COMMUNICATIVE RESOURCES IN ESL STUDENT INTERACTION:

GAZE, GESTURE, TEXT AND SPEECH

by

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DEDICATION

To my grandparents, Ana Maria and Fidel Dávila,
for their stubborn belief in the power of education.

And to my mother, Susan Rippert,
for her courage.

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CHAPTER 1

INTRODUCTION

"Every day in class all we did was talk," he said. "The teacher, she didn't let us write." My Russian-speaking student was telling me about an ESL class he had previously attended on the upper west side of Manhattan. His teacher had taken the rather unorthodox step of banning pencils and paper from the classroom. When students wanted to note a particular vocabulary item or a new structure, she wrote the language on large sheets of butcher paper taped to the walls. During break, some students diligently copied all of the written text into their notebooks. From what my student told me, classroom activities included playing language games, drawing time lines on the board, creating stories from pictures, and other similar activities. He spoke in glowing terms about how the students in the class, initially wary of this oral-only approach, were soon motivated by their considerable, surprising gains in spoken proficiency.

I remember this story so clearly because of the earnest way my student told it. His eyes twinkled, he gestured emphatically and he tripped over his English words in his excitement to tell me about his experience. Here was a highly educated man – a poet and a university professor – advocating that we abandon all literate tools so that students could learn to open their ears, listen attentively, and concentrate on speaking.

In contrast to this student's experience, the typical ESL learner enters a classroom that is saturated with literacy. Whether working with textbooks, worksheets,

conversation cards, or jazz chant scripts, learners must often attend simultaneously to both written and spoken language. Even tasks intended to foster oral language use in interaction often include a reading component (read these questions and ask your partner) and a writing component (write down your partner's answers). In these types of classroom interactions where spoken and written language co-occur, how do learners incorporate reading and writing into the structure of their interactions?

Previous research on written language in the ESL classroom has mainly focused on the best ways to teach reading and writing skills. One prominent approach to L2 literacy pedagogy is based on Vygotskian theory that sees social interaction as the foundation of learning and development. This view underlies literacy teaching strategies that are based on talk and interaction in the classroom – oral reading, discussion groups, collaborative writing, etc. The connections between face-to-face social interaction in the classroom and the development of literacy skills has been the subject of considerable research (e.g. Kim, 2004; Lee & Smagorinsky, 2000; Ramìrez, 1994).

However, in the L2 classroom, the goal of interactive activities is not just to teach *written* language skills, but also to foster development of language skills in general. Face-to-face learner interaction is thought to be an important component of language learning, and has been the focus of much research (e.g. Ellis, 2000; Gass, Mackey, & Pica, 1998; Lantolf & Appel, 1994; Swain & Lapkin, 1998). Written materials are commonly assumed to be an aid to language learning in general (Currie & Cray, 2004), and are frequently provided for learner use during conversational

interactions. Despite this, most studies of face-to-face interaction in second language acquisition focus solely on variations in oral language. For the most part, these studies disregard multimodal aspects of interaction that may include not only written language, but also gesture, gaze, posture/proxemics, and other communicative modes. Little empirical research has systematically investigated how learners incorporate written language into classroom social interaction

In order to investigate the use of written materials in ESL classroom interaction, I turned to the large corpus of audio- and video-recorded student interactions developed at the National Center for the Study of Adult Learning and Literacy ESOL Labsite at Portland State University (known locally as the Lab School). As a research assistant at the Lab School, I have watched hundreds of hours of dyadic student interactions. In watching these videos, I have seen that students have many different ways of using print materials as part of interaction in the L2 classroom. Some students rely on writing and have a hard time 'translating' their written competencies into fluent oral production. Other students are adept conversationalists, but only tentatively and haltingly engage in reading and writing practices.

In watching video of students in the classroom, I have seen many meaning-focused interactions derailed by laborious attempts to correctly spell a word. These writing-heavy interactions undoubtedly have a positive impact on students' literacy skills. However, many of these activities are intended to foster oral language skills. At times it seems that the technicalities of reading and writing – pronouncing letters, orienting to the same numbered item on the page, deciphering unfamiliar words –

move to the center of the interaction, while fluid oral communication receives less overt attention. At other times, however, the ability to write even a single word or letter allows students to overcome difficulties in oral language production – especially pronunciation – and in this way facilitates communication.

In this thesis I systematically investigate and describe how and when students incorporate written materials into dyadic interactions in the ESL classroom. Spoken and written language are both powerful means by which learners can represent meaning and foster communication. By looking at the various ways that learners make use of these different language modalities, I hope to discover more about the potential contributions of spoken and written language to the overall process of second language acquisition.

