrases establishing links. One of the most common linking phrases on this concept map is the phrase "the result shows that". Mawng also used highlighter in three places to highlight major concepts, including the title, which is in blue on the original but shows up in black on the scanned copy. As with the other concept maps, a pattern of chunking sentences is evident on the map.
Dan

The next participant from this group of four is Dan. He also worked at an international school and used graphic organizers frequently in his activities at the school. Like Mamet, Dan was new to the teaching profession, and graphic organizers as tools for teaching and learning were perceived as new by Dan (Formal conversation 8-5), although this was surprising considering the extensive education he must have experienced both in the Netherlands and at UC Berkeley. I first present some information about my visit to Dan's teaching context before looking at the various other ways he used graphic organizers outside the boundaries of the case.

I visited Dan at an international school that had been established in Northern City for a number of years. For discussing this international school, I call it Old Northern International School (ONIS). It was an older whitewashed brick, cinderblock, and wood building in an older section of Northern City. I think the building used to be some type of foreign consulate or Thai government building at one time and had a large courtyard inside a multi-building compound surrounded by a chain link fence. The school had a good reputation, and I had heard positive things about it when I was in Northern City in the 90s. About eight weeks into the semester, Dan started working as a pullout ESL teacher at ONIS. (Reflective Fieldnotes 11-21)

I met Dan a little before 9am. He met me downstairs, and after I received a visitor pass we went up to the second floor to his classroom. The main class was in the middle of a lesson when I arrived, and I could hear the regular teacher eliciting responses about animals and camouflage. (Reflective Fieldnotes 11-21)
It was a huge classroom, probably about 35 feet long by 20 feet wide, and it was cut in half by a row of bulletin boards. The bulletin boards were covered with student work: hand drawn pictures, sentences, words, and paragraphs. Dan had a desk against a wall in this almost empty half of the classroom. Dan told me before arriving that he usually worked with the students out in the hallway. When he tried to work with the students in this half of the classroom his voice carried over to the lesson the main teacher was conducting in the other half. His voice distracted her class, and her class interactions distracted Dan and his pullout students. (Reflective Fieldnotes 11-13)

Dan had four small desks pushed together in the hallway, with a portable whiteboard next to the desks. He had a chair for me to sit at next to an electric fan. This was about six feet from the desks. All the chairs were small, which was noticeable when Dan sat down in one of them. He is a 23-year-old tall man, about 6 feet tall, a little thin, but strong. Dan was in dark colored shorts that came below his knees, and he was wearing a dark-blue, short-sleeved polo shirt with the school name and symbol stenciled over the left pocket. Overall, I noticed other people dressed in shorts, jeans, or informal skirts and blouses, which made sense because the building did not have any air conditioning. I was the only one wearing a necktie and a long sleeve shirt. (Fieldnotes 11-13)

This part of the hallway was in a section inside the building, just beyond where two other hallways intersected near the teachers' lounge. From where I was sitting, I could see out to the treetops in the courtyard. One of the hallways that intersected next to the teacher's lounge had an entire wall open to the outside. Dan had his back to the teachers' lounge and the open wall. We spoke for a few more minutes before the first group of three students came in the room: three girls and one boy.
These were second grade students who were placed in the pullout group. I did not follow-up on why students were chosen for the pullout sessions. My main concern was with what kind of graphic organizers Dan used, how he used them, and the general contextual feel to the school (i.e., was it a rigid place, inflexible curriculum, crowded, caring?). (Fieldnotes 11-13)

For this first session, he began with a round-robin reading (i.e., students take turns reading). The overall theme of the reading was ecosystems with a specific topic of camouflage. Students seemed to have some pronunciation difficulties and Dan finished a word or two, but overall, I felt like I could have been listening to three second-graders in a school in the States. They seemed like lively kids, asking lots of questions, wiggling, giggling, writing and talking about the reading as they looked at the huge colorful pictures in the book, which Dan held open on the page they were reading. Dan seemed to have a good way with them: he did not show any outward impatience, just talked sternly to the one boy when the boy kept poking at one of the girl's book and whispering to her. The students smiled at Dan as he spoke to them and asked questions like, "Why do animals need to change color?" He was pointing to pictures in the large picture book as he asked questions and clarified words like "enemies" "prey" "poisonous", and "munch". As soon as they completed the reading, Dan distributed the matrix displayed in Figure 27. This matrix is also displayed as Figure 3 in Chapter One. I am re-displaying it here for immediate relevance. (Fieldnotes 11-13)

After Dan distributed the matrix, he told the students to go back through the story and think about where they should put a tick mark, and he went through each category. Lots of back and forth talk about the word "habitat". This obviously was a theme they were
<table>
<thead>
<tr>
<th>Animal</th>
<th>Lizard (chameleon)</th>
<th>Bird</th>
<th>Alligator</th>
<th>Frog</th>
<th>Insect (praying mantis)</th>
<th>Coral Snake</th>
<th>Butterfly</th>
<th>Toad</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What camouflage do they use? (You can list more than one)</td>
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<td></td>
<td></td>
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<tr>
<td>They use camouflage to:</td>
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<tr>
<td>Hunt animals</td>
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<td></td>
<td></td>
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<td>Hide from predators</td>
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<td>Movement</td>
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</tbody>
</table>

Figure 27. Matrix from Dan’s elementary classroom 11-21

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working on in the regular class. Also it was interesting that they were talking about the intentions of the animals and how there was a certain ambiguity about the categories such as, "They use camouflage to", which have the choices "hunt animals" or "hide from predators" underneath. Some of the animals used camouflage to hide in order to hunt.

Lots of interesting talk between Dan and the students occurred through the use of the matrix, and the students were using the matrix as a tool to search through the book. The bottom square with the question mark was intended to allow the students to pick an animal outside the book for them to make decisions about the attributes. (Fieldnotes 11-13)

By the end of class, students had completed about half of the chart, and Dan said that they would complete it during their next session. Throughout the entire 50 minutes, there was continuous talk about the chart among the three students and with Dan. After this pullout session, we went into the teachers' lounge for coffee. (Fieldnotes 11-13)

A couple of things should be mentioned about this attribute matrix and the activity in which Dan applied it. I used a text by Herrell (2000) intermittently throughout the semester in the advanced reading class to provide the students with an array of examples of language learning and literacy strategies applied with adolescents and elementary ESL learners. In addition, one of the objectives of the reading comprehension course was to have students, particularly those who were non-native speakers of English, glean teaching strategies from a variety of different texts written in English. Herrell's text was one of these. In the process, we continuously discussed the different nature of ESL and EFL and the vignettes that Herrell used to illustrate her strategies. Dan had mentioned that the matrix he was using was prompted by an example Herrell (2000) had provided. This is
something to keep in mind in the Discussion when I talk about transformation of participants and their activities beyond the case.

Following our coffee break, I resumed my position in the hallway as Dan went into the main classroom. The next class was starting, and after a moment Dan came out with this next group of students. This group was three girls and one extremely hyperactive boy, all third-graders. Dan had mentioned the hyperactive boy to me a couple of times during the semester. He thought this boy had some kind of attention disorder, and by the time this pullout session was over, he had this boy sitting with his desk facing away from the three girls. (Fieldnotes 11-13) As before, because the primary focus is on Dan's use of the graphic organizers, I will not say much more beyond essential information about the students.

For this session Dan distributed a story about tigers and drew a KWL chart on the whiteboard. Some of the students were reading aloud to themselves as Dan was drawing the three columns of the KWL chart on the small easel-type whiteboard. Dan turned to the students and asked what they know about tigers. This characterized the questioning strategies he used during this lesson. He was very explicitly leading them through a number of questions and responses; that is, he kept adjusting the question until he got an answer. For example, when he was asking what tigers eat he was talking about how cows eat grass, and what other animals eat (i.e., vegetarian, carnivore), and then shifted to asking the students what they eat. He placed a number of the short answers from these questions in the "know" column, such as, "They eat meat". He then began to prompt questions to go in the "What do we want to know?" column. He had to do a lot of
prompting in order to get the pre-reading parts of the KWL chart filled in. (Fieldnotes 11-13)

After Dan had gotten many of the pre-reading parts of the questions in place, Dan asked the students to take turns reading each paragraph aloud. After each paragraph, he would ask them questions about certain parts of the paragraph, keeping the questions on a literal level so the answers could be found in the book. As they worked their way through the very short storybook, Dan would write one or two words in the "What did we learn?" column. Some of the information that ended up in the "What did we learn?" column included "sharp teeth", "9-feet long", "live in Asia", and similar short phrases. Some of the questions for these answers were in the "What do we want to know?" column and some were not. (Fieldnotes 11-13)

When they had completed the story and choosing chunks of language for the "What did we learn?" section of the chart, Dan adjusted the activity to having them write sentences from the chunks of language on the chart. He spent the rest of the pullout session working with the students at their four desks pushed together, which formed a small table. The hyperactive boy became increasingly disruptive, and Dan had to keep reminding him to work on the sentences until finally, toward the end of the lesson, Dan turned the boys desk around so that he was sitting with his desk facing the wall and working alone as the three girls worked together. Dan went back and forth between the boy and the three girls, helping them to write their sentences. I left the school at the end of this lesson.

Overall, it was very interesting for me to see how Dan used the matrix and the KWL chart in his teaching. Recall that his conscious awareness of graphic organizers was
limited before the advanced reading comprehension course, as well as his teaching experience. In these examples and other data from Dan, we can observe transformation of teaching activity and general oral presentation activity, which seems to be a result of his emerging knowledge of graphic organizers.

In addition to these examples from his teaching at Old Northern International School, Dan demonstrated other examples of using graphic organizers outside of the core case. He arrived at my apartment unexpectedly on August 13th and showed me how he used a graphic organizer during a one-on-one tutorial with a university-level business student.

During two formal conversations I did with Dan on August 5th and 6th concerning his history with graphic organizers and his general history with the English language, I told Dan about an activity that I used to do in Northern City when I was working with small groups of students. After the interview, when we were discussing ways to approach the 6 students that he had as privates, I mentioned to him that I had learned a wh-question drill activity that might work for his students.

The activity basically consists of drawing a circle on a white-board or piece of paper. In the circle the instructor writes a topic, for example “traffic jams”. At the time I was telling him about the activity, it had been about 6 years since I did it. While I was sitting with Dan, he drew a circle on a piece of paper and drew some lines away from the circle. He placed “taking a message” in the circle, because we were meeting prior to a lesson he was going to do with a business student. I told him that everyone takes a turn asking a question to the person next to him or her in a circle. Someone answers, and then this person in turn makes a question to ask the next person, and so on. It was interesting at the time that Dan had immediately taken this idea and drawn circles around the center circle.
I had never really conceptualized the activity in a kind of semantic-web form, although I had been creating a kind of semantic web for years. I had often drawn circles around the center circle as Dan was doing. This was a surreal moment. Suddenly I was looking at my own prior history with graphic organizers differently. (Reflective Fieldnotes, 8-13)

When Dan arrived on August 13th, he was excitedly telling me about his new job at Old Northern International School, and then mentioned that he had just done a lesson with a business student and had created a graphic organizer using the students' laptop computer. He asked me if I wanted to see. Who me? See an adaptation of a graphic organizer: sure. I handed him my clunky, but wonderful, secondhand, refurbished 380 ThinkPad. Dan produced the following, which is displayed in Figure 28. (Reflective Fieldnotes 8-13)

This was a pretty stunning moment for me personally. During those years of teaching in the 90s in Northern City, this wh-question and answer round-robin type of activity was one of the staple activities with which I felt I had some success. I bought my first computer in the winter of 1995 after getting a kickback on some black-cod (the cold-storage paid more after the season was over) that were sold during a very short season in May of 1994. It had never occurred to me to transform this activity using my Compaq Contura laptop that I bought. Indeed, up until Dan showed me this graphic, I had never really taken the time to explore the auto-shapes button on the MS Word toolbar: these moments were loaded with transformation.
Other than these examples from Dan of using graphic organizers beyond the case, Dan also used the Inspiration program for a presentation in the language learning theory course. He used Inspiration to generate numerous tree diagrams and flow-charts to present a study he was working on at Old Northern International School. This is just one page of several pages of Power Point slides Dan presented to the class as part of his term project (see Figure 29). Dan gave me permission to use these data for the dissertation.

As with the other participants, I conclude this section of data about Dan with the concept map he generated for the final exam (see Figure 30). It is interesting to note two things about Dan's concept map. Dan's map is the first one presented thus far that explicitly displays cross links between concepts. A cross link is so labeled because a link is displayed "between one segment of the concept hierarchy and another" (Novak & Gowin, 1984, p. 36).
ESL Content Learning Objectives

- Reading and reading comprehension are the main focus
- Students will read aloud and retell the story in their own words
- Write pre- and post-reading responses
- Work on projects
- Listen to each other read

Since I'm trying to build up difficulty gradually, I asked most comprehension questions after reading during the first 2 weeks.

SSR Language Learning Objectives

Comprehension assessment

Figure 29. Semantic webs generated by inspiration used by Dan in a power point presentation for a language learning theory term project, October
Figure 31. A draft of a concept map from Dan's final exam 10-6
Dan's concept map displays cross-links in at least five different places. And these links are quite extensive. They not only link one segment to another, but also sometimes link three or four segments together. For example, starting from the center, Dan moves up from "Children's Success in School" to "Parent's literacy" then to "mother's literacy". If you look to the right of "mother's literacy" he splits this into two different segments. One uses "recent research stress" [sic] to "Indirect factors" then to a linking word, "from", to "family context". Now when you go down from "family context" you get into "flawed correlational design". "Family context" and "flawed correlational design" are connected by the phrase "often have a". This branch hooks up again with the other branch, "intervention programs" from our original two branches "mothers' literacy". Where these two branches link up again is through the phrase "by use of", which leads into "naturalistic inquiry".

Continuing down from "naturalistic inquiry", we see more cross-links develop to the left of "parent child as a learning unit". It continues into the crowded section on the bottom left. There are three cross-links in this crowded bottom-left section. In another related section of the map you can also notice at the top, to the left of "Mother's literacy", that this part circles around to the center "Children's success in school" through "Mother's level of education", which displays another interconnected segment off to the side. The circle is completed with the linking word "influences" that connects into "children's success in school" at the center again. None of the other concept maps from the other 9 participants developed this many complex connections.

The other thing to notice about Dan's map is that he is the only one to put something in the center of the concept map other than the title of the research article. Dan wrote,
"Children's success in school". Every other concept map begins with the title of the research article in the center. On an earlier draft of the map (see Figure 31), you can see some of Dan's developmental strategies with regards to how he is going to arrange things on his final concept map. One of these significant changes is the crossing out of the title, and shifting part of the title to create a different segment.

To summarize the data collected concerning Dan, overall, he used different types of graphic organizers extensively in his teaching from the moment he learned about them in the advanced reading course. His use of the different styles of graphic organizers in a variety of situations also extended my own thinking on how GOs can be created and used. Moreover, Dan's use of cross-links was present in his final concept map, and cross-links were not explicitly present in any of the other participants’ concept maps, with the exception of Andy’s final concept map, which, to some extent, illustrates cross-links; although, I can hear the participants say to me “but Ajan never said to put in cross-links”.

When I think about it, I can also hear myself saying that to a teacher. I did not discuss cross-links when teaching concept maps. Teaching cross-links while teaching concept maps is a suggestion from Novak and Gowin (1984); however, because of the route I used to arrive at the teaching of concept maps, which was through the teaching of semantic webs first, cross-links were not explicitly mentioned. This use of cross-links is an avenue of further study in looking at Dan and the other participants’ concept maps.

Andy

The final participant in this group of four is Andy. Recall that Andy was the only American in the group. I have the least amount of data beyond the bounded case about Andy in terms of his teaching context and interview data. During the data-collection
period Andy was a full-time student and was not teaching with the exception of some part-time teaching associated with his assignments at Northern University. He was basically on a break from his strenuous work schedule in South Korea to study in Northern City. As stated previously, most of his teaching experience was in South Korea, and I have been in touch with him by e-mail a couple of times while writing the dissertation.

He left Thailand to return to work in South Korea immediately following the final exam, and last I spoke with him through e-mail, he was in South Korea working on some teaching materials using graphic organizers. Interestingly, Andy is currently working with some of the concepts from Tomasello (1999) and presented a very effective summary and graphic organizer of Tomasello's ideas for the first oral presentation. Andy also has an interest in using some of Tomasello's ideas in his thesis. I sincerely hope to help him with this. Another interesting thing about Andy is that, like Dan and Mamet, Andy did not seem to have much explicit knowledge and conscious awareness of graphic organizers from his own general teaching and learning experiences before the advanced reading course.

With regards to Andy's use of graphic organizers outside the bounded case, one of the examples I present here is from a collection of curriculum materials he put together for another MATEFL course at Northern University. As most of the work Andy did in the advanced reading comprehension course and the language learning theory course, he demonstrated a clear grasp of the concepts he was studying and worked extremely hard to apply these concepts.
more than 600 years.

he was just 21 years

which

the Choson

during

a ruler

king of Korea

King Sejong

which is

hard, soft and

sounds

and

created

because he wanted

helped develop

a medical encyclopedia

Rule of Korea

Figure 32. Concept map from Andy's book

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Figure 33. Concept map from Andy's first oral presentation 7-21

The collective wisdom of a group, and resulting in cultural learning

Only humans can learn "through" and another, recognizing the "other" as similar to "self" whereas

In an environment of ever-new artifacts (tools) and social practices (language)

Cumulative cultural evolution

The use of cognitive skills to acquire linguistic/communication symbols enabling

Multiple simultaneous interpretations of all possible perceptual situations (ways in which objects are considered) allowing entry into

The world of culture

Growing skills of communicative interaction

Culture-historical process (historiography) where individual-based cognitive skills are transferred into culturally based cognitive skills with a social collective dimension

A theory of mind in relation to interaction

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Figure 34. Concept map from Andy’s final exam 10-6
It is beyond the scope of the Dissertation to present the entire book that I am sitting here looking at while I write. The book is about 70 pages long with ten different chapters. Each chapter has a different one-page reading, which Andy created from information and photos from the Internet. For each of the chapters there is a graphic organizer that highlights different features of the reading. The graphic organizers are created using Inspiration, which I introduced to the participants in August. All of the chapters also use wh-questions to promote inquiry, and these wh-questions are linked to the graphic organizers and/or learner background knowledge. There is an introductory section of the book that provides guidelines on how to implement the book and activities in the classroom. Overall, this book of readings, activities, and graphic organizers demonstrates Andy’s habit of going beyond the parameters of an assignment, thus extending his own and his classmates knowledge. Figure 32 is just one of the many examples of graphic organizers in Andy’s book.

In terms of Andy’s use of graphic organizers within the boundaries of the case, I display three examples. The first GO from Andy is the flow diagram created for his first oral presentation. This graphic organizer is presented in the Introduction (see Figure 2). This is a flow chart expressing human evolution and was constructed by Andy from Tomasello (1999). For this first presentation students were asked to build a flow chart in addition to some other type of graphic organizer. Andy presented this flow chart to orient the audience to Tomasello’s review of human evolution. This next graphic organizer Andy presented is a summary of the major features of Tomasello’s book (see Figure 33). Summarizing the major features of Tomasello’s book into a concept map and roughly 15-minute presentation was not a simple task.
As with the other participants, I present Andy’s concept map from the final examination (see Figure 34), which summarizes the Benjamin (2003) article from the US Office of Research and Educational Improvement. As with Dan’s map, Andy’s map illustrates cross-links, although not to the extent of Dan’s map. Notice to the right of the center bubble where “non-traditional studies/research” forms a major concept. Underneath in this bubble are two branches. One is labeled “naturalistic inquiry” and is connected to the major concept by the word “propose”. This bubble, “naturalistic inquiry” is connected to the bubble next to it by the bubble “Research issues”, which links these two branches together. Although this is not in the strict definition of cross-links (Novak & Gowin, 1984), it is an interesting variation that links together two different branches.