CHAPTER 2

LITERATURE REVIEW

In considering the role of print materials in dyadic L2 classroom interaction, I look first at why interaction is important in second language acquisition (SLA) and discuss Vygotsky's ideas about interaction and mediation. Next, I present research on the importance of written language to the overall process of SLA. I then consider approaches to the study of written language in general, followed by studies of print materials as a component in interaction. Finally, I introduce an expanded approach to interaction and present my research question.

Interaction and SLA

Since the mid 1970's, much SLA research has seen conversational interaction not merely as language *practice*, but as a central site of language learning itself (Gass et al., 1998). Despite much research into exactly how conversational interaction leads to language acquisition, however, the precise relationship between interaction and acquisition remains elusive. Ellis (2000) identifies two main theoretical approaches to the study of interaction which he refers to as the psycholinguistic perspective and socio-cultural theory.

In research designed under the psycholinguistic perspective, pedagogical tasks are seen as a variable that can determine the nature of student interaction and provide opportunities for learning specific aspects of language. Interaction is conceived of as

an opportunity to process linguistic input and output and to engage in negotiation of meaning. Because negotiation of meaning is thought to lead to language acquisition, research investigates which types of pedagogic tasks lead to the most negotiation of meaning in the classroom (e.g. Robinson, 2001; Van den Branden, 1997). The goal of this research is to inform teachers about how they can best provide learners with opportunities for negotiation of meaning.

As Ellis (2000) points out, however, language use in social interaction depends not only on the pedagogical task but also on learners' situated enactment of the task. Given the same task, two pairs of learners may construct entirely different activities. Roebuck (2000) points out that "subjects involved in the same *task* are necessarily involved in different *activity*, since they bring to the task their unique histories, goals, and capacities" (p. 79). From this perspective, it is not enough for researchers to investigate which task types facilitate interaction (i.e. lead to the most instances of negotiation of meaning). Rather, research into the *nature of the interaction*, that is, how learners interpret and construct the task, is also important. Research based on socio-cultural theories of second language learning address some of the social and contextual factors of interaction and relate them to language learning (e.g. Lantolf & Appel, 1994; Swain & Lapkin, 1998).

Storch (2001) provides one example of the socio-cultural approach. She investigates how the nature of learner interaction in a collaborative writing task varies across dyads. Rather than look at the linguistic markers of negotiation of meaning (e.g. clarification requests, confirmation checks), Storch considers "the pattern of pair

interaction in its totality, noting the traits that characterize the way the pairs worked" (p. 31). She focuses on 1) linguistic features (especially pronouns and imperatives), 2) text construction behavior and 3) metatalk. Storch uses these three analytical categories to characterize learners' orientation to the activity on a continuum from non-collaborative to collaborative. She analyzed the written texts produced and found that those pairs who worked more collaboratively produced written texts that were more accurate than those produced by non-collaborative pairs. This study provides evidence that the nature of learner interaction 1) is not pre-determined by task design and 2) is linked to the quality of written language that is produced. Storch's study suggests that collaborative dialogue leads to improved linguistic outcomes and it provides evidence for a link between interaction and second language acquisition.

Other researchers have also investigated how social interaction facilitates SLA. Donato (1994) shows how social interaction allows opportunities for collective scaffolding, or mutual language support whereby learners jointly co-construct language that may be more complex than the language they could produce individually. Ohta (2000) reiterates this point as she investigates the micro-processes within dyadic interaction. She provides evidence that close collaborative engagement leads to 'assisted performance' whereby one interlocutor provides targeted assistance to facilitate the other's production of language that they could not produce on their own. She also finds evidence that such assisted performance leads to internalization of new linguistic forms.

Socio-cultural research on SLA suggests that interactive processes such as scaffolding, or assisted performance, are integral to language acquisition. As Swain and Lapkin (1998) argue, "the co-construction of linguistic knowledge in dialogue *is* language learning in progress" (p. 321). Interaction does not lead to subsequent language acquisition, rather social interaction is a visible manifestation of the process of language learning itself. This socio-cultural perspective on language learning is largely based on the work of Vygotsky (1987), who investigated not just language learning, but the process of cognitive development in general.

Vygotsky, Mediation, and the Socio-cultural Theory of Interaction and Development

Vygotsky's socio-cultural approach to development suggests that new forms of cognitive activity first emerge in social interaction and are then internalized as individual cognitive processes. Vygotsky's concept of mediation is key to understanding this process of internalization. In Vygotsky's view, physical tools (a hammer, a stick, a TV remote control) and psychological signs (words, mathematical formulas, theoretical concepts) mediate human action and human thought. Consider the action of channel surfing as an example. The goal of the action is to change channels while comfortably ensconced on the couch. The TV remote is the physical tool that stands between the individual's intention to change the environment and the change that actually occurs. Mediation is essential because certain complex actions (lying on the couch while flipping channels) are not possible without the mediation of a tool.

Mediation by physical tools enables more complex actions, produces change in the external environment, and functions to exert control over the surrounding environment. Likewise, mediation by psychological tools (signs) enables more complex mental functions (abstract thought), produces change in the internal mental environment and allows for control over internal cognitive processes. One example of a higher mental function is logical memory. In simple memory, there is a direct link between stimuli. For example, the smell of baking immediately evokes memories of a grandmother's kitchen. The process of higher order memory, on the other hand, can be mediated by a physical tool such as a piece of string tied around a finger, or by psychological signs such as mnemonic devices (linguistic or non-linguistic). For example, mnemonic devices such as ***P****lease* ***E****xcuse* ***M****y* ***D****ear* ***A****unt* ***S****ally*, stand between (mediate) the desire to remember something (in this example, the correct order of operations: ***P****arentheses,* ***E****xponents,* ***M****ultiplication…*) and the actual recall of the item. By facilitating recall, mediation by mnemonic devices can play a crucial role in logical memory. Logical memory – and all higher mental functions such as voluntary attention, self-control, etc. – are based on a system of psychological signs that mediates thinking.

Vygotsky contends that the ability to use signs as tools for thinking develops out of social interaction; sign systems are learned through interaction. First, all tools and signs are culturally and historically situated; sign systems are specific to a given social context. This is why a native speaker of Italian – a socio-culturally specific sign

system – is not understood when they speak their native language in Canada. Thus, if signs are socially constructed, then they must be learned through social interaction.

Second, social interaction facilitates the development of additional sign systems because it provides opportunities for scaffolding, a process whereby learners are guided by their interlocutor in the use of tools and signs. After using signs on the interpersonal plane, the "social method of behavior [is] applied to one's self" (Vygotsky, 1999, p. 53). The actions initially carried out interpersonally are now turned inward and applied intrapersonally. This is the process of internalization of social interaction.

Psychological signs are central to the process of internalization. Language is one of the most important systems of psychological signs, or semiotic systems. As such, it is used internally to mediate thinking and higher mental functions, and it is also used externally to mediate social interaction. Vygotsky writes:

> The logical conclusion from recognizing the paramount importance of using signs in the history of the development of all higher mental functions is to include in the system of psychological concepts the external symbolic forms of activity (speech, reading, writing, counting, drawing) that are usually considered as something peripheral and accessory with respect to internal mental processes [as being] on equal footing with all other higher mental processes. (Vygotsky, 1999, p. 40)

Vygotsky highlights how external sign systems like speech and writing function to mediate mental functions in the same way as internal psychological concepts. Speech initially serves communicative purposes on the interpersonal plane. In later child development, inner speech develops and mediates internal cognitive processes. Vygotsky specifically addresses how speech and writing (dialogic, interactive

processes) mediate thinking and learning, which are traditionally thought of as internal, individual, cognitive processes.

When new symbolic systems are learned, the process is mediated both by social interaction and by existing symbolic systems. For example, the process of learning algebra is initially mediated by social interaction with a teacher or tutor. The process is also mediated by existing symbolic systems, in this case, numbers and letters as variables. Learning a new system involves change not only in terms of appending the new system to the existing cognitive structure, but development also creates changes in the structure of the pre-existing systems. In the case of algebra, this could be demonstrated in the utterance: *If* x *people come to the party, we'll need* x *party hats.* Here a sign from algebra – using the variable *x* to denote an unknown quantity – is incorporated into the existing speech system.

Written language as a semiotic system is an example of how additional sign systems develop and become available to mediate further development. Vygotsky writes that written language

> represents symbolism of the second degree that gradually becomes direct symbolism. This means that written language consists of a system of signs arbitrarily forming sounds and words of oral speech that in turn are signs for real objects and relations. Gradually, the intermediate connection, specifically, oral speech, can fade away and written language is converted into a system of signs directly symbolizing the signified objects and the relations among them. (Vygotsky, 1997, p. 132)

Though written language is initially mediated by speech, first in social interaction and then intrapersonally, it develops into a system of mediation in its own right. As written language develops as a direct sign system, it alters the nature of existing sign systems,

including speech. This means that written language can mediate the development of new spoken forms, just as speech can mediate the development of new written forms. Thus, oral and written forms are both capable of facilitating the development of language in general. This has implications for SLA.