Another section of the concept map that better illustrates a type of cross-link between two hierarchical branches is the section in the bottom-center of the map underneath the bubble, “Promising Programs”. There are two branches, “Even Start” and “Kenan Trust”. The bubble “benefit parents as well” connects “Even Start” and “Kenan Trust”. When comparing these cross-links with Dan’s, these examples do not explicitly illustrate the links between different branches as Dan’s does; nonetheless, these are effective displays that illustrate the abstract links between concepts.

To summarize this data from Andy, he used GOs extensively beyond the bounded case, and the last I spoke to him, he still continues to use them in his teaching in Korea. Like a few of the others, Andy began to use the program Inspiration after being introduced to it in August. It is also interesting that he grasped the importance of Tomasello’s (1999, 2001) notion of joint attentional scenes, which we (i.e., the entire class) discussed at length while going through Tomasello (2001) in the language learning
theory course, however, I do not think that participants had any idea I was looking at joint-attentional scenes in the data, and I did not see them until I returned to the States. Tomasello (1999) used some of these studies (Tomasello 2001) to back up his central emphasis on the importance of collaboration and understanding the intentions of others, which I will return to in the Discussion. Andy was an unexpected pleasure in the course, and he kept me on my toes with regards to the challenging questions he raised about theory, literacy, and language learning in both courses.

The last two participants I will present did not seem to fit into either of the other groups. Of course, they worked with all the other participants effectively in the context of the bounded case and outside the bounded case as prompted by class assignments; however, I grouped them as individuals due to the nature of their teaching contexts, and with Chou, a different first language background in addition to a different teaching context. Also recall that Chou has been labeled as a telling case (Mitchell 1984). I first present data from Nathanee, and then I present some additional data from Chou.

Nathanee

Besides Chou, Nathanee is one of the other participants on whom I decided to focus at the beginning of the study. Nathanee was the only participant who was in more of a “Thai” context; meaning that Thais administered the vocational school in which she taught, and the school was generally acknowledged as connected to a top-down centralized bureaucracy more so than the other teaching contexts I visited.

Mamet also was in a Thai context at Northern Elementary School, but he was not there full-time, and he rotated between Northern Elementary School and Northern High
School. In addition, the curriculum that Mamet used, as did Mawng and Dan, was a general type of English curriculum. The curriculum that Nathanee taught was restrictive in many ways. It was not a general English curriculum. Depending on the classes she taught, she was teaching English for a certain type of context, for example, English for hotel and tourism, English for business, English for mechanics, etc. Nathanee and other teachers I spoke in Northern City understood this to be technical English, and the school Nathanee taught at was called a technical college. For the purposes of the Dissertation, I call this school Northern Technical College. There are probably three to five of these technical colleges in Northern City.

Nathanee described her students as mainly in their late teens and early twenties. It is generally acknowledged in Northern City, and in the rest of Thailand, that the students who go to technical colleges have generally not done well on the nationwide entrance exams, which students take in order to be placed at an appropriate university. I made my first and only trip to Northern Technical College on November 14th. In addition, Nat and I often spoke about her students and curriculum pressures there. This visit to Northern Technical College was a day after I had gone to Mawng's school, which was plush in comparison to all of the other schools I visited. (Reflective Fieldnotes 11-14; Formal Conversations 9-2; 11-20)

In terms of the overall look to the place, Northern Technical College was painted the standard, slightly gray looking off-white color as many government buildings are in Thailand and elsewhere in the world. There was very little character to the place in terms of anything architectural explicit, beyond the Thai-style upward sweep of the borders of the ceramic-shingled roof. The school was located in a chain-link fenced-in compound off.
one of the main roads leading out of Northern City, and this road was normally very congested during the morning and evening rush hours. (Reflective Fieldnotes 11-14)

I arrived about 10:30 am and checked in with the security guard. Using Thai, I told him who I was looking for and asked him where to park my leased, ten-year-old Honda 110. He said right next to his gray wooden guard box. Parking a motorcycle right there was obviously not a usual thing to do; that is, there were no other motorcycles in sight on this side of the building, the courtyard area was treeless, and the grounds looked like they recently been covered in a flat cinderblock type material, which was about half the width of a regular cinderblock. These were shaped in 8 by 8-inch squares, with new grass growing through the four inner squares. I saw this type of cinderblock material used in many places during the 90s when Northern City was booming. This newly laid courtyard area seemed bleak though, like the cinderblock material was put in to move the whole area one aesthetic notch up from the blacktopped edges of the fenced in compound where cars were parked. (Reflective Fieldnotes 11-14)

I don’t know why the guard wanted me to park there, unless he was a bit suspicious that I would be asked to leave when we checked at the reception office. I was dressed neatly for the context in a gray shirt, dark necktie, and dark slacks. I buffed up my shoes a bit that morning too. All that said; my beat-up motorcycle always seemed to confuse people. The Dean of the Graduate College one time even asked me why I drove “that thing” after she drove up in her late-model Volvo sedan. I mentioned traffic jams and gas mileage and the conversation ended.

I arrived at the reception office and I was led to a small waiting room facing the busy street outside. I also spoke to the reception guy in Thai, telling him who I was looking for
and who I was. The fact that I was an Ajan from Northern University superficially meant something around there. I say superficially, because my Ajan rank from a university meant that I occupied a higher social status than the man at the reception area. However, I was a Farang (foreigner) and this implied all kinds of constraints that in many circumstances ultimately put me at a lower rank than the man at the reception desk.

(Reflective Fieldnotes 11-14)

My accent is pretty good, but my repertoire of speaking activities in Thai has been deteriorating over the years, and my listening comprehension is often weak; consequently I am often assumed to be fluent when I’m not, and I am often faced with a rapid sequence of questions or comments that I do not understand. Luckily, I did not become totally confused and embarrass one of my students. (Reflective Fieldnotes 11-14)

After about five minutes of waiting in the room Nat showed up to say hello. Obviously the guy from the front office had gone to find her after he had sat me in the office and kindly gotten me a glass of water: a usual nice occurrence. When you go to someone’s house or business you are often offered a glass of water. (Reflective Fieldnotes 11-14)

Nat was her usual self. Her smile wide, softening and warming the room: “I’m exciting you’re here”, she said. “Excited”, I said and smiled, emphasizing the “ed” on the end of the word to correct her. “I’m excited you’re here”, she said, smiling back at me. The sunlight in the room got a bit brighter with all the smiling going on. She quickly left to finish teaching her class. (Fieldnotes 11-14)

One thing that was interesting about being in that little conference room: both when Nat left the office, and when the fellow who led me there left, they both did not close the
door completely, but left it resting on the latch. It was not ajar, so I would be disturbed by
the noise of the office, nor was it locked. In about another five minutes Nat came back
and we proceeded first to her office to pick up some books and other materials, and
headed up the dusty cement stairs to the third-story and her classroom. Students were
already there and waiting. (Reflective Fieldnotes 11-14)

The classroom was painted in a pale green from the floor to the middle of the wall,
and a paler green on the edge of windows and the top half of the walls. A large
whiteboard dominated the front wall of the room. This would be the central focus of the
student's attention throughout the lesson, beyond the writing in their notebooks or reading
their textbooks. So there seemed to be three main areas on which the students focused
during the lesson: the whiteboard, their workbooks, and the student-notebooks Nat picked
up in her office. (Fieldnotes 11-14)

The back wall had a small bulletin board in the center. The wall facing the outside
was dominated by the type of windows made of glass-slats, where you could open and
close these with a crank (I think they are called louver windows). Students wore short
sleeve gray shirts with dark blue borders. On the back of the shirts was the name of the
school in English. And on the front of the shirt there was a seal sewn into the shirt. All
students wore warm-up pants of nylon with blue and white stripes running down the
sides. They all wore sneakers of different brands and quality. None of the brands that I
saw seemed to be particularly well known and the brand-names did not stand out as they
often do when you buy expensive name-brands and provide free advertising. (Fieldnotes
11-14)
When Nat came into the room with me walking beside her the approximately 25 students in the room all smiled and seemed surprised; that is, their eyes widened and there was some quiet laughter and whispering. Not really any different from any of the other classes of Thai students at which I’ve shown up without much warning in advance. She said that I could sit at the back of the room, which made me feel a little bit more comfortable with things because this meant that she was probably expecting me to take notes, therefore I would not be explicitly intrusive, although throughout the class students kept looking back my way, and Nat obviously was aware of me taking notes in the back of the room. (Fieldnotes 11-14)

Before we arrived in the classroom Nat mentioned a couple of things to me about what she would be doing. She mentioned that she did most of her teaching in Thai. Nat had mentioned this to me before, and I have been told by Thai and foreign teachers for years that this was not a particularly unusual teaching practice in Thailand. I have also talked to many teachers who have described English taught as a topic such as math or science. In these contexts English is taught by using the majority language. Nat also mentioned using an adaptation of the KWL chart for this class. This adaptation has been reconstructed in Figure 35 (Reflective Fieldnotes 11-14)

During this lesson, Nat used the KWL chart in conjunction with a language-learning book and three other flow-chart types of graphic organizers (see Figures 36, 37, and 38). I noticed from the students sitting directly in front of me that the book they were using had many fill-in-the blank sections. These students were hotel and tourism students.
How to say when I need help (or need to help somebody) | What would be the polite way? | Conversations that I learned
---|---|---
These were numbered and there were prompts for conversation provided. Listed below are four. There were a total of eight.
1. May I
2. Could you
3. Shall I
4. Will you

In this column, complete request sentences would be written.

In this column, students were asked to make two parts of a conversation that would contain a request and a response.

A  
B  
A  
B

\textit{Figure 35.} KWL adaptation from Nat’s lesson. Reconstructed using MS Word

\begin{tikzpicture}
    \node{Requesting} child{node{Yes} child{node{Yes, of course I'll be glad to} child{node{Yes, certainly} child{node{Yes, I can}}}} child{node{No, I'm afraid not}}};
\end{tikzpicture}

\textit{Figure 36.} A type of flow chart from Nat. Reconstructed using MS Word
Figure 37. Flow chart expressing a "No" choice from Nat's lesson at Northern Technical College. Reconstructed using MS Word

Figure 38. Flow chart expressing a "Yes" choice from Nat's lesson at Northern Technical College

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Figure 39. Flow chart created by Nat and Busaba in 9-29 in response a section from Rosenblatt (1991) labeled selective attention
The goal of this particular lesson was learning different types of common forms of English for offering and/or requesting information. She drew the basic outline of the KWL chart on the board, but did not fill in all of the columns. Overall, the students in the class generally needed quite a bit of prompting to answer the questions.

Nat, as usual, showed a lot of enthusiasm when she was talking, and when her students appeared reluctant she cajoled and teased the students into responding. I asked her after the lesson if they were a bit shy with a Farang in the room, and she thought they might have been. As the lesson progressed, she had the students fill in each part of the flow chart as she led them through each particular language form in the book. Students dutifully copied the three columns from the board, and Nat began to go through the fill-in-the-blank exercises in the book by eliciting responses from the class. Also during the lesson she drew three other charts on the board, which I reconstructed using MS Word. Along with the KWL chart, she used these three graphic organizers, which are labeled Figures 36, 37, and 38, and which I refer to as flow-charts. (Fieldnotes 11-14).

When I had a follow-up conversation about her lesson at Northern Technical College, I showed her these reconstructions of her GOs and talked about what I thought these indicated about her graphic organizer preferences. It is interesting to note how Figures 36, 37, and 38 each display certain choices students are prompted to make. Students used the choices prompted by these three different types of flow charts to construct dialog in the third column of the KWL chart (Formal Conversation 11-20). Besides the KWL chart, which represents a final decision, the students were prompted to make sentences from the information presented by the KWL chart. She drew Figures 36, 37, and 38 on the board as she was explaining the information about request forms provided in the text. All of the
explanations she used were in Thai. Rarely was English used beyond the chunks presented by the GOs in figures 35, 36, 37, and 38. Overall, we could say Nat is presenting chunks of written English on the GOs, expanding on these chunks using Thai, then asking students to move some of these chunks into full-sentence oral responses of dialog or full-sentence written responses that replicate the dialog. (Fieldnotes 11-20)

Besides the flow charts, Nat was following the general pattern of the book she was using by writing sentences on the board with a blank strategically placed. A common procedure during the lesson would be to talk in Thai about the context, read the sentence with the exception of the blank, and choose a particular student to respond with an answer for the blank-space or wait for a volunteer. Nat’s entire lesson followed the pattern of going from the book, to the KWL chart, to using flow charts for highlighting and prompting the formulaic chunks (see Ellis, 1994). These chunks were linked to the communicative context for offering or requesting assistance and responding by accepting or declining assistance. During the final segment of class, students were asked to work in groups of two or three on creating sentences to fill in the third column of the KWL chart. (Fieldnotes 11-20)

In terms of how her context contrasted with those of the other three participants whose teaching contexts I visited. The Thai language surrounded Nat. Her colleagues were all Thais and she used the Thai language to teach. To some extent, the Thai language at both Northern Elementary School and Northern High School also surrounded Mamet, but his curriculum was more generalized at both schools than Nat’s curriculum at Northern Technical College. (Reflective Fieldnotes 11-20)
At both of Mamet’s teaching contexts he was expected to use English. In Mamet’s office at Northern High School, there were also other instructors from the States, Russia, Turkey, and Saudi Arabia. When I was in the office, for the most part, they spoke English. At Northern Elementary School, I also met one other American instructor, and he spoke English to Mamet. For Dan and Mawng, they rarely used any language other than English in their contexts. Moreover, in Dan and Mawng’s contexts, a western style curriculum was the norm. Both of these schools were tied to generally accepted curriculum from the U.S. (Reflective Fieldnotes 8-28; 9-11; 11-21)

A week following the lesson I talked to Nat about her preference for flow charts in a recorded follow-up conversation (Follow-up Conversation 11-20). She had expressed this preference explicitly on three occasions. The first occasion was the follow-up conversation I had with her at Mawng’s house on September 2nd. During this conversation she mentioned using flow charts as a teaching tool with her students and said that the textbooks use flow-charts often. The second occasion was during one of the final class sessions in the advanced reading class when I had her paired with Busaba and they created a flow chart to express a section of a reading passage on Rosenblatt’s transactional theory (Rosenblatt, 1991) (see Figure 39) The third occasion was during the visit to Northern Technical College, which I have just presented.

Figure 39 was created on September 29th while students were paired up to present a reading assignment. For this lesson, Nat was paired with Busaba. Each pair was given a different section of Rosenblatt (1991). The Nat and Busaba were assigned a section of the text called “Selective Attention in Reading” (Rosenblatt, p. 118).
During this interaction, Nat was the one who suggested they create a flow chart to present this segment of Rosenblatt. Participants were provided with the usual brown poster-papers and markers and I told them they could present their section of the reading in any manner they preferred. They were not specifically asked to produce graphic organizers, and not everyone did (Transcribed and Translated Classroom Interaction 9-29).

During the follow-up conversation on November 20th I talked about Figure 39 and her preferences for flow charts. Nat agreed that she thought she did have a preference for using flow charts for her teaching, but said that she had a preference for using semantic webs for her own learning. She also mentioned that she had been using arrows while listening to lectures for quite a long time, since her undergraduate days. Coincidentally, she told me that she learned this method of using arrows as a kind of shorthand from a Dr. W., whom I also knew and who obtained her doctorate at a university in Australia.

To summarize the data from Nat, of all the participants, Nat seemed to have one of the busiest and demanding schedules. She taught 5 different sections of students for 19 hours a week of actual class time. She was also assigned numerous other duties, and her context was more strictly tied to administrators above her and national curriculum than the other participants. Nat was not teaching a general curriculum, and because of the nature of the material she was teaching (i.e., mainly informational text), she generally seemed to have less freedom to try different types of strategies. Moreover, she was surrounded by the Thai language and Thai curriculum more than any of the other students who were teaching full time during the data collection period. Overall, Nat was in a very different community of practice than the other participants with regards to the language.
Figure 40. Semantic Web created by Nat for her final presentation. Generated through the use of Inspiration version 6.0
Figure 41. Concept map from Nat's final examination 10-6
she was surrounded by and the ways of teaching promoted in her school. Before concluding this section on Nat with her concept map from the final exam, I present her semantic web that she created with Inspiration. This was a GO for her final presentation (Figure 40). I present this GO for three reasons. This was a great improvement over Nat’s earlier GOs she used for her first oral presentation, a flow chart and semantic web, which were crowded with too much information. This semantic web for her final presentation also demonstrates her use of the program Inspiration. Finally, as Wanida did on her first concept map (see Figure 12), Nat embedded numbers in her concept map to link the bubbles together for her presentation. During her presentation, she refers to the numbers in much the same way as Wanida did (Video & Video Fieldnotes 9-22). The numbers seemed to mediate the sequence her final oral presentation. I never asked Nat specifically about this use of numbers, so whether or not she got this idea specifically from Wanida is inconclusive.

As with the other participants, I conclude this section of data from Nat with the final concept map she created during the final examination (see Figure 41). A number of patterns are present on this final concept map that are representative of many of the GOs that Nat did during the data collection period. One of the distinctive styles that Nat presents on this final concept map, which she demonstrated on numerous other GOs she did during the data collection period, was the way she wrote words between bubbles as extensions to the lines. This can be seen in a number of places on this concept map. If you look in the bubble directly above the center bubble that is labeled “Research Issues”, there are two phrases that act as lines leading to other bubbles, and in one example leads to another series of phrases. Notice the phrase “that literacy development related to”. This
is an extension of the linking line to the bubble labeled “family background characteristics”. The other phrase leading from the bubble “Research Issues” and extends the linking line is “begins a cycle of research with”. This leads to a circular series of phrases that pictorially illustrate the cycle of research that is expressed in the research article (see Benjamin, 1993, in Appendix II). In addition, Nat’s concept map uses multiple-word phrases, although these phrases do not chunk language exactly as they appear in the research article. As in the other maps done by most of the other participants, with the exception of Dan and Andy, there are no cross-links explicitly displayed on this concept map. Overall, though, this is an effective concept map.

To summarize the data from Nathanee, she is grouped as an individual because her community of practice was distinctively more locally bound to the Thai language and Thai curriculum than the other participants. Her preference for flow-charts is also noticeable, which seems to go along with her context of a technical college where the English taught there is determined by the service industry (e.g., hotel, tourism, business) and technical contexts (e.g., electrical, mechanical). Her history with graphic organizers also seems to be extensive, though not quite as extensive as Wanida’s or as applied as Mawngpleurn’s.

Chou

For the final participant data for this segment of the Results, I return to Chou, whose data began the Results section. Recall that graphic organizers are new for Chou more than any of the other participants. With regards to her use of graphic organizers beyond the bounded case, there are a number of examples I present.
The first example occurred following Chou's return to Northern City from her home and teaching context in Southern Yunnan. I was in the office rummaging through papers and generally trying to begin to gather things together for my return to the States. Chou came into the office to ask Dr. G. some questions and stopped by my cubicle. After some small talk, she mentioned using a concept map in a lesson at her school in Southern Yunnan after I left. Naturally, I stopped what I was doing and asked her what she did.

Chou could tell I was a bit rushed with things and she simply flipped over a piece of scrap paper and drew the concept map in Figure 42. Chou also took out the several page reading passage from which she generated the concept map for her students. This all happened on October 30th, and I told her we would talk about it the next day during the final interview, which we did.

In the interview on the 31st, she told me that she thought her students could get the details of the reading through the use of the concept map. She told me she went through a chunking activity along with the concept map with the students. I asked her why she did this, and she told me that she wanted to give the students some different reading strategies to use (Formal conversation 10-31). It is interesting that she combined both the concept map and the chunking activities in the same lesson.

When I went to Southern Yunnan to visit Chou, her husband, and her colleagues, I did two workshops and a lecture. Both workshops were basically a repeat of some of the strategies I had been teaching in the advanced reading comprehension class. These strategies involved a merging of chunking and graphic organizers. Of course, the way chunking and graphic organizers are combined and how much emphasis to put on these strategies depends on the context and student needs.
Figure 42. A concept map from a lesson Chou taught in Southern Yunnan.
Figure 43. Semantic web/Concept map from Chou’s final oral presentation generated through the use of Inspiration version 6.0.
Figure 44. Faded copy of the concept map Chou used for her final oral presentation generated through the use of Inspiration
Figure 45. Semantic web illustrating Chou's tentative plans for her thesis study.

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Figure 46. A concept map/tree diagram type of GO using Chinese to illustrate Chou’s tentative plans for her thesis study as of October.
Figure 47. Concept map from Chou's final exam 10-6

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I introduced chunking and different types of graphic organizers to the students in the advanced reading course and workshop participants in Southern Yunnan as flexible strategies that need to be adapted to what they perceived to be the needs of their students and curriculum. From the way Chou had described the way she taught the strategies, and the way the copy of the reading passage she used and the concept map displays words, it looks as if she did indeed merge both strategies together. In the copy of the reading passage I obtained from Chou, there are lines drawn in front of conjunctions and prepositions, which is one of the strategies I suggested to highlight different types of grammatical forms. This is a strategy suggested by Irwin (1991) for mainstream English language contexts and something I have been working with for several years in different types of EFL and ESL contexts.

On the concept map presented in Figure 42, Chou also used question forms at the top and to the right of the central topic of “Mother cried”. This is also a variation I worked on with students/participants in the advanced reading course: emphasizing wh-question words on different types of graphic organizers. Chou seemed to have also incorporated wh-question words into this particular application of graphic organizers and chunking.

Overall, this data presented by Figure 42 and what she told me about her lesson supports the idea that her teaching strategies and thinking about how to teach the English language had gone through some major transformations. I will return to this point in the Discussion.

The next segments of data from Chou are her uses of the graphic organizer program Inspiration. With regards to the notion of participatory appropriation and putting herself into an activity in a Bakhtinian manner (Rogoff, 1995; Wertsch, 1998), Chou
demonstrates appropriation in several ways. The first example of her use of Inspiration within the boundaries of the case was for the final oral presentation. This example is displayed in Figure 43. Figure 44 supplements Figure 43. For the actual presentation Chou used an overhead and gave me a copy later that is Figure 43. Because writing in the various bubbles, squares, triangles, and other figures she used are not displayed clearly in Figure 44, I asked her to e-mail me her concept map from this presentation after I returned to the States. I asked her why she did not put the phrases in using the Inspiration program, but as of September 22nd, the day the students did their oral presentations, Chou had not mastered Inspiration. She said she did not know how to put words between the bubbles, squares or other figures. However, as Figure 46 demonstrates, when she returned to China and was able to use her husband’s computer that allowed her to write Chinese characters she was able to insert phrases and thus turn a semantic web (Figure 45) of her projected thesis study into a concept map (Figure 46) of her thesis study. Of these four GOs created using Inspiration, an interesting feature that is worth mentioning is her nascent use of shapes to metaphorically express ideas. Before her presentation she came to the office and showed me the semantic web she was creating. I asked her about the star shape, located to the far right about midway from the bottom of the map (see Figure 43 and 44). This star is under the topic of political standing, and the word “consider” is placed between the triangle and the star. She said the star is also a way of indicating politics. It is well known that the Chinese flag has a star in it and the star is a symbol often associated with Chinese communist party.

Another explicit feature of the GO for the final presentation is the use of a question mark next to the title of her presentation. The title is “What is the native speaker?”
Immediately after stating the title to her audience she asked the class who they think is the native speaker. The title of the presentation indicates a question, as does the question mark on the GO (Video and Video Fieldnotes 9-22). Chou’s use of the graphic organizer software in these four examples and the example of her use of a graphic organizer in her teaching in China indicate the appropriation of both process and tools: the process of shaping ideas in a variety of ways using a variety of tools known as graphic organizers.

As with the other participants, I conclude this segment of data from Chou by presenting her concept map from the final exam (Figure 47). Some of the noticeable features include a predominance of concrete linking words and concrete branching of concepts; that is, Chou’s concept map does not show many hierarchies and there are no multi-word linking words or phrases. Frequently, the branches also display opposites. For example on the bottom left of the central oval there is an oval labeled “mother’s level of education”. Off of this oval are the linking words “low influence” and “high influence”. To the right of “mother’s level of education” are the two branches off “parent’s occupation”. These two branches are labeled “relate” and “irrelate” [sic]. Of all the concept maps for the final exam, Chou’s showed the least amount of detail from the reading passage.

After the final exam we talked about how her exams for both classes, the advanced reading course and the language theory course, seemed kind of weak compared to the other work she did and the great amount of improvement she showed from the beginning of the semester to the end. Indeed, as I have said earlier in the Dissertation, Chou demonstrated the greatest amount of improvement than any of the other students. This improvement was displayed by her second oral presentation and great improvements on a
number of graded writing assignments she did over the semester. In response to my query on why her final exams seemed weak, she pointed out that she had four final exams over three days, and one of them was a take-home writing assignment on which she thought she spent too much time. I thought it necessary to offer an explanation for this lack of detail on her concept map, which in turn exposes my own bias. As I said before, I greatly admired her determination and hard work.

To summarize the data from Chou presented in this segment of the Results, Chou presented numerous examples of taking the ideas presented about graphic organizers and applying them to her own particular teaching and learning needs. This was shown by her use of Inspiration to plan and explain her study both to me, and I heard her using the graphic organizer presented in Figure 44 to discuss her plans with Dr. G, who was going to be advising her after I left (although I will be acting as an informal adviser and outside reader during the thesis stages of her MATEFL degree). The example she spontaneously demonstrated for me in the TEFL office on how she used a concept map in her teaching in Southern Yunnan (see Figure 40) also demonstrated her appropriation of a number of different strategies that were newer to Chou than for any of the participants. Overall, she did impressive work.

**A Tentative Summary of the Nine Participants**

In this Results chapter I have moved from the micro-level with Chou to the macro-level with the rest of the participants. Recall in Chou Data One we started with a look at how GOs were woven with several different artifacts at varying levels of materiality to mediate content knowledge. The most salient feature of Chou Data One was the way
gestures were linked to the CAH graphic and the several other mediational artifacts that unfolded before our eyes during the data presentation. Besides gesture, some of the most important features of the interactions displayed in Chou Data One are the links between the social and cultural features of Chou's writing of Chinese script and the CAH-graphic. Moreover, by examining past interactions and interviews and comparing these with the microgenetic analysis, we were able to gain a glimpse into Chou's ontological and epistemological assumptions as a teacher of English as a Foreign Language. In addition, we saw glimpses of the psychological predicate in these gestures, determined that these gestures did not fit into a category of gesticulation used by McNeill (1992), and reached for the work of Peirce to make sense of an apparent systematic gestural language created by Chou to mediate the interaction.

In Chou Data One I also expressed speculation on phylogensis in relation to Chou's writing, which I linked with previous data in which I was an unintentional participant (see McCafferty, 2002). My participation in a previous gesture study provided me with a unique perspective from which to examine the data presented by Chou Data One and Chou Data Two. Finally, Chou Data One created a foundation for looking at the gestures in Chou Data Two.

Recall that in Chou Data Two we began by looking at my immanent storyline, which becomes a mediating artifact in one part of the interaction. Again, in Chou Data Two, gesture takes a prominent place in the interaction, which contributes to the shaping of shared-attention spans. These shared-attention spans express an effort to extend Tomasello's (1999) notions of joint attentional scenes into the realm of adult ontogenesis; rather than move theoretical ideas constructed with data from children directly into
interactions investigating adults as seems to be a common practice. We found these shared-attention spans unfolding before us in Chou Data Two supported by an interweaving of gestures, the concept map, and the English language.

Additionally, in Chou Data Two we saw the unfolding of tensions between gesture, the concept map, and the English language through the microgenetic analysis of a 20 second chunk of data in which “rise” and “movement” seem to express the predominance of sense over meaning, an agglutination, and the psychological predicate. These parameters of inner speech seem to be expressed in other sections of the data as it unfolded in Chou Data Two.

Finally, in both Chou Data One and Chou Data Two, by looking at micro levels of the data, we saw how shared-attention spans express the notion of intersubjective relations supported by artifacts of varying levels of materiality. Representations, particularly gestures used in conjunction with concept maps and the English language, clearly express the notion from Wartofsky (1979) that representations mediate perceptions. The micro-analysis of data in Chou Data One and Chou Data Two, which highlights mediated activity, provided data to answer research question one and a broad foundation to move to section three of the Results, A Wider View of the Case and Beyond.

This third section of the Results was intended to address research questions two and three. Through the process of providing data to address these questions in this third section of the Results, we saw a glimpse of what the participants were doing with graphic organizers within the boundaries of the case and outside in their teaching contexts. I also tried to provide a glimpse into the overall contexts in which the participants enacted their lives. From these data in section three of the Results, we can understand the participants...
as existing in different communities of practice, which can be linked back to Wartofsky’s theories of perception. These broader theoretical issues will be raised in the Discussion.

In addition to visions of Northern City and the types of contexts in which the students taught, this third section of the Results provides us further data on the notions of transformation and appropriation. These are two terms that have been discussed quite extensively in the literature and provide a kind of theoretical position where we might be able to build a dualistic vision to look simultaneously at the individual and society. Some of the participants used graphic organizers in unique ways, which in turn, might have later impacts on their discursive learning communities. Like Davydov’s (1999) description of humans intervening in nature to choose a particular seed, and then nurturing a crop; some of the participants, such as Mawng, Mamet, Chou, Dan, Andy, and Nat, have emphasized certain types of graphic organizers in their discursive communities of practice. We will not see the ultimate transformation in these data used for the Dissertation; however, there is room to speculate on the transformations from an activity theory perspective.

On an individual level, the data from this third section of the Results provides support that many of the participants did appropriate some of the strategies they learned in the course, which provided them with completely new ways of being in the world as teachers and learners, or subtly altered their old ways. However, some of the participants, such as the students in the scholarship group, seemed not to have altered their practices, which may be a result of them not positioning themselves yet as teachers. For the most part, we found them in preservice phases of teaching. In addition, Nat, despite her efforts and creativity of changing the KWL chart and trying to understand how her students perceived this strategy, still favored flow charts for teaching. Flow charts were her
favored strategy for teaching at the beginning of the data collection period, and flow charts were her favored strategy at the end of the data collection period. Here we saw a community of practice that might not have encouraged the type of variation that would be encouraged in Dan or Mawng’s community of practice. In all these examples, we saw the unfolding of individuals with different perceptions of using graphic organizers. These perceptions were constrained or afforded by the community of practice in which they taught.

In summary, through these three sections of the Results I followed through with the three purposes of the study and have answered the three research questions. As stated previously, there were two main purposes for the study and one parallel purpose. These were: 1) To investigate how learners of English in an EFL context, who are also teachers of English and/or learning to be teachers of English, perceived and responded to different types of graphic organizers and associated activities; 2) To explore, synthesize, and apply theories of mediated activity, artifacts, and research methods originating from or related to the work of the famous Russian troika of Vygotsky, Leont’ev, and Luria (Engestrom, 1999; John-Steiner & Mahn, 1996; Scribner, 1997a; Tomasello, 1999; Vygotsky, 1978; Wertsch, 1998). The parallel purpose was to provide the participants with an insider’s perspective on qualitative case-study research that investigates their interactions and context. The Results present a vast array of data that followed through with these purposes of the study and answered the research questions.

With these data presented, I now turn to the Discussion section and examine areas of discussion I have not yet addressed, overall limitations to the study, implications for teaching, and directions for further research.
CHAPTER 5

DISCUSSION

Limitations

As in all research studies, there are limitations. This study is no exception. The close interplay between my life, my history with the site, and my dual position as full participant researcher and teacher limits the results. My narrative is very prominent in the study, which was purposeful due to my Bakhtinian approach to the dissertation research. I am making no claim to complete objectivity; indeed, it would be impossible for me to remove myself from the research. One of the goals in bringing Bakhtin and the work of the positioning theorists to the research was to openly explore the interactions of my narrative, the broad theoretical framework, and my positions with the participants and the research. Recall that one section of the Results was partially prompted by my immanent storyline (see Chou Data Two).

In terms of positioning and gender, my gender must be also be considered with my interactions with the female students, although I made a point to be mindful of this. However, my gender must be an acknowledged issue that extends to the participants telling me what they thought I wanted to hear, which includes the male participants. I was in a position of power.
Another obvious limitation to the video and audio data was that students were aware of being videotaped and audiotaped. At times, they seemed to be ignoring the video camera and the audiotapes, but then at other times students even made a remark, often to joke with me or tease me about something being too difficult. Overall, it must be recognized that the video camera, the continual presence of Neroot changing audiotapes on the two cassette recorders in the front of the classroom on the video camera in the back of the room altered participant behavior.

Another obvious limitation is my dual position as teacher/researcher. I am also sending each participant a final copy of the Dissertation saved on CD after it is completed and approved. This is related to the purpose of providing participants' insight into interpretations about their activities. As I have pointed out many times throughout the Dissertation, I am the one who prompted events that unfolded. The participants knew that I was interested in graphic organizers and they wanted to make me happy. I sincerely believe that graphic organizers have potential for second language learners, and I believed that openly exploring these teaching tools would benefit the participants. However, I clearly recognize that graphic organizers are not applicable for every situation or every learner, and repeatedly conveyed this to the participants. I also repeatedly emphasized that the research on graphic organizers, though extensive, is limited in scope and inconclusive.

Related to the research on graphic organizers, I tried to instill the participants with a sense of skepticism concerning the flood of methods and theories they and all of us involved in literacy and language encounter as a part of our professional lives. Indeed, one of the objectives of the course was to guide them to be critical in their reading about
different types of methods and materials for literacy and foreign and second language learning.

Sawyer (2002) raised a further limitation that applied to the dissertation research. He pointed out the tendency of socioculturalists to use small groups to build macro-level theories. A limitation of a theory of adult ontogenesis in this study must be recognized because of the small group and the unique nature of the participants. It is also generally acknowledged that the generalizability of qualitative case study research limits the results. However, Sawyer also provided a path to improve validity in his advice on analytic dualism. I have adapted Sawyer’s advice in a number of ways that are included in the Discussion.

With these limitations in mind, I have been very clear about who I am, who the participants are, how I gathered the data, and how I taught the advanced reading comprehension course. Moreover, I have been primarily concerned with juxtaposing, for readers and the participants from the study, my interpretations and the empirical data from which those interpretations have originated. Consequently, it has taken longer than the average length of a dissertation in the Social Sciences and Humanities (see Davis & Parker, 1997) to highlight important relationships between the teaching and research process, my interpretations, and the empirical data.

This dissertation research is intended to inform readers and be a reference point in their exploration of similar issues. My intention is to empower readers with my openness, consequently allowing them to find what is useful in this dissertation for their own contexts. Moreover, I have attempted to provide a flexible research and theoretical framework to explore their own language and literacy context; however, with limitations.
With these broad and specific limitations outlined, I can now turn to the Discussion, which I begin with a review of the research questions.

**Research Questions**

1. What did a microanalysis of purposefully selected participant interactions, which were guided by principles from a Vygotskian developmental approach (i.e., Vygotsky's genetic method), reveal about the participants' ontological and epistemological assumptions concerning the use of graphic organizers and/or English language teaching or learning and/or the interaction undergoing analysis?

2. Overall, what kinds of transformations, if any, in appropriating and applying graphic organizers to an oral or written text situation were found in the data?

3. What evidence was found of the participants' ability and/or desire to apply graphic organizers to their own teaching and learning?

The discussion will be organized around these three research questions and the three main sections from the Results: Chou Data One, Chou Data Two, and A Wider View of the Case and Beyond. I will mainly discuss research question one using the Results from Chou Data One and Chou Data Two. I then discuss research questions two and three using data from the third section of the Results, A Wider View of the Case and Beyond, which moved from the micro-level to other participant interactions, some of which occurred beyond the boundaries of the case.
Chou Data One, Discussion and Conclusions

There are a number of findings from Chou Data One that are important for answering research question one. Recall that this section of the Results revolved around the creation of what I call the CAH-graphic on July 12th (see Figures 7 and 8) and the microgenetic analysis of the videotaped interview that occurred on September 7th. Also covered in Chou Data One were the classroom interactions leading up to the creation of the CAH-graphic and subsequent formal conversations.

Recall that through in-depth viewings of the videotaped classroom interactions I could see that Chou was struggling with the English language, which affected her ability to collaborate with the other participants, but it seemed to be a situation of Chou just needing more time. I needed to position her in a situation so her experience as a teacher could become an immanent force for the interaction. Pairing Chou with Busaba on July 12th, when the CAH was created, was a result of extensive viewings of the videotapes in order to write video fieldnotes. This episode, when the CAH-graphic was created, is an example of a positive pairing situation. In Chou Data One there were other pairing episodes that were not as productive (e.g., her pairing with Dan on a difficult reading passage on July 7th). These episodes clearly exemplify notions of positioning being a “discursive process whereby people are located in conversations as observably and subjectively coherent participants in jointly produced storylines” (Davies and Harré, 1999, p. 37).

Chou’s immanent storyline as a teacher was constrained in many of her previous classroom interactions, which can be seen in numerous episodes on the videotape. In her creation of the CAH-graphic with Busaba, in which Chou obviously had the most
influence, the CAH-graphic is a concrete product of jointly produced storylines. Chou and Busaba positioned Chou as the one whose subjectivity was predominant in this interaction.

One of the tangential findings of the CAH graphic episodes is the way positioning theory can be used to understand classroom interactions, particularly in the concrete ways the participants' subjectivities are constrained or afforded by the types of dyads and triads in which they are placed. This is in addition to the types of artifacts they engage to complete a particular activity. Moreover, along this same line of thinking, recall the two uses of the term signification, both from Harré and Gillett (1994) and Vygotsky (1978), which are mentioned in the Introduction, Literature Review, and summary section of Chou Data One.

I can begin by using Harré and Gillett's (1994) understanding of signification. In the creation of the CAH-graphic, I can speculate further, which I mentioned, that perhaps Busaba was deferring to Chou's age and experience, thus positioning Chou so that Chou could dominate the creation of the CAH-graphic. Chou's age and experience was an example where the subjectivities of both Chou and Busaba were established through the "discourses implicit in that subjectivity" (Harré and Gillett, 1994, p. 24). The discourses in that subjectivity were embedded in the generally acknowledged deference to age and experience that is common to both Chinese and Thai cultures.

Vygotsky's (1978) notion of signification is also relevant here: "wherein people create temporary links to previously neutral stimuli in the context of their problem-solving efforts" (p. 74). In the creation of the CAH-graphic many temporary links are established to previously neutral stimuli. The problem to be solved during the Friday
night class was to use a 48 by 35 inch poster paper and marker pens to mediate content knowledge. This content knowledge was the contrastive analysis hypothesis in relation to the generic lesson plan. Numerous neutral stimuli were assigned meaning in the creation of the CAH-graphic and its subsequent use to deliver content to the class. Chou transformed many of these neutral stimuli into mediational artifacts at different levels of materiality. These artifacts are made more explicit in the microgenetic analysis of Chou’s use of the CAH-graphic in the September 7th videotaped conversation.

There are many similar places in the 35 hours of videodata in which the discursive processes of the participants are displayed, which could be studied primarily using positioning theory. As I demonstrated, the positions of participants in these types of investigations can be understood by invoking both versions of signification. Consequently, I adapted the advice of Sawyer (2002) by invoking both versions of signification from Vygotsky (1978) and Harré and Gillett (1994). Analytic dualism, simply defined, is an attempt to find a middle ground between those who think the individual primarily shapes interaction, and those who think that social processes primarily shape the interaction.