Written Language and SLA

In a study investigating the parallel development of spoken and written L2, Weissberg (2000) found that second language writing contributes to second language acquisition in general. Most of the learners in his study preferred to use new linguistic forms for the first time in writing, not in speech. Based on variability among participants, Weissberg proposed a continuum of modality preference in L2 acquisition style on a scale from writing-driven to speech-driven. Weissberg contends that written language proficiency is not based on pre-existing oral language proficiency, but can develop independently of oral proficiency. This is contrary to an L1 model of written language development where speech mediates the development of written language proficiency. In Weissberg's study, written language mediated the development of oral language in an L2 context.

Weissberg concludes that his study "demonstrates the importance of written language in the L2 acquisition process of L1-literate adults. Without this insight, it would be difficult to construct a complete, accurate picture of how such learners develop second language proficiency" (p. 52). This study clearly demonstrates that

learners can use both oral language and written language to mediate second language acquisition.

It is important to note that while Weissberg considers how written and spoken forms mediate second language acquisition, he does not address issues of interpersonal interaction. For some participants in the study, most of their contact with the English language occurred through print, as they did not have much face-to-face interaction with native speakers in their everyday lives. The two participants whose oral proficiency showed substantial increases over the course of the study were integrated into English-speaking peer communities and had ample practice with the spoken language. This suggests that the modality of L2 interaction may influence learner preference for writing-driven or speech-driven language acquisition. However, no empirical research has investigated the impact of modality (written language vs. spoken language) on interaction and SLA.

The vast majority of SLA research on interaction in the classroom has focused on oral, face-to-face interaction.[1] Harklau (2002) identifies this as a bias in SLA research that privileges oral interaction as the primary means of language acquisition. On the contrary, she argues for a "modality-sensitive perspective" (p. 337) of second language acquisition that considers written and spoken modalities equally capable of providing learners with input, output and interaction. She argues that "descriptions and theories of second language acquisition that deal with classrooms or with literate individuals are incomplete until they consider the role of writing and reading in

[1] One exception is recent studies in computer mediated communication that have looked at written, real-time interactions, for example: (Chapelle, 2004; Jepson, 2005; Sauro, 2004; Schwienhorst, 2004).

acquisition" (p. 341-342). Literate learners often rely on both spoken and written language to mediate learning. Indeed, as the Weissberg study showed, for many learners reading and writing may be their primary means of engaging with the L2, while opportunities for listening and speaking may be scarce.

Research on written language in SLA has historically been somewhat removed from research on SLA in general (Matsuda, 2001; Silva & Leki, 2004). The (sub)fields of second language reading and second language writing have explored the process of learning to read and write in an L2. Much of this research has looked at academic literacies such as reading comprehension and essay writing. Harklau (2002) argues that there is much more to reading and writing than just academic literacy skills. She contends that "writing often serves practical, mundane, and communicative purposes that may not be life- or thought-transforming but are nevertheless copious and vital in the academic and literate lives of L2 learners" (p. 342). In the L2 classroom, a lack of literacy materials would likely bring the classroom to a grinding halt – no books, no conversation cards, no workbook exercises, no writing on the board.

Despite the ubiquitous use of literacy materials in the classroom, there is little if any research on how learners incorporate both written and spoken language into the construction of communicative classroom interactions. Harklau argues for systematic investigation of "how students incorporate literacy into on-going classroom communication systems" (p. 341). In this view, L2 reading and writing are not separate from L2 listening and speaking, but both modalities combine to form the communicative landscape of the classroom.

Currie and Cray (2004) examined Canadian ESL classrooms to discover what written language – both mundane and academic – learners used in the classroom and the purpose for its use. They found that teachers commonly think of writing as a means of practicing linguistic accuracy in the classroom. Currie and Cray note that "writing was conceived of [by teachers] primarily as a way to engage in the type of language practice that it is believed to reinforce: lexical and structural knowledge" (p. 119). Currie and Cray note, however, that though writing is *believed* to promote these types of linguistic knowledge, no empirical research has confirmed this point. Because written text is a ubiquitous tool used in classroom second language instruction and because written language may mediate the acquisition of oral language, it is important to consider exactly how learners incorporate written and spoken language in conversational interaction.

Approaches to the Study of Written Language

The process of using written language, that is, reading and writing, is often referred to as literacy. Because the term literacy has come to connote much more than just facility with written language – computer literacy, cultural literacy, visual literacy, media literacy, etc. – some researchers now use *print literacy* to differentiate abilities with written language from the many other literacies under consideration (Purcell-Gates, Jacobson, & Degener, 2004).