These examples of how positioning theory was used in the Dissertation are just a few of the many examples of how positioning theory informed the study. Moreover, the juxtaposing of other theories alongside positioning theory has also enhanced my ability to see many features of the interactions that I might have missed by allowing only one theoretical perspective to dominate the research. These examples demonstrate how positioning theory along with other theoretical frameworks can be used with videodata to understand interaction, and ultimately, improve lessons.
Another example of using the Vygotskian notion of signification with the data is the analysis of Figure 9, which is presented as a part of Chou Data One. Recall from Chou Data One that Figure 9 was produced during an audiotaped conversation on August 2\textsuperscript{nd}. Figure 9 displayed some English sentences above some Chinese writing with arrows drawn to show semantic and syntactic relationships. The audiotape and Figure 9 provided insight into Chou’s ontological and epistemological assumptions concerning her English language teaching strategies. Also Figure 10, which displayed a box with two lines drawn from the bottom, was determined to be an indication of one of Chou’s basic teaching strategies. These insights are important for determining the types of transformations that might have occurred with Chou over the semester of data collection, which have implications for determining whether or not there was ontogenesis.

The way English and Chinese are juxtaposed in Figure 9 is very indicative of a word-by-word type of learning and teaching strategy, with English written above Chinese writing, with arrows drawn to indicate corresponding words and syntax. This strategy is also displayed in the CAH graphic (see Figures 7 and 8). This strategy, as it is connected to an overall grammar translation method of teaching and learning, was also confirmed by Chou in this conversation (August 2\textsuperscript{nd}) and in the audiotape conversation on September 7\textsuperscript{th}. Through these written examples, I was provided with indications of her ontological and epistemological assumptions about teaching before the September 7\textsuperscript{th} videotaped conversation. The microgenetic analysis of this September interview confirms these earlier indications and provided some exceptional data that took me in a direction I never expected to go with this study, an investigation of gesture.
In Chou Data One, and in Chou Data Two, gesture became a central focus of the data analysis; however, in both sections of the Results graphic organizers remained the overall research focus. I will specifically talk about the gesture analyzed in Chou Data Two in the next section of the Discussion. For the moment, I am referring to the gesture data from Chou Data One.

From the September 7th videotaped conversation analyzed for Chou Data One I found the gestures in this section to be influenced to a great degree by the CAH-graphic, which Chou was sitting in front of and then standing in front of during the conversation. Due to the influence of the CAH-graphic, I determined that the gestures Chou was producing did not fit into the category of gesticulation as outlined and used by McNeill (1992). The parameters from McNeill involve the notion that the gesture be spontaneous and idiosyncratic. The gestures Chou produced were too influenced by the CAH-graphic and previous rehearsals to be categorized as gestures along the lines of McNeill’s parameters. McNeill’s parameters for gesture originated with Kendon (1988), and I backtracked from McNeill to Kendon to inform my investigation of the gestures, although I am using the term gesture with more flexibility than McNeill.

I also reviewed McCafferty (1998), McCafferty and Ahmed (2000), and McCafferty (2002). Unique to this analysis of gesture that I am doing for the Dissertation is my own position of being an unintended participant in research, which involved having my own gestures analyzed. This unique perspective has profoundly influenced my investigative stance toward gesture in this study, my respectful attitude toward the participants in the Dissertation research, and my attitude toward research in general. In two of the three
studies originating with McCafferty (i.e, McCafferty, 1998; McCafferty and Ahmed, 2000), McNeill (1992) was a primary influence.

In terms of the gestures analyzed in Chou Data One, once I determined that the gestures did not exactly fit into McNeill’s (1992) definition of gesticulation, I looked elsewhere for a coding scheme. This resulted in my reach for Peirce’s work on signs (Duranti, 1997; Liszka, 1996; Peirce 1991). Peirce’s understanding of signs provided an effective framework for coding the interactions revolving around the CAH-graphic, particularly due to the obvious influence on the two central words and concepts represented by the CAH-graphic: similarities and differences.

Similarities and differences were salient words and concepts on the CAH-graphic, and become salient words and concepts in the gestures. The obvious inward and outward sweeps of the arms on the words similarities and differences, and other words directly linked to similarities and differences, dominated the segments of interaction in which Chou was explaining how the CAH-graphic expressed the contrastive analysis hypothesis, the generic lesson plan, and the present continuous tense.

It is worth stopping for a moment to consider the concept of inner speech and think about these gestures Chou produced as indications of inner speech. There are four main characteristics of inner speech, which were presented in the Literature Review and Results. These are: agglutination, an influx of sense, a predominance of sense over meaning, and the psychological predicate. It could be argued that we are seeing glimpses of her inner speech on those repeated inward and outward gestures occurring on or around the words similarities and differences. Specifically, on those gestures coded as indexical gestures; that is, those gestures that were contiguous or related in some way to
the words similarities and differences, those gestures could be indicative of an influx of sense, a predominance of sense over meaning, agglutination, or the psychological predicate. For example, *inward* signified similarity and *outward* signified difference.

Although these inward and outward sweeps of movement were obviously linked to the CAH-graphic, they indicated the dynamic nature of the social and psychological planes of development. All that said; it should be recognized that I am entering into a very speculative mode of thinking on these parts of the Results, in addition to my previous discussion in the Results on phylogenesis, and these conclusions should be taken as such.

A microgenetic analysis of this 17-minute interaction, with an emphasis on the first 2 minutes of interaction, also revealed the interrelated nature of 7 mediational artifacts, which were discussed in a brief summary and discussion section at the end of Chou Data One. These 7 mediational artifacts were also linked to Vygotsky’s notion of signification, and I used Burke’s Pentad to look at these interactions in terms of act, scene, agent, agency, and purpose.

In the interaction presented by the 2-minute segment of microgenesis, the complex and embodied nature of Chou’s explanation of the CAH-graphic was revealed. Wartofsky’s (1979) notion of the hunter became relevant in the sense of recognizing how Chou signified different artifacts at different moments in an effort to mediate content knowledge. In this weaving together of the 7 mediational artifacts I found that agency was very much linked to what Chou was able to use from the scene. In this way, her signification of artifacts was very similar to the notion of Wartofsky’s hunter signifying the flight of birds, or the sound of a twig breaking. What an agent in a scene signifies is certainly a product of their social and cultural history, and in that sense, I found the arena
of action that Chou used to mediate content knowledge as a tertiary artifact. Chou's uses of gestures were also found to gain a certain element of systematicity, which brought me back to Kendon (1988).

Through Kendon's (1988) ideas about spontaneous gestures developing into stabilized forms, I made a determination that went beyond the unfolding of 7 mediational artifacts synthesized to mediate content knowledge: Chou was transforming her gestures into a systematic language for mediating content knowledge. The gestures took on a more abstract general form, which is also a characteristic of word meaning (Kendon, 1988). This development of gesture into a systematic language did not just completely unfold in these 17 minutes. I first noticed this inward and outward sweep of the hands and arms during the formal conversation on August 2nd, and this might have appeared on July 12th when the CAH-graphic was created, but as already stated, I was not prepared to look for gesture that Friday night.

The final feature of the CAH-graphic that I turned to in the Results was the way Chinese strokes seem to be evident in the lines on the CAH graphic, particularly the bottom part of the CAH-graphic, which was in the shape of an upside down V shape (see Figure 7). In the right leg of the bottom, upside-down V-shape, there seemed to be a "foot", which is an integral part of the Chinese character stroke know as right-falling (see Figure 11). I also noticed what I believed to be an idiosyncratic curve to the left in the stroke known as vertical in the Chinese stoke sample that Chou did (see Figure 11). I also thought I saw that idiosyncratic stroke in some of the arrows drawn straight down to the English words in Figure 9, which is the sheet of paper collected on August 2nd on which Chou was illustrating some of the contrastive features of Chinese and English.
During a researcher-triangulation meeting where myself and two other doctoral candidates traded data to examine each others' coding schemes and cross-check some of our results, the other doctoral candidates confirmed my assessment of the “foot” in part of the CAH-graphic. They also confirmed the idiosyncratic curve to the left in the vertical strokes present in Figure 9. Both of them then proceeded to see this curve in a couple of other places in the CAH-graphic.

In the brief summary and discussion at the end of Chapter Four, I related this Chinese writing presence in the CAH-graphic to my splash gesture in McCafferty (2002). I also speculated that these were glimpses of phylogenesis. I wish to emphasize that I am speculating on these points, as I have done earlier on inner speech. I leave these speculations up to the readers’ judgment.

In addition to speculating on the links to phylogenesis, the data showed more concrete evidence of the other domains from Vygotsky’s genetic method. These domains are microgenesis, ontogenesis, and the sociocultural/historical domain. On a microgenetic level, I have already discussed the weaving together of the 7 mediational artifacts as an example of the short-term formation of a psychological process. In addition to a synthesis of these 7 mediational artifacts, I already discussed the genesis of the gestures, specifically the inward and outward sweeps in relation to similarity and differences, into a systematic language along the lines of Kendon’s (1988) parameters. In addition to these microgenetic features, I briefly presented what I thought was revealed about the ontogenetic and sociocultural/historical domain.

In the summary and discussion at the end of Chou Data One, I said that the CAH-graphic presented a synthesis of Chou’s writing of Chinese, part of her general teaching
strategies, and what she learned about creating graphic organizers in the advanced reading class. I interpreted this as evidence of ontogenesis, which has been supported by remarks she made in some of the formal conversations, and with some of the data from Chou Data Two. Her way of writing Chinese is in the CAH-graphic in many ways, most concretely in the way the strokes are present, and in more of an abstract manner, presenting ideas, words, and concepts in graphic format are something she has done for her entire life as she wrote Chinese characters.

Two different concepts from the theoretical framework are relevant to this particular indication of ontogenesis from Chou Data One. These two concepts are Wenger’s ideas about *community of practice* and Vygotsky’s (1986) ideas about *spontaneous concept knowledge* and *scientific concept knowledge* (see also Kozulin, 1998). For the dissertation data, there are some relationships between Vygotsky’s notions of concept formation and Wenger’s ideas of communities of practice.

Wenger’s notion of a community of practice generally aligns with Rogoff’s (1995) notions of participatory appropriation. This also seems to fit with Bakhtin’s (1986) notions of speech genres in that we belong to different discourse groups and use certain types of speech genres in these discourse groups. Putting these three scholars ideas’ together seems reasonable. By doing so, I could say that we belong to different communities of practice. This involves a certain proficiency in the use of the speech genre of that particular community. We learn the particular speech genre of a community through participatory activity.

Relevant to learning a particular speech genre are spontaneous concept knowledge and scientific concept knowledge. As previously stated, spontaneous concept knowledge
is concept knowledge that is grounded in the informal interactions a child has in their
day-to-day interactions. Scientific concept knowledge is more formal knowledge that is
gained through more formal, constructed interactions, such as learning formal plant and
animal classifications in schools (see Panofsky, John-Steiner, & Blackwell, 1990).
Spontaneous concept knowledge and scientific concept knowledge have been related to
the ZPD (Zone of Proximal Development) in that spontaneous concept knowledge can be
thought of as clearing the way upwards while scientific concept knowledge works its way
downwards to form the ZPD (Kozulin, 1998).

To get back to the present discussion of Chou's merging of her "habits" of writing
Chinese (as she says in an interview on October 31st) and the ideas on graphically
presenting knowledge that were introduced in the advanced reading course: graphic
displays of content knowledge seem to be a natural ontogenetic transformation for Chou.
Her spontaneous concept knowledge of writing Chinese has been supported in her
community of practice and is an integral part of a speech genre with which Chou is
intimately familiar. She has participated in writing graphic symbols that are a
combination of abstract and concrete semantic and phonetic meaning (see Björkstén,
1994) all her life.

This brings me completely back around to one of the central purposes of the study: an
exploration of adult ontogenesis. This is also relevant to my definition of mediation and
the synthesis and summary of the theoretical framework presented on the bottom left of
Figure 5. Before moving further, allow me to repeat this summary and synthesis
statement from Figure 5, with some adjustments to narrow this to the participants from
the Dissertation study:
Through collective artifact mediated activity, participant subjectivity emerged. This process included signification, which was enacted ontogenetically, through social, cultural, and historical activity with representations as artifacts that mediate perception. Through collaborations with representations, participants discursively appropriated the intentions and mental states of others.

In addition, before moving further, allow me to repeat my definition of mediation:

The use of concrete and abstract artifacts to monitor and regulate human activity. In the process of monitoring and regulating human activity, these artifacts exist *transformationally* (John-Steiner & Meehan, 2000; Rogoff, 1995; Tomasello, 1999) on *interdiscursive* (between people and the context) and *intrapersonal* (in the minds of individuals) planes of development. Between people and the context and within an individual mind are simultaneously constituted through dynamic, multi-directional, discursive activity. Artifact mediated activity allows individuals to attend to their own mental activity, thereby *transforming* the social, psychological, and physical worlds and the activities in which they engage (Harre & Gillett, 1994; John-Steiner & Meehan, 2000; Tomasello, 1999; Vygotsky, 1981; Wertsch, 1998). The use of the term *discursive* in this definition of mediation derives from the term *discursive practice*, which is defined by Davies and Harre (1999) as "all the ways in which people actively produce social and psychological realities" (p. 34).

Recall that I raise the issue of adult ontogenesis in the Introduction. Scribner (1997a) points out in a paper written in the early 80s that Vygotsky did not sufficiently address the topic of adult ontogenesis. One of the issues I explored through the study is the issue
of bringing theories established through studies with children and immediately applying these theories to adults and adolescents without any intermediate steps. Of course, many theorists and scholars much more experienced than I have done this, and I wish no quarrel with any of them.

However, attempting to explicitly separate adult ontogenesis from theories derived from children is an exploratory issue I have taken up in the Dissertation; thus, the interpretive design. In addition, that adapted quote from Figure 5 is a synthesis and summary for the theorists I reviewed, but at the same time, I think the Results already presented by Chou Data One support this summary and synthesis statement as a theoretical statement for the participants' evolving ontogeny. However, for the moment, I restrict this theory to the Dissertation. Part of this statement has just been discussed and summarized in terms of the data from Chou Data One. I continue in a moment with a discussion of Chou Data Two, followed by a discussion of the third section of the Results, A Wider View of the Case and Beyond.

Moreover, the data from Chou Data One, and the other sections I will discuss in a moment, also support the notion that the social plane of development, which is so often invoked in many studies using Vygotsky's general genetic law of cultural development as a foundation, is not just a social plane of development. This plane between the participants as they enact activity is too dynamic for the kind of restrictions implied by intermental. The plane between the participants is *interdiscursive*. Activity between the participants involved their social, psychological, and cultural histories that they brought to the episodes of interactions. In other words, what the participants were able to signify, using this term both in Vygotskian terms and the parameters outlined by Harré and Gillett
(1994), is what they brought to an activity in terms of what they were prepared to perceive. In other words, what they signified was constituted, in part, through their historically evolved faculty of perception (Wartosky, 1979). This is what I see unfolding in Chou Data One, Chou Data Two, and the third section of the Results, A Wider View of the Case and Beyond.

To summarize the discussion of Chou Data One: the microgenetic analysis and other data from Chou Data One provided evidence to determine Chou’s ontological and epistemological assumptions concerning her English language learning and teaching strategies. In addition, there is evidence of ontogenesis in that Chou has synthesized her Chinese writing styles with some of the information on graphic organizers presented in the advanced reading course. Moreover, gesture has proved to be an important mediational artifact for Chou. This is shown in the microgenetic analysis of the first 2 minutes presented of the 17 minutes of microgenesis where gesture was transformed into a systematic language greatly influenced by the CAH-graphic.

Finally, I have used this discussion of Chou Data One to put forth the notion that adult ontogenesis is something quite different than the ontogenesis occurring with children. The activity Chou enacts with and around the CAH-graphic has been situated as support for the notion of an interdiscursive plane of development. Furthermore, the data from Chou Data One is a partial example of the synthesis and summary of the theoretical framework for the study, which I am now positioning as a theory of adult ontogenesis, of course, restricted for the moment to the empirical data gathered for this study. As I move through the discussion of the next two sections of the Results, Chou Data Two, and A
Wider View of the Case and Beyond, additional support for this theory of adult ontogenesis and my definition of mediation will be presented.

**Chou Data Two: Discussion and Conclusions**

Chou Data Two presented more information than Chou Data One on classroom interaction. Chou Data Two also emphasized the notion of intersubjective relations established through artifact-mediated activity. This included the use of positioning theory and the concept of utterance from Bakhtin (1986). Again, as in other parts of the Dissertation, Wartofsky’s (1979) ideas concerning the historical notion of perception and artifacts are brought to the data. Also, as in Chou Data One, gesture, as it occurred around a concept map, became a focus of the data analysis. In this investigation of gesture, I continued to use and expand the coding framework derived from the work of Peirce (Duranti, 1997; Liszka, 1996; Peirce 1991). Moreover, as in other parts of the Dissertation, I brought together Vygotsky’s notion of signification with Harré’ and Gillett’s (1994) notion of signification. Recall that this was an effort to follow along with the idea of analytic dualism (Sawyer, 2002).

In Chou Data Two, as in Chou Data One, I used microgenetic analysis. In Chou Data Two I used microgenetic analysis to look at how my immanent storyline was used to mediate activity. I viewed my immanent storyline as an artifact that was used by Chou to mediate a question raised by Dan. I then shifted the microgenetic analysis to Chou’s concept map, the English language, and gesture.

Through this microgenetic investigation of intersubjective relations established through artifact-mediated activity, I introduced the concept of *shared-attention spans,*
which is derived from Tomasello’s (1999) notion of *joint-attentional scenes*. Because this is an important concept for understanding the results from Chou Data Two, I recall this definition from the Literature Review for immediate relevance.

Joint attentional scenes are established through taking the perspective of others by the use of symbolic means. This includes an awareness of the perspective of others, particularly in terms of recognizing intentions. Tomasello (1999) defines joint attentional scenes as follows: “Joint attentional scenes are social interactions in which the child and the adult are jointly attending to some third thing, and to one another’s attention to that third thing, for some reasonably extended length of time” (p. 97). Tomasello elaborates further in saying that the attentional scene provides “the intersubjective context within which the symbolization process occurs” (p. 98).

As presented in the short summary and discussion at the end of Chou Data Two, Tomasello (1999) established this concept of joint attentional scenes through studies with children. He then proceeded to illustrate this concept through a description of an American in a Hungarian train station. As in other parts of the Dissertation, my investigation was guided by a goal of exploring adult ontogenesis as something quite different than the ontogenesis of children.

Recall that Chou Data Two opened with a review of Bakhtin’s notion of utterance and Davies and Harré’s (1999) notion of an immanent storyline. I then proceeded to provide an example how my immanent storyline of not being able to smell entered the ongoing discourse between the participants and myself in the language learning theory course on July 5th. This part of my narrative enters the ongoing discourse in the advanced reading
comprehension course on July 7th. Finally, on July 21st, this part of my narrative is taken up by Chou and used to mediate a question from Dan.

From this class on July 21st there was a 4-minute segment for which I used Bakhtin’s notion of utterance to establish boundaries on a 53-second episode as one microgenetic segment, and another 2 minutes and 8 seconds as a separate microgenetic episode, though never completely separate. The 53-second segment was the section where Chou specifically used my immanent storyline to mediate Dan’s question. In this 53-second segment, which is 19 lines of dialog, Bakhtin’s ideas on the nature of a dialogic interaction unfolds right before our eyes. Chou can also be seen objectifying the arena of action (Wartofsky, 1979), looking at me, smiling, and then using my immanent storyline to mediate Dan’s question. This microgenesis clearly illustrated the “unfolding of an individual perceptual act” (Wertsch, 1985, p. 55). As I point out in a mini-discussion in the Results immediately following the presentation of this data, Chou established intersubjectivity with the audience by using a topic of which everyone was aware: my olfactory-challenged state.

The second 2 minutes and 8 seconds of microgenesis is the section where the concept map Chou used for the oral presentation becomes an artifact through which a shared-attention span is established primarily between Dan and Chou. Recall that Dan points at a certain part of the map after Chou walks over. It was when she walked over that the microgenetic episode began and the artifacts of gesture, the English language, and the concept map worked together to create and support a shared-attention span.

Attentional scenes are dependent on the establishment of an intersubjective context (Tomasello, 1999). Chou uses the English language, the concept map, and gestures to
enact an intersubjective context in this 2 minutes and 8 second microgenesis. This supported an episode that I have referred to as a shared-attention span. Tomasello also talked about a child and an adult as “jointly attending to some third thing, and to one another’s attention to that third thing, for some reasonably extended length of time” (p. 98). When Chou initially walked up to Dan, and Dan first flips his copy of the concept map over and points to a specific area, and Chou follows his finger, we can see Busaba and Wanida looking at their copies of the concept maps. In this moment, a shared attention span unfolded with several participants in the room besides Chou and Dan focused on a third thing, but not for an extended length of time.

One of the main differences between joint attentional scenes as defined by Tomasello (1999) and what I am calling shared attention-spans, which are unfolding as microgenesis in the Data, is that this “reasonably extended length of time” (p. 98), which Tomasello referred to for a child and adult communicating, is different for adults. Due to the dynamic nature of the intermental plane of development for adults, which I am calling an interdiscursive plane of development, there does not have to be this extended length of time for a “symbolization process” to occur.

One example of a rapid symbolization process is when Dan and Chou established intersubjective relations through Chou’s use of a metaphoric gesture during a moment of “splitting the gesture space” (see McCafferty and Ahmed, 2000) where Chou is talking about my olfactory deficiencies. Recall from Chou Data Two that it went as follows:

57  D: it’s re-calibrating--

58  I: you walk funny

59  D: this is what they call re-calibrating
C: but some people--

I: it's your inner ear--your everything

C: but some people probably has a strong sense in this--this

When Chou says has a strong sense in this information (Lines 62 and 64), her arms are all the way to her left side, as if she is holding something over on this left side.

*(Metaphoric gesture on has a strong sense in this information)*

D: area

It's interesting here that Dan says area as Chou is holding an imaginary something on her left side. It seems he is attempting to finish the statement for her.

C: ahh information but he has a ah weak sense in another (laughter) Ajan John has

he has a (laughter)

Dan is closely attending to a “third thing”, Chou’s metaphoric gesture. On an abstract level, Chou and Dan are both attending to that third thing, which is my “strong sense” in an “area”. Dan is so closely following Chou’s gesture that he completes the sentence for her. The gesture worked as an icon, and in this episode, it is symbolic for Dan. Due to the intersubjective context established through gesture and the links to previous utterances, a symbolization process occurred.

This episode occurred at the end of the overall 4-minute episode and after the 2 minute and 8 second microgenesis. During that 2 minute and 8 second microgenesis there were many examples where gesture, the concept map, and the English language unfolded as mediating artifacts that worked on this dynamic interdiscursive plane of development to shape activity and create shared-attention spans.
Recall that I discussed much of this information at the end of Chou Data Two and argued for how this interdiscursive plane of development is constituted by the varied social, cultural, and psychological histories of the participants. This interdiscursive plane is where signification occurs from both a Vygotskian (1978) perspective and the wider perspective from Harré and Gillett (1994).

Throughout this 4-minute episode, including the 53-second and 2 minute and 8 second episodes of microgenesis, the participants signified the English language, the concept map, and gesture. These instances of signification, in turn, focused participants' attention on the larger content of the discourse and established abstract issues around which intersubjectivity was established, such as my immanent storyline, or issues about the senses from Chou's talk.

With regards to inner speech, there is another third microgenesis that occurred in Chou Data Two. This is a 20-second episode that I initially intended to use to provide an example of a high degree of tension between the agent and mediational means. Other implications evolved from this microgenetic analysis, which further demonstrates the importance of doing very short-term longitudinal studies, such as microgenesis.

In this 20-second segment, which is labeled Dialog excerpt #3 with gestures, Chou data two, 7-21, Chou's gesture went in one direction and her language went in another. She said, "ground ride" and her hand went down and then up as she was talking about a plane. I raised the following questions: Are we glimpsing the psychological predicate in this gesturing? In this 20-second moment, are we seeing the predominance of sense over meaning, the influx of sense, an agglutination of "height" and "movement"? Can we say
the psychological predicate is "rise", but its explicit oral presence has been undermined by the term "fairground ride" on the concept map?

I think it can be argued by the gestures and the semantic presence of "plane", and the surrounding context, that we gained a glimpse of the psychological predicate through this microgenetic analysis. This psychological predicate in this moment is "rise". However, we cannot get inside Chou's head at this moment and see. My speculations are limited: yes?

Overall, I think the data as a whole from Chou Data Two represents transformational activity on an interdiscursive plane of development. Additionally, in the three episodes of microgenesis represented in the data and the remaining segment of data coded for gesture, there are episodes of shared-attention spans that were supported by the interrelated nature of the artifacts of gesture, the English language, and the concept map. Moreover, as a whole, the empirical data from this section of the Results supports the following:

Through collective artifact mediated activity, participant subjectivity emerged. This process included signification, which was enacted ontogenetically, through social, cultural, and historical activity with representations as artifacts that mediate perception. Through collaborations with representations, participants discursively appropriated the intentions and mental states of others.

I now turn away from the micro-level of interactions and discuss the third section of the Results, which introduced more insight about the participants in general and their interactions within and beyond the case. This third section of the Results is also more concerned with research questions two and three.
A Wider View of the Case and Beyond

Before I begin this third section of the Discussion, recall that research questions two and three are as follows:

2. Overall, what kinds of transformations, if any, in appropriating and applying graphic organizers to an oral or written text situation were found in the data?

3. What evidence was found of the participants' ability and/or desire to apply graphic organizers to their own teaching and learning?

As previously stated, I will be discussing the data presented in the third section of the Results more in terms of these questions than the first research question with Vygotsky's developmental approach at its core. However, in this third section of the Results I also looked at the interactions with regards to the ontological, sociocultural/historical, and the speculative, phylogenetic domains.

Also recall that in this third section of the Results I followed more along the lines of broader ethnographic types of methods, for the most part with the participants who allowed me access to their teaching contexts, and in two episodes, their homes. Included in taking a broader ethnographic approach, I provided more general information about the participants' histories with graphic organizers. Consequently, I gained more insight into their communities of practice with regards to their teaching and their historical epistemologies in terms of how they perceived graphic organizers. Of course, my insight was limited.

In addition to visits to school sites that were presented in this third section of the Results, I displayed many graphic organizers students used outside the context of the bounded case, as well as some of the graphic organizers they produced for their oral
presentations. For all of the participants, I presented concept maps they created as a part of their final examination. Although these were reduced from legal-sized papers to be scanned and some of the writing is not clear in this presentation format. The reading passage from which these concept maps were generated is presented in Appendix II. In order to provide as broad a picture of the participants as possible, I did a very general content analysis of these concept maps, pointing out salient features that seemed to distinguish each one. A deeper analysis is beyond the scope of the Dissertation.

Before moving further with this Discussion, it is necessary to recall the notion of transformation from Davydov, which was raised as a relevant issue for the this third section of the Results, and is a relevant issue when addressing research questions two and three. Recall that Davydov, (1999) described transformation as follows: "transformation means changing an object internally, making evident its essence and altering it" (Davydov, 1999, p. 42). Davydov then goes on to talk about humans selecting a certain type of wheat, sowing the wheat, creating favorable conditions, and then reaping a good harvest, “this process is an example of real transformation of some part of nature by humans, or purposeful human activity” (p. 43). Through human intervention the essence of the process of growing wheat was altered, and we can glimpse transformation resulting from the human choice of a particular seed and nurturing the growth process.

With regards to the participants and their use of GOs, principally in their use of GOs beyond the bounded case in their teaching contexts, it is interesting to bring Davydov’s notion of transformation to bear on the data. Can we think of the GOs as Davydov portrayed humans intervening growing wheat? Of course, GOs are not explicitly a part of the natural world. However, as Tang (1989,1991) pointed out, I found that for
participants or their students to use GOs in potentially effective ways, a certain amount of
guidance was necessary. I am taking the position that the guidance concerning GOs,
which was provided to the participants as part of their engagement with the advanced
reading comprehension course, was in some ways similar to selecting a certain type of
wheat and nurturing its growth; however, with many differences. I am recognizing that
human subjectivity and perception are far more complex than the adjustments made to
nature in the harvest of wheat. In terms of transformation, though, I provided guidance on
graphic organizers, which generally ranged from completely new to somewhat new tools
for the participants. Some of them took these ideas into their teaching and learning;
others did not. I hunted around for transformation by looking at the process of activity
and/or the product of activity. The concept of appropriation is relevant here.

When I am using the term appropriation, which implies transformation, I am referring
to those episodes of graphic organizer use where participants seemed to put a part of
themselves, in a Bakhtinian sense (see Morson & Emerson, 1990) into the GOs and
related activity. Of course, anytime they used GOs, they put a bit of themselves into the
activity just by using GOs, but in gauging appropriation and transformation, I needed to
see some evidence of change over the 22 weeks I collected data. A salient feature of this
change was seeing participants put something of themselves into the GOs that I
determined was related to the advanced reading comprehension course, such as using
Inspiration for their own teaching contexts. I have two versions of transformation in mind
here. One at more of an ontological level, expressed in the parameters of finding a
participant develop their own style or put their voice, or in other words, a bit of their self
into the GOs somehow; or, as in Davydov’s (1999) description of transformation, there is
a change in the essence of activity, which is expressed when a participant changes their activity of teaching beyond the case, and thus has the potential to alter general literacy activity in the society.

In the data, particularly when we look across the participants' concept maps from the final exam and the way participants used GOs in their teaching contexts or for oral presentations, we can see some of their distinctive styles emerge. It seems evident, when looking across the vast amount of data presented in this third section of the Results, along with glimpses of the surrounding classroom contexts in Chou Data One and Chou Data Two, that what the individual participants did or did not do with GOs was balanced with what they saw themselves doing with GOs. I think the Results in this third section reveal an interaction between the participants' communities of practice, with regards to their teaching and learning of English, and their individual historical epistemology of perception, which is shaped by their memberships in a particular community. I think the key to finding ontogenesis within the community is in signification. As I found in the data, signification, seemed to be enacted ontogenetically; however, as Vygotsky pointed out, ontogenesis is interrelated to the other domains. The participants' historical epistemology of perception is both a part of their community of practice and their ontogeny. To make this point clear, I return to Wartofsky (1979).

With regards to a historical epistemology of perception from Wartofsky (1979), he brought up an interesting point that is applicable to discussing the Results. Perception is a forward-looking activity tied to practice, of course, practice that is socially, psychologically, and historically situated. To illustrate this notion of perception as a forward looking activity tied to action, Wartofsky mentioned the following example. He
was spending time with a friend at an airport, who he described as "a well-known
methodologist and anarchist" (p. 194-195). Wartofsky described the scene as follows:

When I told him I was to speak on perception, [he] asked me in his characteristic
fashion: "Perception of what?" Unprepared for such a question, I stumbled,
"Well... you know, perception... the usual thing. In fact, I want to talk about
perception and action." Little better informed, my friend and critic pursued me:
"You mean that if I want to hit you, I have to be able to see you?" Now, finally, I
could answer clearly "No", I replied, "on the contrary. If I see you, it's because I
want to hit you". (p. 195, Italics in original)

As Wartofsky points out following this example, this seems to be an obvious kind of
answer, but what is essential in this example is that perception is constituted through
action.

I found this notion of perception as a forward-looking activity linked to the
participants' community of teaching and learning practice to be a significant issue with
the participants. Specifically, I found this to be a significant issue with the participants'
ability or desire to use graphic organizers in their own teaching and learning (see research
question three). It is interesting to note that Tang's (1989, 1991) research found ESL
participants ignoring GOs unless they received some kind of guidance. Of course, Tang's
group was different in that they were secondary students, not inservice and preservice
teachers.

With the participants in the advanced reading comprehension course, recall that I
considered them as four separate groups, mainly due to their teaching contexts, but this
grouping can be linked to this notion of a perception as a forward looking activity. And if
they saw a graphic organizer as worth pursuing, this seemed to be linked to their community of teaching and learning practice. Placed in Wartofsky's (1979) terms, if participants saw a graphic organizer as useful, it is because they saw the graphic organizer as useful in relation to their teaching or learning practice. Extending this notion of wanting to use a GO to their different communities of teaching and learning practice, the use of a particular GO seemed tied to these questions: Did that particular community of teaching and learning practice value the use of a graphic organizer? Was it feasible to use a graphic organizer in a particular community of teaching and learning practice? There were examples of this interaction between perceiving the worth of a GO and the teaching context, or with some participants, having a teaching context.

Starting with the scholarship group made up of Lada, Busaba, and Wanida, recall that they were not teaching during the semester, beyond Busaba's tutoring of young elementary-aged learners at a private tutorial center. Throughout the semester, overall, these participants did excellent work. However, I did not see a tremendous amount of transformation with this group with regards to graphic organizers, although there was some limited participatory appropriation.

For her final oral presentation, recall that Busaba used Inspiration 6.0 to create a tree diagram type of GO that was also worked as a flow chart. This indicated some element of transformation in activity. She also told me she used pictorial input with her young elementary-aged learners. Lada used a semantic web for both her oral presentations, although recall that the first GO was not very clear, she had difficulty following it, and even though the second oral presentation was better than the first, there were still problems. Despite these problems, overall, she was a good student and engaged other
assignments effectively. In terms of her use of graphic organizers, I did not see anything that I feel comfortable calling transformation, specifically I did not see any of her activity related to the use of graphic organizers undergo any visible change as in so many of the other participants.

With Lada and Busaba’s engagement with GOs, I did not see much transformation beyond Busaba’s use of Inspiration 6.0. Although I noted earlier that Lada used a Venn diagram and placed it in her final exam booklet in the language learning theory course, which she used to mediate a comparison and contrast essay. Here we see some transformation, but I did not find enough of this type of consistent or sustained engagement with GOs in the data I have with Lada. However, if on a future visit I found Lada using Venn diagrams for any comparison and contrast essays, then I would consider her interactions with the Venn diagram in the advanced reading course was transformative.

Overall, with graphic organizers, I do not think that the graphic organizer part of the advanced reading comprehension course had much of an impact on Busaba and Lada. However, I wish to reiterate, overall, they both made improvements with their reading and writing, which was evident on their final exams. I can just hear the three of them tell me that I am wrong, that the course did, in fact, transform their learning activity during the semester.

Remember that Wanida seemed to have more conscious experience with GOs as a learner than anyone in the group. She readily recalled the types of GOs she had used previous to the advanced reading comprehension course. She also had a very explicit style of using semantic webs and concept maps, which included placing numbers
between bubbles and using those to mediate sequence. Wanida also seemed to place larger amounts of text in her bubbles than the other students. As with Busaba, and Lada, I did not see any real transformation in terms of her use of GOs in the course, although like Busaba and Lada, she was an excellent student, demonstrating steady improvement in reading, writing, and her grasp of abstract concepts in both the advanced reading course and the language learning theory course. I am sure all three of these students will be effective teachers someday. However, it is interesting to note that these three students did not have a concrete community of practice beyond what they had experienced as learners and their limited teaching experience that was prompted by undergraduate and graduate coursework. When I am referring to community of practice here I am talking in terms using GOs at a tertiary-artifact level. In other words, they did not imagine a tertiary world in which they could see themselves in a particular teaching context with GOs. They had no real prospective reality to look into like the participants who were teaching currently or were between known and experienced teaching contexts. And as stated already, all three did not exhibit any salient or sustained evidence of transformation with regards to graphic organizers.

The next group, which I call the Native and Near Native English Proficient Group, all exhibited varying levels of appropriation of GOs for their teaching and learning. They also varied in their degree of transformation, and all varied in the amount of experience they had with GOs.

Mamet had one of the most challenging teaching circumstances of any of the participants. He was also only about two months into teaching when the data collection period began. He had one particular class that I visited and present in the Results, and that
class was made up of 40 ten-year olds. At the very beginning of the course Mamet and I talked about his class management issues. Although I did not see any class management issues unfold at Northern High School when I went to visit, he also mentioned having some difficulties there at one point. It is necessary to point out that if I were in either of the teaching situations as Mamet, I would have been experiencing class management issues too.

As reported in the Results, in the two visits I did at Northern Elementary School I helped him use a Venn diagram and a semantic web. He brought in some interesting samples of the Venn diagrams to one of the final language learning theory classes. Recall that these samples included a Venn diagram in the shape of a butterfly, with the two wings providing the space to write differences, and the body of the butterfly providing the space to write similarities. Mamet also talked that night when he presented these interesting Venn diagrams about using a semantic web in a situation where a flow-chart would have been more appropriate. At Northern High School, I implemented the use of a wh-questions and answer graphic organizer and was able to gain a glimpse of this community of practice.

As I reported in the Results, the biggest challenge with Mamet's elementary school context was how to manage 40 ten-year olds. He was a new teacher and a serious young man without much formal and informal classroom management experience, and he told me that the administrators at Northern Elementary School did not support him much with classroom management. With regards to supporting Mamet in his pedagogy, it appeared that resources were limited at Northern Elementary School and classes were overcrowded. It appeared that things were better at Northern High School.
To a limited degree, there is some evidence of transformation and participatory appropriation with Mamet in terms of his use of graphic organizers for his teaching. He gained more strategies for his teaching through his engagement with graphic organizers, and he used a classroom activity involving chunking, which I had positioned as an effective strategy in the advanced reading comprehension course.

If we consider the glimpses of his use of graphic organizers, we can assume that some transformation and participatory appropriation occurred with Mamet. Overall, Mamet exhibited more ability and desire to use graphic organizers in his teaching than participants from the scholarship group, and more evidence of transformation. However, we can see that his community of teaching practice constrained some of this ability and desire due to classroom management issues and limited material resources, both of which are obviously related here. We can assume that these classroom management issues and material resource issues had an impact on his perceptions of graphic organizers.

The next participant I presented in the Results was Mawngpleum, who was surrounded by a much more supportive community of practice in terms of teaching and the English language. Recall that Mawng seemed to have the most general knowledge of GOs as a teacher and had actively sought out educational scholars who were proponents of GOs, including a local Thai scholar. Mawng also was very aggressive in her use of Inspiration 6.0, and I think this computer program provided the most evidence of transformation and appropriation in terms of her activity with GOs. Also recall that Mawngpleum’s community of practice was probably the most favorable for implementing the graphic organizer strategies introduced in the advanced reading course.
For her teaching at the international school, I made a visit and saw her use a Venn diagram, a matrix, and semantic webs in two different classes. She also discussed these strategies in formal and informal conversations. It was interesting that she was using GOs in this context to teach Thai to students who had languages other than Thai as their first language. She had not used a Venn diagram in her teaching before the advanced reading comprehension course. However, she was generally familiar with GOs as a strategy at her school through contacts with her colleagues, many of whom were from the States, Canada, and Australia. This was a particularly receptive community of teaching practice with regards to using GOs, both in terms of colleagues, a modern teaching site, and generally small class-sizes with students who were receptive to these types of strategies.

In addition to her teaching, Mawng said she used a Venn diagram to study for the final exam in the language learning course and wrote this out on the back of her exam sheet. This example of the Venn diagram she used for the exam, along with other examples of Mawng’s GOs, are presented in the Results. Besides her use of graphic organizers at this elementary school, Mawng transformed her teaching activity in another context.