Furthermore, because *writing* can refer to both a process (creating a written text) and a product (the written text itself), I follow Norris (2004) and use the term

print to refer to written text, whether mechanically printed or hand written. However, *print* is not the same as written language. Just as speech is not usually separated from non-verbal aspects of communication such as gestures and facial expression, likewise *print* typically includes not just written language, but also layout, punctuation, pictures, and more.

In looking at theoretical approaches to the study of print, it becomes readily apparent that many divergent approaches all share the assumption that print incorporates more than just a written record of speech. Rather, print as a communicative resource has distinct material, linguistic, and socio-cultural properties that may be used to fulfill unique functions in the overall process of communication. Below, I consider how print is a unique communicative resource in terms of its material, linguistic and socio-cultural properties.

Material Properties of Print

In their book, *Multimodal Discourse: The Modes and Media of Contemporary Communication*, Gunther Kress and Theo van Leeuwen (2001) discuss the implications of the material properties of different communicative modes – including speech and print. Speech adheres to the logics of time; words in speech occur sequentially and there is a first and a last. This unavoidable sequentiality has an effect on how meaning is represented in speech. For example, *Bill married Sue* is different than *Sue married Bill*. Order matters. In contrast, visual representations offer information simultaneously and the 'reader' of the visual image has the opportunity to

define their own reading 'path'. Print is a hybrid of speech and visual – it retains the logics of time (there is strong sequence and things come first and last), but visual cues are also important.

Brandt and Clinton (2002) also highlight the importance of the material properties of print. They write:

> The technologies of literacy [have] certain kinds of undeniable capacities – particularly, a capacity to travel, a capacity to stay intact, and a capacity to be visible and animate outside the interactions of immediate literacy events. These capacities stem from the legibility and durability of literacy: its material forms, its technological apparatus, its objectivity, that is, its (some)thing-ness. (p. 344)

Brandt and Clinton identify how physical, material aspects of print materials influence how and why those materials can be used as a communicative resource. This is not to say that print materials can only be used in one way. Just as individual students create many activities from a single pedagogical task, so individual readers can construct many interpretations of a single written story.

In learning 'language', learners must actually deal with very different material resources in speech and print. Spoken proficiency requires both attention to pronunciation and knowledge of the L2 phonological system, as well as the aural ability to hear sounds in the L2 and recognize words and phrases. Written language proficiency, on the other hand, requires the visual ability to distinguish written shapes and knowledge of the L2 orthographic system. The material affordances of written language may facilitate language learning by allowing for a more permanent record of language and by suggesting correct pronunciation. However, orthographic representations of pronunciation can be misleading. Also, learners must cope with

speech in real time. An over-reliance on print as a more stable means of interaction with the L2 may hinder learners' developing strategies for real-time conversational interaction.

Linguistic Properties of Print

Written language is not just speech written down. There are linguistic differences between language as written and language as spoken. This has been established through the comparative study of the linguistic properties of written and spoken language in the field of discourse analysis, and specifically through research in systemic functional linguistics (SFL) and corpus linguistics.

SFL analyzes different types of texts and looks at the linguistic features that are typically present in different contexts of use (Colombi & Schleppegrell, 2002). Clusters of linguistic features that occur in a given context are called registers. Language varies between registers because *what* we do with language and *how* we use it to represent meaning varies between social contexts. SFL studies the linguistic features of different spoken and written registers in order to highlight the functional relationship between grammatical and lexical choices and the particular situational context.

Recent research in corpus linguistics also investigates the linguistic features of spoken and written language. Biber (2001) uses multi-dimensional analysis to look at five dimensions (each comprised of groups of linguistic features) of written and spoken texts representing different registers. He finds that:

> None of the dimensions is associated with an absolute distinction between spoken and written texts; rather mode interacts with other situational characteristics (such as an informational purpose) to determine the relations among registers with respect to these dimensions. However, when all five dimensions are considered together, they identify a fundamental distinction between written and spoken registers: spoken registers are apparently limited in the kinds of complexity they can exploit, while written registers show much greater differences among themselves with respect to both their kinds and extents of discourse complexity. (p. 238)

Biber's findings suggest that it is the register, or context of usage, that leads to differences in linguistic features. Interestingly, results of three languages studied so far indicate that only written registers demonstrate a particularly dense use of informational features, suggesting that though context of use is the primary determiner of linguistic features, the material properties of print may also play a role.