Remember that Mawng obtained Inspiration 6.0 earlier than the other students. At the time, she was teaching undergraduate and graduate students at a private language center. She began using Inspiration to build semantic webs and concept maps, and reported positive results (see Figure 24 and Figure 4). She also used Inspiration for both her oral presentations. It is interesting to note that she did not use Inspiration before the advanced reading comprehension course.
As I stated in the Results, the most salient features about my visits with Mawng were her supportive teaching context and the amount of English language she was surrounded by at her home and school. In contrast to Mamet’s teaching context, Mawng had small classes and an air-conditioned, comfortable environment in which to work, which bordered on luxurious, depending on the relative context. She had many opportunities to communicate with colleagues and examine and use a variety of pedagogical materials, which included computers.

With regards to transformation, participatory appropriation, and perception, Mawng’s community of practice generally supported the strategies I was introducing to her and the other participants in the advanced reading course. Mawng can be seen clearly appropriating Inspiration 6.0, which transformed her teaching practice, which I can argue led to transformations in the English learning activity of those graduate and undergraduate students she was tutoring. One question that comes to mind: Did Mawng’s activities with her students alter their inner speech? Mawng also appropriated the Venn diagram and used this outside the bounded case.

In terms of perception, I think there is enough evidence to argue that Mawng had a wider, more flexible perception of GOs because she had a supportive community of practice and could conceptualize a variety of circumstances in which she could see herself using GOs. With Mawng, as with the other participants, we can see some clear links between what she did with GOs during the data collection period, her perception of GOs, and her community of practice.

Dan was another one of the participants who used Inspiration extensively. He also moved into a supportive community of practice during the semester. Even before he
moved into a formal teaching context and used Inspiration, he was using computer
generated graphic organizers with private students. Recall that I mentioned these graphic
organizers Dan used early in the semester as an episode where he transformed an activity
I had used in the 90s in Northern City. He transformed this teaching activity in a way I
had not conceptualized through the use of the graphic options available in MS Word. He
also used the adult-student’s laptop in this episode.

As with Mawng, recall that Dan was teaching in an international school, but Dan was
working as a pullout ESL teacher (the school used the term ESL). The school also did not
seem as well equipped and these did not seem as high an amount of funds to invest in
material resources at Dan’s school as there was at Mawng’s school. The point is, in terms
of their communities of practice, both Dan and Mawng’s schools offered flexible and
supportive contexts in which to work with graphic organizers, which contrasted with
Mamet’s contexts, which did not seem quite as supportive or have as many material
resources. Although an obvious limitation on these conclusions are that my time at his
school was limited, although with Dan, as with all of the participants, we spoke often
about what was going on at their schools. In addition, they had to use examples from their
teaching and learning contexts to answer questions in class and on exams.

In the Results, we saw Dan use both the matrix and the KWL chart with students, in
addition to using Inspiration for his oral presentations and using Inspiration within a
Power Point presentation for the language-learning course. It is also interesting to note
that Dan reported that he did not have explicit awareness of graphic organizers as
teaching tools before taking the advanced reading comprehension course. His perception
of graphic organizers changed once he became aware of them. Again here, Wartofsky’s hunter comes to mind.

With regards to transformation, participatory appropriation, and perception, it seems clear that Dan’s teaching activities were transformed and he was having an effect on the students and school in which he taught. I stopped and spoke momentarily with the regular classroom teacher and she said “Now I know where all these graphic organizers are coming from” (Reflective Fieldnotes 11-13-02).

Dan appropriated the use of graphic organizers and the computer program Inspiration. Dan also altered my perceptions of what I could do with MS Word in terms of GOs, and he altered my perceptions of a teaching strategy I had used for several years in Northern City.

Thinking of Dan in terms of Wartofsky’s (1979) notions of perceptions, during the advanced reading comprehension course, I think Dan was continually able to see the possibilities of graphic organizers and seemed to explore the different possibilities of GOs more than other students. His past and present communities of practice allowed and promoted this type of exploration.

In terms of his past communities of practice, I am referring to his educational history in the Netherlands in a bilingual household embedded in a multilingual context, and his years working on his BA at UC Berkeley. As with the other participants, we see the interwoven nature of transformation, appropriation, and perception. Overall, with Dan and graphic organizers, there is clear evidence of ontogenesis unfolding in the data.

In addition to Dan’s activity with graphic organizers within and beyond the case, Dan’s concept map from the final exam was more complex with regards to cross-links.
than any of the other students. It was beyond the scope of the Dissertation to perform a
deeper analysis of these concept maps from the final exam, and I am presenting these
more as points of reference. However, this is an interesting finding that needs more
investigation at a later time.

The last participant from this group, Andy, like Dan, displayed cross-links on his
concept map for the final exam. Andy also used Inspiration in another class to present an
extensive collection of GOs with different types of readings. Recall that Andy was the
second most experienced teacher in the course, and returned to South Korea and teaching
work immediately after final exams. He also engaged Tomasello’s (1999) work and
created some effective GOs expressing Tomasello’s ideas.

Even though Andy did not have an immediate community of practice related to
teaching that he engaged as he was taking the course, like some of the other students, it
can be argued that Andy was thinking in terms of his 8 years of teaching experience in
seeing the potential of GOs in his varied communities of practice in South Korea. In
addition, Andy clearly displayed an interest in Tomasello’s (1999) ideas, which we also
reviewed in the language learning theory course (see Tomasello, 2001; Tomasello &
Bates, 2001). Recall that I communicated with Andy by e-mail as I was writing the
dissertation. He is revising the collection of graphic organizers and readings he put
together and exploring some ideas from Tomasello to use for his master’s thesis.

With regards to transformation, appropriation, and perception, the data clearly
provided evidence that Andy experienced transformation with regards to his awareness
and use of GOs, appropriated strategies for their use, and was engaged in some forward-
looking types of perception. Overall, this ontogenesis we can see unfolding in the data
with regards to Andy’s use of GOs can be argued as linked to his prospective and historical communities of practice.

Overall this group of four students from the Native and Near Native English Proficient Group demonstrated much more transformation, participatory appropriation, and changes in perception of graphic organizers than the scholarship group. I think these transformations can be linked to their supportive communities of practice, more for Dan, Mawng, and Andy than for Mamet, and their overall general educational backgrounds and English proficiency levels.

This link with English proficiency levels and transformation seems an obvious very concrete relationship. When you consider that all my instruction was conducted in English, which is a curriculum mandate, and these four students generally demonstrated the highest degrees of English proficiency, it is reasonable to assume that they would understand more of the content. Although it is hard to separate their English proficiency levels from their qualitatively high degrees of transformation of perceptions and their appropriation of GOs over the 22 weeks of data collection, I think their communities of practice were as strong a factor affecting transformation, perception, and appropriation as were their English proficiency levels. The last two participants I will discuss, who were not native-speakers of English, support this view of the communities of practice being as important as English proficiency.

Remember that Nathanee and Chou were not native speakers of English, and Chou experienced probably the greatest challenge with the English language than any of the other participants. I think the data supports the idea that both Nathanee and Chou’s
communities of practice greatly affected their use of GOs and ability to perceive GOs as useful tools in their teaching.

Nathanee’s teaching context was mainly geared toward students learning English for specific types of situations, such as industrial and hotel and tourism contexts. Nathanee’s teaching schedule was also more crowded than any of the other participants in the study and she was embedded in more of a rigid top-down type of administrative structure than the other participants. Her curriculum originated from the Thai education ministry. Moreover, her teaching context appeared to function with very basic types of materials. Nathanee also used the Thai language primarily in her teaching and was surrounded by the Thai language in her school and home environment. In this and many other ways her community of practice could be generally described as more focused and narrow, mainly concerned with English for Specific Purposes (see Richards & Rodgers, 2002).

In addition to the overall narrow focus of her community of practice, Nathanee mainly worked with informational types of text structures. When I had a brief look at her books, they were filled with tree-diagrams and flow charts. In addition, I noticed a concept map in one her books that she said was new, and that she had not had the opportunity to work with much. However, most of these GOs in her texts were primarily geared toward organizing information for learners, not actively prompting learners to build graphic organizers.

Recall that when I visited her school Nathanee presented a lesson using an adaptation of a KWL chart. She used this KWL chart along with flow charts, and flow-charts are what I found to be the type of graphic organizer she favored.
It is interesting to note that, similar to Wanida, Nat was aware of her history with graphic organizers. She exhibited a certain style when she created graphic organizers and, as mentioned, she preferred a certain type of graphic organizer for her teaching, a flow chart, and for her learning, a semantic web. Beyond her use of an interesting adaptation of the KWL chart, which she wrote about extensively in one of her assignments for the advanced reading course, and her use of Inspiration for the last oral presentation, Nat did not seem to exhibit much transformation or interest in fundamentally changing her use of graphic organizers. With regards to fundamentally changing, I am thinking of the essence of activity, of course, recognizing the slippery nature of this term essence.

She started in the advanced reading course favoring flow-charts, and at the end of the course, she prompted the use of a flow chart to present a piece of a reading passage. With the example of her using a semantic web created by Inspiration, it was interesting to see her use a strategy that I had only seen Wanida use: numbers between bubbles that marked lines connecting bubbles. This is in contrast to her previous use of words and her creating a very complex graphic organizer for the first oral presentation.

Overall, with Nathanee, as I pointed out in the Results and as I have previously mentioned here, although there was some transformation and appropriation evident in her adaptation and extensive use of the KWL chart, she did not seem to change much in her perceptions of graphic organizers. Although, when you consider Nathanee’s overall history with graphic organizers and her community of practice while taking the advanced reading course, the limited degree of transformation seems understandable. This narrower perspective on graphic organizer use was in contrast with Chou, who demonstrated numerous ways she could use graphic organizers beyond the boundaries of the case.
Recall that Chou was a full-time student and had more teaching experience than any of the participants. Also recall that I was able to meet her colleagues and husband, and they were extremely supportive of each other and with Chou. They were also doing some very interesting work with literacy topics in Southern Yunnan, which I cannot ethically discuss for the Dissertation. However, the point is that Chou was from a supportive community of practice that was interested in new ways of teaching language and content. Moreover, I mentioned in the Results that there might be some relationship between Chou’s linguistic background of working with Chinese characters, which in certain contexts and communicative activities, seem to imitate the functional attributes of graphic organizers. This includes the way graphic organizers mediate semantic meaning. However, this point needs more investigation. One part of Chou’s transformations was her use of Inspiration.

Chou used Inspiration to plan her MA thesis study, and turned a semantic web into a tree-diagram like concept map. Chou used Chinese characters to link topics together. Topics were also written in Chinese. Chou also created an interesting type of graphic organizer that expresses the contrastive analysis hypothesis, which I discussed already. In one of the most interesting examples of transformation, appropriation and perception, I presented a concept map that Chou did on a piece of scrap paper, which she used to recount the way she used a concept map to teach a lesson in China when she went home between the first and second semesters. This was particularly interesting because it wove together a number of different graphic organizer strategies into one. It was also very spontaneously and quickly reconstructed during a stream of other activity occurring in the MATEFL office that day.
In Chou’s use of graphic organizers, she exemplified more transformation and appropriation than any of the other participants. It is interesting to note that she also seemed to be the most challenged by the English language. In terms of her perception of GOs, she seemed to be constantly looking forward at how to use them in her community of practice back in Southern Yunnan. The data from Chou also provides support that ontogenesis occurred over the course of the data collection in terms of her use of GOs.

In summary: in this third section of the Discussion I have looked at the Results in terms of research questions two and three. I have focused on four related concepts and terms: transformation, appropriation, perception, and communities of practice. I have argued that the data displays a foundational relationship between these four concepts and terms. Whether or not participants exhibited any transformation and appropriated and applied graphic organizers depended on how they perceived graphic organizers. Their perceptions of graphic organizers were as dependent on the constraints and affordances provided by their communities of practice as on the instruction they engaged in the advanced reading course. It could be argued that the communities of practice in which they taught had more of an impact on their perceptions of graphic organizers than the information they engaged in the advanced reading comprehension course.

Implications for Teaching and Classroom Research

The research provides implications for a number of different, yet related issues that revolve around teacher education, multicultural classrooms, cross-cultural contexts, and language learning and graphic organizers. I will weave these different areas together as I discuss the implications.
In terms of being a teacher, I found it extremely informative and important to watch myself on video after every class. This was a powerful resource to reflect on the lessons I planned compared to the lessons that unfolded. More important, I could watch the reactions of the students on the video and see which part of the lessons needed to be adjusted. This proved to be extremely important in having such a diverse group and watching how the dyads and triads worked. Recall that this viewing prompted me to make some adjustments for Chou, and I saw other instances where students seemed to be constrained or afforded by a particular pairing strategy, or as mentioned, how I presented an idea or strategy. As I sat and reviewed the videotapes each week, I became better informed about what to do next. The two Sony tape recorders also provided a more intimate view of what people were saying. It was also humbling to see my own very real mistakes. The power of videotaping and audiotaping lessons is an implication for teaching and researching classrooms. From these types of data, we can begin to ask ourselves, as teachers and students, what we can do to support shared-attention spans. In a broader sense, we can also begin to look toward activities in classrooms that can illuminate the intentions of others. In other words, activities that can promote intersubjective relations through an expanded notion of artifacts as provided by Wartofsky (1979).

I presented a variety of findings that dealt with student transformations, willingness to appropriate graphic organizers as a teaching and learning strategy, and their perceptions of graphic organizers. I also briefly touched on the notion of spontaneous concept knowledge and scientific concept knowledge and the relationship of this theory of concept formation to the ZPD. These participants all existed in different communities of
practice both as English language teachers and English language learners. All of these findings support the notion of being very aware of students’ backgrounds. Looking at students’ backgrounds as interrelated developmental domains can extend our notions of background knowledge. Specifically, once we look across microgenetic, ontogenetic, sociocultural/historical, and phylogenetic domains we might be able to see more of the process features of students’ backgrounds. We might see what developmental evidence from these four domains unfold in selected moments of interaction.

More specifically, with regards to teaching across cultures in as diverse a setting as this, teacher educators with these types of diverse groups, as well as mainstream groups, need to think about what they are teaching in relation to the communities of practice in which their students enact their daily lives. Teacher educators or regular mainstream teachers might be introducing what they think is the most powerful strategy or idea they have ever come across in their entire lives, and this idea or strategy might be meaningless to their students. Recall the notions on perception, action, and history from Wartofsky (1979) that is referred to in many places throughout the Dissertation. Representations mediate perception; perception is a historical activity. What you teach may not be perceived as worthwhile at all to students unless they see this in their community of practice. With regards to preservice teachers, it might be extremely challenging for them to look prospectively at certain teaching strategies. This might have been the case with a few of the participants in the dissertation research. The implication here is really quite obvious: in any class with multilingual culturally-diverse students, it is important to find out something about their communities of practice, particularly some fundamentals about
their first language and educational fundamentals (e.g., predominant syntax structures; predominant learning and teaching styles from their culture and teaching context).

In reference to teaching and learning about graphic organizers, someone asked me one day how graphic organizers are different for foreign or second language learners than they are for mainstream learners. I think from the data collected, it can be seen that graphic organizers chunk up language and content in specific ways that might be more important for second and foreign language learners than for mainstream learners. This implication is supported from any number of perspectives on the role of conscious awareness in language learning (see Schmidt, 1990; 1994).

Also, with regards to graphic organizers, it is very important to consider the organization of the text in which a particular graphic organizer is used. This has been talked about in the literature previously (see Mohan, 1986). There were some examples in the data in which a participants, including myself, used the wrong graphic organizer for the text or lesson objectives. These situations were not productive. It is also important to be mindful on how graphic organizers are positioned in a lesson; that is, are the students creating them, just filling in the blanks like a worksheet, using the GO for reading, writing, speaking, listening and/or thinking or all at once.

For the graphic organizer program Inspiration or functions to produce graphic organizers in MS Word, these generally proved to be powerful tools for several of the participants. In terms of activity theory and transformation (see Davydov, 1999), the use of computers for building graphic organizers seemed to be capable of altering the essence of activity.
Vygotsky’s developmental approach to the data also proved to be a powerful tool, particularly microgenesis. These short-term longitudinal studies, even though extremely time consuming and labor intensive, provided a view of interaction that illuminated many features of interaction that would otherwise be missed. Even though I tried to stay within the two definitions provided by Wertsh (1985), I think that the data provides examples of genesis as always occurring (see Werner, 1978). The implication from the data is to be more flexible in terms of transformation and attend more toward the interaction of participants, context, and mediational artifacts to see transformation of activity. Also, it is important to look around for evidence of the other domains and how these are interrelated. Classrooms are a good place for microgenetic studies with an eye toward looking at the other domains, particularly ontogenesis and the sociocultural/historical domain.

Finally, Tomasello’s (1999) notions of joint-attentional scenes can be seen in the data, which I framed as shared-attentions spans. Finding ways for students to recognize the intentions of others, including distant others from books and movies, and building classroom activities that promote intersubjective relations through collaboration with artifacts, like graphic organizers, might prove to be a powerful strategy in cross-cultural and multicultural contexts, as well as mainstream contexts. I found gesture to be very much a part of these shared attentions-spans. These data on gesture have implications for understanding language and communication as embodied and more than simple input and output.

To summarize the implications for teaching and researching classroom contexts, the overall research design with Vygotsky’s developmental approach at its core, used in
conjunction with video and audio data, is a powerful path for understanding multicultural, multilingual, and cross-cultural contexts. Moreover, this research design, used with the broad and flexible theoretical framework put together for the Dissertation research, can provide teachers and researchers with a clearer view of the interplay between the social, cultural, psychological, historical, and linguistic forces that constitute human activity.

Avenues for Future Research

Any number of the items mentioned in the preceding section on the implications for teaching and classroom research can be an avenue for future research in ESL and EFL, adult literacy contexts. Some of the more salient avenues include more investigation of Tomasello’s (1999) notions of joint attentional scenes and collaborations with artifacts. These collaborations can be explored using Vygotsky’s developmental approach.

A wider exploration of the four genetic domains (e.g., sociocultural/historical, ontogenetic, phylogenetic) in conjunction with microgenetic analysis of interactions in a specific literacy and language context is a possible avenue for future research. I originally intended to collect a lot of interview data to gain a better understanding of how graphic organizers were perceived outside the bounded case. I lacked time and material resources to complete this task. This could have been a more extensive and powerful study had I been able to interact more with the sociocultural/historial domain beyond the bounded case.

Many features of graphic organizers and second language learners are still open for further research. This includes experimental designs with different types of graphic organizers used with different types of texts (i.e., informational texts; narrative texts). In
terms of what students do with concept maps, the study of cross-links (see Novak and Gowin, 1984), and how and why ESL and EFL learners choose to break concepts and language down in specific ways is another possible and productive path for future research. Also, gesture became an issue with the participants and their use of graphic organizers for presentations. A finer analysis of the gesture that takes place with different participants, different types of speaking situations with different texts (i.e., narrative text, informational text) and different types of graphic organizers seems to be a worthwhile avenue for future research. Finally, more studies juxtaposing different theoretical frameworks seems to be an open area of research.

These are just a few of the salient avenues for future research related to the data. I leave any more ideas for future research up to the reader.

Conclusion

I originally set out with two main purposes for the study and one parallel purpose that emerged while working with the participants to understand qualitative case study research in their research methods course. I restate these purposes here for immediate relevance.

One main purpose was to investigate how learners of English in an EFL context, who are also teachers of English and/or learning to be teachers of English, perceived and responded to different types of graphic organizers and associated activities. These graphic organizers and activities were presented through an advanced reading comprehension course taught by the primary researcher. The second main purpose was to explore, synthesize, and apply theories of mediated activity, artifacts, and research methods
originating from or related to the work of the famous Russian troika of Vygotsky, Leont'ev, and Luria (Engestrom, 1999; John-Steiner & Mahn, 1996; Scribner, 1997a; Tomasello, 1999; Vygotsky, 1978; Wertsch, 1998). The parallel purpose of this research was to provide the participants with an insider's perspective on qualitative case-study research that investigates their interactions and context.

In the Dissertation I have followed through with these three main purposes of the study. The salient findings include the power and flexibility of the theoretical framework for looking at different features of the participants' interactions with graphic organizers. These salient findings included the role of gesture, the participants' intersubjective relations through the use of graphic organizers and other mediational artifacts, and my subjectivity interacting with theirs to produce some interesting data. Moreover, some of my definitions and understandings of mediated activity and positioning reflect a synthesis of the wide theoretical framework. In a very real way, the Dissertation reflects this idea: "We shape our tools and are shaped by them" (John-Steiner, 2000, p. 194)

The most salient conclusion concerning this research seems to be a good point to close the dissertation. I found that artifact-mediated activity revealed participants' subjectivities, including my own. This process included signification, enacted ontogenetically, through social, cultural, and historical activity with representations as artifacts that mediated perception. Through collaborations with representations, participants discursively appropriated the intentions and mental states of others.
APPENDIX I

FULL TRANSCRIPTS FROM CHOU DATA ONE

Dialog excerpt #3 without gestures, Chou data one 9-7-02

*NOTE: Numbers to the left of dialog are time numbers from the VCR counter.

0000-0045: (I'm talking to Chou about taking so many courses and the camera shifts over the poster-paper with the graphics Chou and Busaba made. As was stated in previous fieldnotes, and as was stated in the interview recorded on 8/2 and in the transcript, Chou was mainly responsible for the creation of the chart.

0040: (The scene shifts to some very clear shots of the poster-paper with the graphic)

0054: There that gives a nice shot of it (I'm talking to myself here and then talk to Chou, who is not in front of the camera at the moment. She is waiting to see her advisor, Dr. G, to get her class schedule in order. I have the graphic hung up so Chou can sit or stand next to it and there's enough room for both of us to sit in front of it and talk. I've got the tape recorder on the desk next where she'll be sitting.

0055: I: That's a nice chart you made... I like it. (Chou is behind me)

0056-0120: (I'm panning the chart with the camera; great shots of the Chinese written with some arrows, contrasted nicely with the Thai Busaba wrote)

0120-0158: (You can hear Dr. G and Chou talking about her schedule as the camera pans over the question at the bottom, the anticipatory question above that, which highlights a Chinese symbol. The sentence is: How do you say ______ in English. The symbol she is
asking about means something like "in the process of" as she explains later in this transcript)

The question at the bottom of the chart reads: ("What is the contrastive analysis hypothesis? Provide at least two examples from your own learning and teaching and explain how this might effect the generic lesson plan if you were to implement this lesson plan locally? )

0151: (The camera opens to Chou sitting to the right of the poster-paper [see Figure 7])

0159: I: You don't remember what it is? The contrastive analysis hypothesis.

C: The contrastive analysis hypothesis, right?

I: Here I'm going to sit down with you. It's like a talk show on TV (I can be seen a moment later pushing the chair across from Chou. I didn't intend to, but this firms up her physical position to the right of the chart.

C: (Chou smiles and laughs)

I: I'll just get a close-up again of that diagram (the camera gets another really nice shot of the graphic and the Chinese writing on the left and the Thai writing on the right)

0234 I: (the camera pulls away and there's a shot of Chou sitting quietly to the right of the chart) Tell me about the contrastive analysis hypothesis. What is that?

C: Because umm Contrastive Analysis hypothesis… if uh—when we study language, if we find uh some similarity the students can learn easily.

I: What about--what about the similarities—tell me again

C: similarities

I: Similarities in what

C: Language. ah structure, grammar. ah like that--something like that
I: Well look at this this chart you have here we’re talking about the present continuous tense—so tell me how does the chart--how does the chart express the contrastive analysis hypothesis

C: Ah in Chinese we have no--ah we have continuous, present continuous tense but the structure are different. There are some similarities ah in--between Chinese and English. For example for *chin ja cheing gu* ah this word *ching ja*--this word is adverb—a type of adverb—this adverb we can see this is a ah present continuous tense from this word. And the verb, *cheing gu* but no ah I-n-g—no other things—because just the Chinese character. So ah when the students want to learn Eng ah the present continuous tense in English we first we should find what is the similarity between the first language and the second language

I: right

C: So the verb *cheing gu*—is the--we can—*-is the same—*

I: right

C: but the English expression—the using--using forms are different because we should add verb to be and verb plus I-n-g and present participle—we should use this one so—

I: tell me how the — go ahead and tell me how the chart expresses similarities and differences

C: Similarity here is I and we can confirm

I: right but, look at the graphic you have up above,

C: This one

I: So tell me how the graphic works
C: Because this graphic first language and second language there are many, many differences and similarities between them so first we can take from the first language and second language and distinguish the similarities between them. So from big come to nearer—the similarities—wide—and uh wide—but there are some difference—so we should—difference between—if you learn more, you can find more difference between—between them—this language—so this chart just express there are many similarities between the first language and the second language—but if you learn more language you will find—or you will discover more difference between them. So this is what we should learn

I: So you used—tell me the history of that graphic—have you used this type of graphic before?

C: No..this this graphic I just know from the class—we have some hint—hint about reading class

I: Yeah I know—but you’ve shown me—you’ve shown me the—you know—remember you drew on a piece of paper that you’ve often drawn this diagram for your students before.

C: yeah. . . I use this arrow

I: right, right, so really this graphic didn’t really come from our class. You already have history with this graphic.

C: Yeah but I never drew that one, I just drew this one

I: Oh ok—so this

C: First language and second language I never compared the—I never used the graphic to compare it
I: You just do like this

C: I just do like this and after the reading class I have some idea about to do some diagram about the language and the idea we want to show the contrastive analysis hypothesis.

I: right, right

C: I want to use the simple graphic to express this theory

I: right, right, do you think--so--this is good too—I like the way—you’ve used this in your teaching this is good. I mean I think this is a good idea. I’ve never seen this before, because I’ve never really seen Chinese—but do you think it’s based more on the communicative method or natural approach, or grammar-translation method, what do you think

C: Grammar translation

I: Why? Do you use Grammar-Translation a lot then er?

C: yeah, because in Chinese English teaching have, most of the teachers use the Grammar-Translation methods

I: right, right

C: very often, so when we introduce or a new language or new sentence the students first should know this sentence meaning--sometimes we use order for order--If the sentence is exactly same we use this to compare. And the students can learn very easily. They can transfer just in one minute or something like that

I: So really you use the contrastive analysis hypothesis all the time

C: Yeah

I: Did you ever learn it before?
C: No

I: They never taught it to you in

C: I never—I don’t know this theory before

I: Right—well you know it, but you just didn’t have a name for it

C: Yeah I have no name—I just use--because this is come from learning English--
because when I learn English—I--most of my study I just use this, this kind, like this. So
I can learn quickly So I think if I introduce this method to the students, the students can
learn quickly.

I: Yeah this one here and then combine with

C: Yeah

I: That’s good, well I’m glad—it’s just really interests me the way you expressed this,
this is interesting to—because it shows that your—it shows actually that your thinking is
changing a little bit—you know that your thinking about how to teach language is
changing. And—you know the whole purpose of you being here and the whole purpose
of—you being here as a student and the whole purpose of me being here as a teacher is to
try to guide you into thinking about language a little differently than maybe you had
before—and you know so we each have a role—and it makes me happy to see that your
thinking—not that your thinking was wrong, but that you’re thinking about a little
differently now—because that’s part of graduate school you know to be—try to expand
our minds—really—to change our way of thinking and to find different ways to teach that
are effective

C: Well before I come here I just use this arrow but I don’t know this contrastive analysis
hypothesis I can’t do
I: And then you made—this diagram is the perfect diagram to express the contrastive analysis hypothesis.

C: Yeah. Before I want to use this contrastive analysis—but I will give you an example—you should give two examples so I made the Chinese. I do not find anything new just do in my usually teaching.

I: right, right

C: So I think if I use the present continuous tense I will use this one.

I: You’ve taught this present continuous tense before haven’t you?

C: Yeah, of course.

I: Yeah, you normally teach it.

C: **teaching

I: and then Busaba did the little piece there. She wrote that in Thai, but she didn’t have the arrows, because it’s almost the same, right. This is—This is kamlang.

C: I can’t read it.

I: I can’t read this either but I know this is Gor Gy, sarah—kamlang—this is an Ng sound. This symbol’s an Ng sound and “Phom” kamlang bye—that’s bor bai mai—yeah I can read it when I have the English below.

C: (laughs)

I: I can read it a little bit—cause I know this is kamlang. I know this is ng this is gor gy, this is sarah ah this is a vowel ah.

C: I can’t read a single word.

I: yeah but you could learn it easy but I wouldn’t bother now you’re in graduate school.

C: ah
I: What word is this again?

C: This is chung gieur, verb

I: Chung gieur

C: a verb

I: So how do you say “Chung gieur”

C: I will ask the students—what am doing now? The students will say oh the teacher is singing but they cannot use the present continuous tense now, they can say in Chinese “chung gieur” because they were—our next step I will ask the students—how do you say in English the students will say, you sing, you cannot say you are singing now. So this step I will use the Chinese to introduce the English present continuous tense. And I will do this one—the contrastive analysis hypothesis—

I: right right

C: I will ask the students—what am doing now? Oh, the students will say the teacher is singing but they cannot use the present continuous tense now, they can say in Chinese “chung gieur” because they were—our next step I will ask the students—how do you say in English the students will say, you sing, you cannot say you are singing now. So this step I will use the Chinese to introduce the English present continuous tense. And I will do this one—the contrastive analysis hypothesis—

I: right

C: this theory and introduce—what the difference—and the students know from subject, personal pronoun we should add verb to be—and verb we should add I-n-g—this explains the present continuous tense. I will give a little explanation—the students can get it.
I: right, right-right

C: So it’s very easy to introduce. If I just say I am singing now, the students won’t know what structure is <in place> because in Chinese we have tense

I: right, right-right

C: we have no plus some prefix or suffix

I: right, right

C: to express the tense, or something like that

I: right, right-right

C: so Chinese we have no--so this is very different—this is different in Chinese language

I: right-right so you need a way to express the differences

C: yeah difference, the same, I needn’t explain—but different I should give them equal explanation, and next step, I give more more practice and they can give it and then they build the present continuous tense, with their brain, this knowledge we can use it

I: Good, good, good job. I really love this. It just fascinates me the way you’ve expressed this. I appreciate you helping me with this.

C: Thank you

I: I think you’re going to make some good positive changes when you go back, good

C: (Chou walks by the camera smiling and laughs a little)

I: Thank you very much

C: You’re welcome

1728: THE TAPE ENDS
Dialog excerpt #3 without gestures, Chou data one 9-7-02

0234 I: (the camera pulls away and there's a shot of Chou sitting quietly to the right of the chart) Tell me about the contrastive analysis hypothesis. What is that?

C: Because umm Contrastive Analysis hypothesis... if uh--when we study language, if we find uh some similarity the students can learn easily.

As she is saying contrastive analysis hypothesis it's as if she is holding her hands over something, fingers spread apart. The height of her hands over her lap are consistent with Chou putting her hands over a beach ball, her hands and fingers relaxed and slightly curved.

Her fingers spread slightly apart and relaxed after some gesturing that accompanies we find. Her hands move up and apart about 18 inches from her lap on the word some. When her hands come apart and up they are between her chest area and naval. Her hands are more toward her chest level than her midsection (remember she's sitting down). Her elbows are bent slightly upwards, about 5 degrees more than a 45 degree angle. Her hands move together as the word similarity is spoken.

More specifically, her hands come together at the third syllable of the word similarity: sim-i-LAR-i-ty. By the completion of this word, her left hand is covering her right hand. Her right hand is in a relaxed fist, with the knuckles of her right hand resting in the palm of her left hand, but only momentarily.

*(One iconic gesture on similarity)*

With Chou's speaking of the phrase, the students can learn easily, her hands move apart and come together twice. Each time her hands move apart, they move about 6 inches
apart, the fingers still relaxed, and the fingers touch both times they come together. Her hands continue to gesture on easily. This coming together on two points in this phrase is not nearly as dramatic as the previous word similarity, in terms of the width the hands went apart, and her left hand covering the right, similar to what might be considered a gesture to mark the completion of an utterance.

*(Two indexical gestures when the fingers touch together twice on both words in the phrase can learn, but not as deep as the previous iconic gesture on similarity)*

At the end of this conversation turn, her hands are resting in her lap again, relaxed, her fingers slightly curled, palms angled into her body toward her midsection and chin.

I: What about the similarities—tell me again

I want to see this gesture again. I am not explicitly doing anything here to prompt a gesture, except asking the question again.

C: similarities

I: Similarities in what

C: Language, ah structure, grammar, ah like that—something like that

It is noticeable that her hands come together again, three times, in very much the same type of gesture she enacted in the previous conversation turn on the word similarity. As before, the knuckles on the top of her right hand come to rest in the center of the palm of her left hand on each of the words structure and grammar, and the phrase like that, which proceeds the completion of this conversation turn.

*(Three indexical gestures on structure, grammar, and like that)*

The completion of this conversation turn occurs with the phrase something like that. As stated, before the completion of the turn on the phrase, something like that, her hands...
come together three times on grammar, structure, and like that, as they did on the first
gesture of this type that occurred with the word similarity. In each of these three
instances of her hands coming together on structure, grammar, and like that, the right
hand seemed to rest deep into the palm of her left hand, the fingers of her left hand
touching just below the outside of the wrist of her right hand.

During the phrase something like that, which completes this conversation turn, her
hands come together for a fourth and final time, but they do not come together as before.
At the end of this phrase they drop in her lap, the left hand cradling the right, but not as
depth as before. In contrast, this lack of depth of her right hand embedded in her left is
noticeable.

During the movement that occurs as this phrase something like that is spoken, there is
a flow on this phrase that is markedly noticeable. The right and left hand do one circle
around one another as if she were telling me a car or log took one roll down a hill; or
this could be described as something an American football referee might do to signal
illegal motion, but shortened to just one circle of the hands around one another. Or this
movement of Chou’s hands could be described as how she might roll her hands around
one another, once, without touching, in one of those old-style fur hand warmers women
are seen with in old movies where a hand goes in either end.

After completing this gesture at the end of the something like that, Chou’s hands then
move to a resting position in her lap. Her right hand is now the bottom hand, with the
back of her right hand resting in her lap, and the back of her left hand resting loosely in
the palm of her right hand. It is noticeable that the overall resting of the hands together is
not as deep as before; that is, they are resting together, but one hand is not nearly as
deeply cradled by the other as before. Besides the change of which hand is on top of the other, the tips of the fingers of her left hand only seem to be touching where calluses might appear in the palm of her right hand if she had any.

I: Well look at this, this chart you have here—we’re talking about the present continuous tense—so tell me how does the chart—how does the chart express the contrastive analysis hypothesis?

C: Ah in Chinese we have no—ah we have continuous, present continuous tense but the structure are different.

Chou stands here at the phrase we have no and has her left side to the camera. She points to the graphic after she stands up and continues her talk with we have continuous, present continuous tense.

As Chou says but the structure are different, her hands are at waist level, palms down. Her palms are not completely flat and are angled about 5 degrees from a flat position, angled inward toward one another. The palms are in a relaxed manner, fingers slightly curved, also relaxed. On the phrase the structure are different she makes two outward sweeps of her hands. Her hands are moving back and forth as if she were sweeping a light cover of snow, feathers, or something similar off an imaginary table in front of her. Her hands are moving back and forth sideways without crossing one another, like an umpire at a baseball game calling someone safe, but with Chou here, her arms are not crossing each other on the inward sweep, and they are not moving in the pronounced, sure sweep of on umpire. Her movements are in relaxed sweeps that seem to match the cadence of her speech.

*(One indexical gesture on structure, and one iconic gesture on different)
There are some similarities in between Chinese and English.

Following the completion of the previous gesture and on the end-of-sentence-word different, Chou moves to the phrase there are some similarities. During the chunk, there are some, she raises her arms from her waist level to midsection. This phrase, there are some, seems to operate as a transition to the gesture position that will occur in a moment when she says the word similarities. When she says there are some an upward motion occurs that appears to have three distinguishable steps on each word. Most noticeable is a momentary pause on the word some at the end of this phrase: her forearms and hands are now at a position slightly above where the area around her naval, and her palms move to a position facing her body. This is where her hands will come together on the word similarities.

At the completion of the phrase there are some the fingers are slightly curved inwards in a relaxed manner, and it is noticeable that she is preparing to move her hands together. As before, when she was sitting and making a similarity-gesture, her hands are coming together with the left hand moving in front of her right hand.

Her hands come together two times as she says the word similarities. The first time her hands come together on the syllable sim-, the knuckles on the top of her right hand don’t appear to be touching the palm of her left hand, although her hands are in the same general position as before, with the left hand in front of the right hand. The second time her hands come together, the knuckles on the top of her right hand go into the palm of her left hand. Comparable to the example first example when she was sitting before: her hands seem to come together close to the third syllable [simi-Lar-i-ties] as before. On
this third syllable, the knuckles on the top of her right hand come to rest into the palm of her left hand. This is a very momentary resting of the hands.

*(Two iconic gestures on the word similarities)*

On the phrase *in between* that leads into the words *Chinese* and *English*, her hands move from their temporary resting position. Her hands come apart on the word *in*, stop momentarily, and the fingers touch again on the word *between*. On the words *Chinese* and *English*, her hands come to a resting position slightly below her waist, her left hand over her right before they begin to gesture again at the end of *for example*, which begins the next sentence.

For example for *chin ja cheing gu* ah this word *ching ja*—this word is adverb—a type of adverb—this adverb we can see this is a ah present continuous tense from this word.

During most of this sentence, which introduces the next sentence that begins with the word *And*, Chou is pointing at the poster-paper while she talks.

And the verb, *cheing gu* but no ah I-n-g—no other things—because just the Chinese character.

*On this word no* before I-n-g, Chou makes two outward sweeping gestures. One of the outward sweeping gestures is on a pause after the word *no*. Another outward sweeping gesture follows the pause on the morpheme I-n-g. So on the phrase *no I-n-g* there is a total of three outward sweeping gestures. These are generally the same outward sweeping gestures that occurred with the word *differences* at the beginning of the dialog. These outward sweeping gestures only seem to differ in the angle of the palms inward. The palms are more inward-facing, thumbs facing more upward toward the ceiling.

*(Three indexical gestures on the phrase no I-n-g)*
On the phrase no other things Chou repeats two outward sweeping gestures as in the previous four lines. She is also moving away from the graphic as she says this.

*(Two indexical gestures on the phrase no other things)*

So there are five outward sweeping gestures in this short sentence

So when the students want to learn the present continuous tense in English we—first we should find the similarity between the first language and the second language.

On the word English her hands move to the waist again and move apart once in a short and quicker outward sweep.

*(One indexical gesture on the word English)*

On the phrase first we should find, Chou brings her hands together in two short sweeping motions inward on the phrase, first we should find. Her hands come together on first and find, which proceeds the word similarity. On these two words, her hands don’t come together completely, the fingers of each hand don’t quite touch.

(Two indexical gestures on first and find)

The hands come together completely on the word similarity. Again, as before, on this word similarity, the left hand and right hand come together, the left hand is in front of the right hand, the knuckles on the top of the right hand are momentarily in the center of the palm of the left hand.

*(One iconic gesture on the word similarity)*

I: right

C: So the verb cheing gu—is eh—is the—we can—is the same—

During the false start eh—is the—we can Chou is stumbling in her speech and her hands are coming together in the same manner as before. Chou produces a total of six
inward sweeps of her hands in the expression *eh—is the—we can* is the same before reaching full closure at the word *same* on the sixth sweep of the left hand. At the completion of the sixth sweep, the left hand is covering the right, the knuckles on the top of the right hand are resting in the palm of the left hand. She momentarily pauses in this position, her arms making a small half circle at her midsection.