In much discourse analysis research, the unit of analysis is the spoken or written text itself. Researchers often use transcripts of spoken language or copies of written texts in their analyses. Speech and print are usually considered separately. Poole contends that discourse analysis provides no ready way to deal with co-occurring spoken and written language (2003).[2] Though studies of the linguistic properties of written language contribute to an understanding of language variation across spoken and written registers, this line of research does not allow for investigation of print and speech in interaction. Print is analyzed as a *product* of social context and the *process* of creating and using texts is not explored.

[2] One prominent exception to this claim is the study of science and rhetoric. This type of discourse analysis research looks at how talk around text influences the nature of the text that is created.

Socio-cultural Properties of Print

In contrast to the study of the linguistic properties of print, the study of the socio-cultural properties of print is based on ethnographic analysis of the process by which people incorporate reading and writing into everyday, ongoing social interactions. This field of study, commonly referred to as the New Literacy Studies (NLS), does not look at print materials as isolated objects, but rather looks at print in the context of oral language and social interaction. The unit of analysis in NLS is not the print itself, but rather the social activity that happens around the print materials.

According to this view, there is no one set of cognitive skills that could be termed 'literacy'. Rather, the social context determines how reading and writing will be incorporated into the process of communication. The ability to read and write – 'literacy' – involves more than just cognitive skills, but also the social and interactional competence needed to appropriately use print as a communicative tool.

Rather than focus on a single 'literacy', much NLS research uses the concept of *literacy events*. Heath (1982) defines a literacy event as "any occasion in which a piece of writing is integral to the nature of the participants' interactions and their interpretative processes" (p. 93). Each literacy event is a social interaction whose nature is determined by the goals and interests of the participants. The nature of individual literacy events reflects wider literacy practices, defined by Street (2003) as "social models of literacy that participants bring to bear upon [literacy] events and that give meaning to them"(p. 2). The concept of literacy practices highlights how reading and writing as situated events are also part of wider social practices.

The NLS approach to the study of literacy generally contends that written texts themselves do not carry meaning. Rather, people determine the meanings and uses of literacy based on social context (Barton, Hamilton, & Ivanic, 2000; Heath, 1983). Gee (2000) identifies a central position of NLS as the belief that

> Any piece of language, any tool, technology, or social practice can take on quite different meanings (and values) in different contexts, and that no piece of language, no tool, technology, or social practice has a meaning (or value) outside of all contexts. (p. 188)

The meaning of written texts is not pre-determined by writers when they put marks onto the page to form words. Rather, readers (re)construct meaning from a text based on the social context: their relation to the writer, the origins of the text, the relevance of the text to the interactants, etc. Power, authority and ideology are central to NLS because texts are no longer seen as autonomous conveyers of intact meaning, but as literacy artifacts that reflect the interests of their makers and their relation to the reader.

This idea of social context as determiner of textual meaning differs radically from traditional views of print that contend that meaning resides within the words on the page (Goody & Watt, 1963; Olson, 1977). In this view, reading is the process of recovering meaning which is already present in the text. NLS strongly contradicts this position and contends that meaning is (re)created in each reading of a text depending on the reader and the social context in which the text is read.

The New London Group (2000) uses the metaphor of communication as *design* to address the view that meaning is not carried in the linguistic code, but is (re)constructed based on social context. Design highlights the agency of both

speaker/writer and listener/reader in (re)constructing meaning in communication. Cope and Kalantzis (2000) describe design as using the existent resources of communication (e.g. language) in codified or expected ways, but at the same time creating meaning anew in each act of communication. "We are both inheritors of patterns and conventions of meaning while at the same time active designers of meaning" (p. 7). Our active construction of meaning in context is not completely unmoored from language itself. Rather, meaning-making is tied to those designs – patterns and conventions of meaning – that have been previously produced and established through repeated use in social contexts.

Cope and Kalantzis (2000) explain that when designs are used again in a new context, they are changed (subtly or glaringly) as different meanings are represented through the same design. According to the design metaphor, the exact same meaning could never be communicated twice in the exact same way. Even a verbatim repetition of a text would take on different meaning if it were repeated in a different social context. For example, the meaning assigned to political speeches in the moment they are given differs from the meaning as discussed in a history class years later.

In the L2 classroom, students' own ideas about appropriate classroom literacy practices, and how print can be used in the process of design, will influence the many conversational interactions that are mediated by print. Students' various understandings of classroom literacy practices will lead them to incorporate text in conversational interaction in different ways. Print incorporation is an important variable in how a given pedagogical task can be constructed in unique ways by each

pair of learners. The socio-cultural approach to literacy provides more support for the view that neither pedagogical task nor print materials determine the nature of learners' ensuing interaction.