*(Five indexical gestures on *eh—is the—*we can and One iconic gesture on *same*)

I: right

C: but the English the expression—the using—using forms are different because we should add verb to be and verb plus I-n-g ah present participle—we should use this one so—

Chou is leaning against a desk, with one hand touching the desk. All during the previous three lines she was just talking to me at the camera and alternately pointing at the chart. Because one hand is on the desk Chou is only gesturing with her one hand during this conversation turn.

I: Tell me how the —go ahead and tell me how the chart expresses similarities and differences.

C: Similarity here is I and we can confirm

As Chou says *we can* she uses two sweeping motions inward. There's a marked pause between *we can* and *confirm*. She points to the chart as she says the word *confirm*, then drops her hands once more to make one more sweeping motion inward and points to the chart again. None of these sweeping motions are complete and closed

*(Two indexical gestures on *we can* and One indexical gesture following *confirm*)

I: Right but, look at the graphic you have up above,
As I tell Chou to look at the graphic you have above, she shifts to pointing at the top of the graphic

C: This one

I: Yeah that’s very good. So tell me how the graphic works

C: Because this graphic first language and second language there are many, many uhh differences and similarities between them

At the beginning of this conversation turn, Chou is pointing at L1 and L2 on the tops of the large V (see figures 6 and 7).

On many, many Chou produces a long, slower than previous, outward sweep of her hands, with the palms at 90 degree angles, her thumbs facing the ceiling. At the end of the second many she brings her hands inward, and keeps her hands together, palms touching each other through the false start marked by uhh.

*(Two indexical gestures on many many)*

After this pause, Chou again produces a long, slow outward sweep of her hands on the word differences. As she continues, she pauses on the outward sweep on the conjunction and. Then Chou brings her hands in an inward sweep once more on the word similarities, her hands coming together around the third syllable LAR.

(Two iconic gestures on differences and similarities)

When her hands come together this time, her fingers intertwine, the tops of her knuckles moving toward one another. Her hands partly move outward on between and inward again on them Then the fingers intertwine with the palms inward toward her body, the knuckles of each hand moving to touch one another.

*(Two indexical gestures, one on between and one on them)*
So first we can take from the first language and second language and distinguish the similarities between them.

On the two words distinguish the she moves her hands once, three times inwards but her hands do not touch. This is a rough and angled movement, because she is pointing to the board and talking to me. As she says similarities between them she is pointing back at the board again.

*(Three indexical gestures on distinguish the)*

So from big come to nearer—the similarities— wide—and uh wide—but there are some difference—so we should— differences between.

As Chou begins this sentence on so, she is visibly conscious of the camera and me, and purposefully faces the camera at the preposition from. (I think that this is when she is moving into the realm of pantomime as mentioned by McNeill, 1992)

During the phrase big come to nearer, Chou is stretching her arms very wide as she faces the camera and then bringing her arms to a point, fingers touching. If you were on the ceiling and could look down on her arms and hands, you would think she was making a steeple of a church in the well-known children’s church and steeple song. However, immediately after making the church steeple, the point of her two hands becomes two relaxed fists, with the top of her knuckles of her left and right hand facing one another.

This collapse of the momentary church-steeple of her hands continues as she closes her arms inward and moves the collapsing steeple into her chest with the outside knuckles on the tops of each hand facing each other. This collapsing of the steeple with her hands is completed with these two relaxed fists, knuckles facing one another.

*(Two iconic gesture on big come to nearer)*
Between the end of the word nearer and similarities, she pauses, and then moves her hands outwards in a stretch similar to what she used earlier to indicate wide. She pauses on similarities with her arms stretched out.

*(One indexical gesture on similarities. It is interesting here that Chou is making a wide gesture on similarities)

On wide, she holds her hands and arms out. At and uh Chou closes her arms halfway, pauses, then turns back to the graphic and as she says wide she points at the V-shaped top part of the graphic, running her right index finger down both sides of the V that has L1 on one tip, and L2 on the other tip.

On the phrase but there are some she turns to look at the camera, and on the word difference, she thrusts her arms out wide in a sharper movement than before.

*(One iconic gesture on difference)

On so we should she turns to fully face the camera.

As Chou says differences between she is moving her arms out wide again, but a little slower than previous outward sweeps of her hands. On this outward sweep of her hands she is moving her arms up and down again in very slight, short chopping motions mainly noticeable in the hands, wrists and forearms. These chopping motions are not more than about 4 inches in total up and down motion. As her arms move outwards, the chopping motions decrease, until this completely stops on the word between.

*(One iconic gesture on difference between)

If you learn more, you can find more difference between—between them—this language—

Her gesture markedly changes from her pause at the cut-off end of the previous sentence, which stopped on between. On the phrase, if you learn more, you can find
more, she is pointing down to the floor with her fore-finger of her right hand and moving it up and down for emphasis. Her arms stretch out wide again on the word difference.

*(One iconic gesture on difference)*

Chou’s arms are held outward through the repetition of between—between. On the word them, the holding of her arms wide apart changes to pointing at the graphic as she is talking. She moves to more explicitly pointing at the graphic for the rest of this line of dialog. This pointing is repeated twice with the demonstrative pronouns this.

So this chart just express there are many similarities between the first language and the second language—but if you learn more language you will find—or you will discover more difference between them. So this is what we should learn.

Through these several chunks of sentences, Chou moves her right hand from the top of the V-shape when she is talking about similarities, to the bottom of the V-shape when is talking about differences. Though these lines of dialog, Chou is running her hands over the bottom of the upside down V-shape as she is speaking as she did before.

I: So you used—tell me the history of that graphic—I mean have you used this type of graphic before?

C: No..this this graphic This I just learn from the class—we have some hint—hint about reading class

I: Yeah I know—but you’ve shown me—you’ve shown me the—you know--remember you drew on a piece of paper that you’ve often drawn this diagram for your students before.
I leave the camera and walk up to the chart. As I say drawn this diagram I am pointing at the bottom of the CAH graphic, the part that has the two arrows that point toward the Chinese and Thai writing.

C: yeah... I use this arrow

Chou points to the bottom part of the CAH graphic where I pointed a moment before.

I: right, right, so really this graphic didn’t really come from our class. You already have history with this graphic.

C: Yeah but I never drew that one. I just drew this one

When Chou says "that" she is pointing to the top part of the CAH graphic; on "this" she is pointing to the bottom.

I: Oh ok—so this

C: First language and second language I never compared the—I never used the graphic to compare it

As Chou is saying first language and second language, she is running her right hand over the top of the CAH graphic

I: You just do like this

I'm pointing to the bottom of the graphic.

C: I just do like this and after the reading class I have some idea about to do some diagram about the language and the idea we want to show the contrastive analysis hypothesis.

As Chou is saying do like this, she is pointing to the Chinese characters, the arrows, the phrase "I am singing", below the arrows.

I: right, right
C: ***I want to use the simple graphic to express this theory.

*Chou is pointing at the top of the CAH graphic.*

I: right, right, do you think--so--this is good too—I like the way—you’ve used this in your teaching this is good. I mean I think this is a good idea. I’ve never seen this before, because I’ve never really seen Chinese--but do you think it’s based on the communicative method or natural approach, or grammar-translation method, what do you think?

C: Grammar translation

I: Why? Do you use Grammar-Translation a lot then er?

C: yeah, I--because in Chinese English teaching have, most of the teachers use the Grammar-Translation methods

I: right, right

C: very often, so when we introduce or a new language or a new sentence the students first should know this sentence meaning--sometimes we use order for order--If the structure is exactly same we use this to compare. And the students can learn very easily. They can transfer just in one minute or something like that.

I: So really you use the contrastive analysis hypothesis all the time

C: Yeah

I: Did you ever learn it before?

C: No

I: They never taught it to you in

C: No I never—I don’t know this theory before

I: Right--well you know it, but you just didn’t have a name for it
C: Yeah I have no name—I just use--because this is come from learning English--
because when I learn English—I--most of my study I just use this, this kind, like this. 
Because I can learn quickly So I think if I introduce this method to the students, the 
students can learn quickly.

I: Yeah this one here and then combine with

C: Yeah

I: That’s good, well I’m glad—it’s just really interests me the way you expressed this, 
this is interesting to me—because it shows that your—it shows actually that your 
thinking is changing a little bit—you know that your thinking about how to teach 
language is changing. And—you know the whole purpose of you being here and the 
whole purpose of—you being here as a student and the whole purpose of me being here 
as a teacher is to try to guide you into thinking about language a little differently than 
maybe you had before—and you know so we each have a role—and it makes me happy 
to see that your thinking—not that your thinking was wrong, but that you’re thinking 
about a little differently now—because that’s part of graduate school you know is to be— 
try to expand our minds—really-- to change our way of thinking and to find different 
ways to teach that are effective, yeah

C: Well before I come here I just use this arrow but I don’t know this contrastive analysis 
hypothesis. I can’t do—

When Chou says before I come here I just use this arrow she is pointing to the area 
underneath the CAH graphic where she has written English and Chinese and arrows.

When she says I don’t know this constrastive analysis hypothesis, I can’t do, she is
pointing at the CAH-graphic in the area where the V-shape meets the upside down V-shape.

I: And then you made—this diagram is the perfect diagram to express the contrastive analysis hypothesis

C: Yeah, Before I want use this contrastive analysis—but I will give example—you should give two examples so I made the Chinese. I cannot find anything new just do in my usually teaching.

I: right, right

C: So I think if I use the present continuous tense I use this one

I: Well you’ve taught this present continuous tense before haven’t you

C: Yeah, of course

I: Yeah, you normally teach it

C: teaching

I: and then Busaba did the little piece there. She wrote that in Thai, but she didn’t have the arrows, because it’s almost the same, right. This is—This is kamlang

C: I can’t read it

I: I can’t read this either, but I know this is Gor Gy, sara ah—kamlang—this is an Ng sound this symbol’s an Ng sound and Phom kamlang bai—that’s bor bai mai--yeah I can read it when I have the English below

C: (laughs)

I: I can read it a little bit—cause I know this is kamlang. I know this is ng this is gor gy, this is sara ahm this is a vowel ah

C: I can’t read a single word
I: yeah but you could learn it easy but I wouldn’t bother with it now you’re in graduate school
C: ah
I: What word is this again?
C: This is chung gieur, verb
I: Chung gieur
C: a verb
I: So how do you say chung gieur

I am referring to the question at the center of the poster-paper, which is Chou and Busaba’s anticipatory-set question

C: ah this is my introducing of the present continuous tense—I will ask the students, how do you say “chung gieur”—the students can give this verb, "sing", but how do you say—I will produce the next step—how do you say, what are you doing, for example I will sing a song for students—
I: right right
C: I will ask the students—what am doing now? The students will say oh the teacher is singing but they cannot use the present continuous tense now, they can say in Chinese “cheung geur” chin za cheung gieur” because they were—our next step I will ask the students—how do you say in English the students will say, you sing, you cannot say you are singing now. So this step I will use the Chinese to introduce the English present continuous tense. And I will do this one—the contrastive analysis hypothesis—
I: right
C: —this theory and introduce—what the difference—and the students know from subject, personal pronoun we should add verb to be—and verb we should add I-n-g—this explains the present continuous tense. I will give a little explanation— the students can get it.

I: right, right-right

C: So it’s very easy to introduce. If I just say I am singing now, the students won’t know what structure is <in place> because in Chinese we have tense

I: right, right-right

C: we have no plus some prefix or suffix

I: right, right

C: to express the tense, or something like that

I: right, right-right

C: so Chinese we have no—so this is very different—this is different in Chinese language

Here again, as earlier in the dialog, Chou is moving her hands in an outward gesture side to side as if she’s sweeping snow or a thick layer of dust off a piece of paper. She does this four times altogether, the fourth time on the next line. Chou is moving her hands apart in the side-to-side sweeping motion as before. She ends the side-to-side movement on the word language.

*(Two iconic gestures, each on or close to difference, and Two indexical gestures)*

I: right-right so you need a way to express the differences

C: yeah difference, the same, I needn’t explain—but different I should give them equal explanation, and next step, I give more more practice and they can give it and then they build the present continuous tense, with their brain, this knowledge we can use it
I: Good, good, good job. I really love this. It just fascinates me the way you’ve expressed this. I appreciate you helping me with this.

C: Thank you

I: I think you’re going to make some good positive changes when you go back, good

C: (Chou walks by the camera smiling and laughs a little)

I: Thank you very much

C: You’re welcome

1728: THE TAPE ENDS
APPENDIX II

ARTICLE USED FOR THE FINAL EXAM TO GENERATE CONCEPT MAPS
FROM THE OFFICE OF EDUCATIONAL RESEARCH

Parents' Literacy and Their Children's Success in School: Recent Research, Promising Practices, and Research Implications

Why children succeed or fail in school is one of the most enduring questions for educational researchers. A salient finding from traditional research on both adult education and early childhood intervention programs is that the mother's level of education is one of the most important factors influencing children's reading levels and other school achievements.

Generally, traditional research has revealed that more highly educated mothers have greater success in providing their children with the cognitive and language skills that contribute to early success in school (Sticht & McDonald, 1990). Also, children of mothers with high levels of education stay in school longer than children of mothers with low levels of education.

It is important for the reader to keep in mind that traditional studies focus on broad populations instead of the populations most likely to experience difficulties in acquiring basic literacy skills. There is evidence suggesting that correlational studies intended to
provide information for literacy intervention have identified symptoms of the causal variables. The social and cultural precepts within the family are causal factors which must be addressed in programs designed to produce long-term changes in the lives of disadvantaged family members (Hayes, 1991; Gadsden, in press).

This report examines recent research and program developments designed to improve the education of children by improving the literacy skills of their parents (particularly their mothers) who did not graduate from high school.

Recent Research

The National Assessment of Educational Progress (NAEP) data provide some evidence supporting the traditional interpretations of children's academic success that focus on gross measures of parents' educational attainment. A review of the performance of children and young adults across age groups (9 to 25 years of age) and across ethnic groups on various literacy tasks of the NAEP confirmed the importance of mothers' educational levels (Sticht, 1988). Data from the 1990 NAEP reading assessments revealed that the average proficiency among fourth-graders was lower for those students who report that their mothers had not completed high school.

However, another line of research has challenged the traditionalist view that one or a few variables can explain the influence of the home on low-income children's academic success. A growing body of research suggests that how parents raise their children may be more important than the parents' occupation, income, or educational level (Heath, 1983; Taylor & Dorsey-Gaines, 1988; Teale, 1986; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991).
The Harvard Families and Literacy Study (Chall & Snow, 1982) investigated the home literacy practices of successful and unsuccessful low-income elementary school students to identify factors that contributed to the acquisition of literacy and children's achievement in school. The study found "no simple correlation between parents' literacy level, educational background, amount of time spent on literacy work with children, and overall achievement."

Auerbach's review of the ethnographic studies of family literacy found that a two-way support system (as opposed to simply parent-to-child literacy learning) characterized the literacy interactions of many low-income, minority and immigrant families.

One study of parental involvement based on a model of children reading to parents found that children who read to their parents on a regular basis made greater gains than children receiving an equivalent amount of extra reading instruction by reading specialists at school (Tizard, Schofield, & Hewison, 1982).

Auerbach's work also shows that "indirect factors including frequency of children's outings with adults, number of maternal outings, emotional climate of the home, amount of time spent interacting with adults, level of financial stress, enrichment activities, and parental involvement with the schools had a stronger effect on many aspects of reading and writing than did direct literacy activities, such as help with homework" (Auerbach, 1989).
Research Issues

A firm understanding of the family context will increase our understanding of the "strengths" of educationally disadvantaged families that contribute to the children's academic success.

Teale (1986) argues that a frequent shortcoming of research on the effects of family background is its correlational design. "Children are tested in, for example, various aspects of literacy development (usually referred to as reading readiness) and their achievement levels are then correlated with particular home background characteristics. Such research provides no direct evidence for cause-effect relations. Yet, frequently, these studies suggest implications for instruction or home intervention programs."

A growing number of researchers argue that naturalistic inquiry in which the researcher does not attempt to manipulate study setting and places no prior constraints on what the outcomes of the research will be (Patton, 1990) is particularly well-suited for gathering data on all of the contributors to literacy development.

One researcher has suggested a cycle of research that begins with an ethnographic examination of the context as a whole, is followed by case studies to focus carefully on a few individuals, continues with experimental research of new approaches, and ends with another ethnographic examination to see how the new procedures work in an entire context (Kamil, 1989).

During the last decade, educators and policy makers have become increasingly interested in the notion that educationally disadvantaged parents and children are a
learning unit and that family and intergenerational literacy programs are a promising approach to supporting parents in their role as first teachers.

Promising Programs and Practices

Improving the school readiness and literacy skills of children is an essential goal of the federally funded Even Start family literacy program. Preliminary findings of the 4-year national evaluation of the Even Start program reveal that participating children who have had no prior pre-school experience double the expected developmental growth rate. This finding suggests that "as Even Start children enter the public schools they are more likely to know basic concepts and precursors of kindergarten skills than they would have in the absence of the program" (St. Pierre, Swartz, Murray, & Deck, 1993).

In the Kenan Trust Family Literacy Model, parents work on basic academic skills and parenting skills while their children attend a preschool class. Follow-up studies of preschool participants who were at risk of failure when they enrolled in the family literacy program showed that primary grade students performed above average on variables such as academic performance, motivation to learn, attendance, self confidence, and probable success in school. Ninety percent of the children were rated as "not considered at risk for school failure" by their current teachers.

There were also significant findings for the parents who participated in the Kenan Trust Family Literacy Model. Over 80 percent of the parents who enrolled in the program were unemployed, had not completed high school, and had an income of less than $7,000 per year, primarily from public assistance (Seaman, Popp & Darling, 1991; National Center For Family Literacy, 1993). After participating in the program--
• 41 percent either were in some form of higher or continuing education program or had definite plans for enrolling;
• 35 percent were employed;
• 41 percent were not receiving any form of public assistance; and
• Well over half of the parents were still serving as volunteers in their children's elementary schools 1 to 3 years after leaving the program.

The Intergenerational Literacy Action Research Project (ILAR), conducted by Wider Opportunities for Women (Fossen and Sticht, 1991), involved mothers participating in community-based programs that provide women with basic-skills instruction and job training. The study revealed that 65 percent of the children benefited from their mother's participation in the adult education and training programs.

Following their participation in the project, more than 90 percent of the mothers reported that they had become aware of the influence they had on their children's educational achievements. The mothers also stated that they would read to their children more often and make greater efforts to help them with their homework, take them to the library, and talk with them about school.

Conclusion and Research Implications

There are a number of factors in the family context that must be identified and thoroughly investigated so that low-literate parents learn how to use their existing skills as tools for improving their lives and their children's education.

Two major implications from this research are:
• Low-literate parents, particularly mothers, are more likely to exert a positive influence on their children's academic achievement when they are able to enhance their own literacy skills.

• Intervention programs should be designed to enable family members to construct useful meanings and definitions of literacy.

All the stakeholders should come together to develop a research agenda for examining parent-child interactions and advancing family literacy as a field with appropriate frameworks and instructional approaches.

Selected Readings


Hayes, A. (April, 1991) "Undoing the Oversimplification of a Complex Matter: Issues in Defining Evaluative Criteria, Data Collection, and Reporting for Intergenerational


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REFERENCES


Miettinen, and R. L. Punamaki (Eds.), *Perspectives on activity theory* (pp. 19-38).

N.Y.: Cambridge University Press.


R. L. Punamaki (Eds.), *Perspectives on activity theory* (pp. 1-16). N.Y.:

Cambridge University Press

performers: The learning potential assessment device, theory, instruments, and
techniques*. Baltimore: University Park Press.

intervention program for cognitive modifiability*. Baltimore: University Park

Press.


Lincoln (Eds.), *Collecting and Interpreting Qualitative Materials* (pp. 47-78).


Mifflin Company.


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literacy research: Constructing meaning through collaborative inquiry (pp. 86-126) New York: Cambridge University Press.


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