Studies of Print in Interaction

Jones (2000) provides a characteristic example of an NLS study that looks closely on 'talk around text'. This is a study of bilingual farmers (English/Welsh) at the livestock market as they interact with officials over the completion of appropriate government forms related to selling cows. Jones looks closely at 'talk around text' and specifies text articulation, text negotiation and text inscription as *interactive* processes that mediate use of print materials and completion of the appropriate government forms.

There are two interesting points that Jones makes regarding the written language present on the form and the oral language that is produced in conversation. First, within the process of text articulation, she identifies two strategies for orally articulating categories from the government form: 1) directly reading aloud the English nouns and noun phrases from the form as elliptical questions or prompts, and 2) reformulating the English nouns and noun phrases into oral questions in Welsh. 'Reading' the form in this case does not necessarily mean orally producing the written language on the page. Rather, the form can be integrated into oral conversation *either* by 'reading out' language from the form *or* reformulating it into a different oral form. Though the written language on the form does not absolutely determine the oral

language that is produced, the form itself does influence the topics of the oral interaction.

Jones' second point regards text negotiation, specifically, farmers' oral provision of information for inscription on the form by the government official. Information is orally provided in such a way as to match the needs of the written form. For example, when asked for a name to enter on the form, farmers do not provide a first name or a full name. In fact, they do not necessarily even provide their own name. Rather, they provide a first initial and last name of the owner of the cow being sold. This example illustrates that the printed form can influence not only the topic of oral language but also the oral forms that are used.

Though Jones grounds her study in NLS theories of text and social interaction, there are others who critique this focus and argue for modifications to the NLS approach. One critique of NLS is that it highlights the social activity that happens around print materials and backgrounds features of the text itself (Moss, 2003; Poole, 2003). Meaning is seen as a function of the social environment and the written text itself fades from view.

Poole (2003) looks at co-occurring speech and print in the classroom context. She explicitly addresses how the gap between NLS (focus on socio-cultural properties of print) and discourse analysis (focus on linguistic properties of print) has precluded linguistic analysis of co-occurring speech and writing. One aim of Poole's study is to explore methodological innovations for investigating co-occurring speech and writing in the classroom. Though ethnographic approaches to literacy research have

investigated how oral and written language co-occur in social contexts, they have not focused on the linguistic features that are involved in the interplay of speech and print. In looking at social interaction as the primary unit of analysis, ethnographies of literacy do not always investigate the linguistic properties of written texts used in the interaction or the oral language that is produced. Poole notes this methodological tendency and contrasts it with discourse analysis which focuses on the linguistic features of print and speech, but usually considers them separately. She contends that a discourse analytic approach can be fruitfully applied to literacy events and thus allow for close consideration of the linguistic connections between speech and print in interaction.

Poole's study looked at classroom interaction and she notes that "most spoken interaction in classrooms is accompanied by attention to a written text such as a reading selection, chapter, worksheet, or blackboard segment" (p. 106). In looking closely at the linguistic features of print and speech in an L1 middle school classroom, Poole identifies three categories of speech-print connections: oral reference to written texts, oral repetition or restating of written text, and oral language following the topics as laid out by the written text. Not surprisingly, Poole finds that print has quite a lot of influence on the oral language produced during a classroom literacy event. Not only are many of the lexical items from the written text repeated orally, but many of the ideas from the text are restated or paraphrased orally. Also, the topics of oral language are organized according to the order of the written text. This means that many of the

pragmatic functions normally negotiated by speakers are fulfilled through the shared focus on the written text.

Poole also finds that students have difficulty tracking the relations between oral and written language. For example, students often struggle to locate the part of the text that is being referred to. Through her close analysis of how learners simultaneously deal with print and speech in interaction, Poole notes how cognitively demanding these interactions can be for learners. "In literacy events participants may need to produce and comprehend in both [written and spoken] language channels as well as follow connections between them" (p. 127). This cognitively demanding activity may lead to confusion among learners and "interactional trouble" (p. 103). This finding suggests that print may not always offer support for oral language production in the classroom, as is often assumed (Currie & Cray, 2004), but it may make conversational interaction even more difficult. This may be particularly relevant in an L2 context, where learners' command of the L2 is still developing.

In her article entitled *Putting the Text Back into Practice*, Moss (2003) addresses the issue of how ethnographic approaches to the study of literacy disregard features of the text itself. Rather than draw on the field of discourse analysis, as Poole does, Moss highlights the influence of the *multimodal* nature of print as a factor in the ensuing interaction. She investigates how pairs of learners respond to multimodal features of print to construct meaning from junior-age non-fiction books. Traditional interpretations of literacy assume that good reading is simply successful reproduction of the meaning that resides in the words on the page. In contrast to this approach,

Moss looks at how readers attend to both written language *and* visual images on the page in order to construct meaning from print. Some participants in her study "read" the book while paying little attention to the written language on the page. Instead, they rely on visual images to construct meaning. Moss finds that the social interaction around print materials differs depending on which multimodal aspects of print interactants attend to and employ as communicative resources.

While both Jones (2000) and Poole (2003) consider the connections between written language on the page and oral language in interaction, Moss expands the analysis of print in interaction to include features such as layout and pictures on the page. Texts differ in regards to how much they employ linguistic, pictorial and other visual resources as communicative means. Readers vary in terms of how much they attend to multimodal features of print. Just as print materials are composed of more than written language, conversational interaction is composed of more than just oral language. An expanded notion of conversational interaction that includes more than just oral language could provide a different insight into how print is incorporated into interaction.

An Expanded Perspective on Interaction

Beyond print and speech in interaction, there are many other communicative resources that interactants employ in conversation. Based on the theory of social semiotics, multimodal theory highlights the fact that language is not the sole system

available for representing meaning. In fact, communication never relies on language alone. Lemke (2002) explains that

> Semiotically, we never in fact make meaning with only the resources of one semiotic system: words conjure images, images are verbally mediated, writing is a visual form, algebra shares much of the syntax and semantics of natural language, geometric diagrams are interpreted verbally and pictorially, even radio voices speak to us of individuality, accent, emotional state, and physical health through vocal signs not organized by the linguistic code. All semiotics is multimedia semiotics; all meaning is made in the integration of resources from only analytically separable semiotic resource systems. (p. 23)

Meaning is never contingent on linguistic cues alone. Rather, meaning is constructed through simultaneous use of many semiotic resources. Research on interaction that is based on oral language alone provides an incomplete picture of communication.

Gunther Kress has written extensively on multimodal theory (e.g. Kress, 2003; Kress & van Leeuwen, 2001). He examines both the socio-cultural and material properties of communicative modes. Kress defines a semiotic mode as a material resource shaped through recurring patterns of use in social interaction. Many objects can represent meaning, but a mode must have a regularized system of grammar. Smell, for example, can be powerfully evocative. However, most of us have no terminology that allows us to discuss the component parts that combine to make up a given smell, and how those parts function to represent meaning. We cannot analyze smells in the same way that we can analyze words and sentences and judge their grammaticality. Professionals in the perfume industry, however, do have a codified system for analyzing smell and determining which smells may be 'ungrammatical'. It is because of socio-culturally situated work with a given material resource that it comes to assume status as a mode.

In a given interaction, speech, print, gaze, gesture, posture, proxemics, and other modes may all carry part of the semiotic load, that is, they all contribute to the (re)construction of meaning. Once the variety of semiotic resources available is acknowledged and brought to the fore, multimodal theory considers how each mode has distinct characteristics, or affordances. Affordances are based on material properties as well as on socio-culturally constructed aspects of the mode. Socio-cultural aspects lead to an understanding of why a given semiotic resource (e.g. print) is codified and given much authority, while another semiotic resource (e.g. gesture) is not explicitly taught and is assumed to be peripheral.

There are two points to make about print as a semiotic mode. First, as noted earlier, print materials themselves are multimodal objects. Print includes visual modes such as layout, visual images, written language, and punctuation. A person attends to a number of visual modes as they (re)create meaning from print. Second, a person also utilizes a number of modes as they interact with print materials. Norris (2004) notes that:

> Print is present in many settings, but, as a visual mode, the participants in interaction have to utilize the mode of gaze in order to incorporate this mode into their interaction … print can be easily shut out of a person's perception, and is deliberately utilized by participants. (p. 44-45)

It is only through other modes that print can be accessed. For example, the act of reading involves not only using the mode of gaze to look at print, but also using posture/proxemics so that the print is physically accessible and visible, and perhaps using gesture to point to the page and guide visual access of what is printed there. From this perspective, an analysis of print in interaction will include not only a

linguistic analysis of oral and written language (as Poole and Jones, above) but also an analysis of 'nonverbal' (meaning non-linguistic and non-audible) aspects of the interaction.

In their study of face-to-face dialogue, Bavelas, Coates and Johnson (2002) argue for this expanded notion of interaction. They consider participants' use of visible and audible acts of communication as they investigate why and when listeners produce responses in a dyadic story telling situation. They discover that listener response is not a consequence of the speaker's oral production, but is a reaction to speaker gaze patterns. They describe participants' "efficient and precise use of gaze … [to both] seek and provide listener feedback" (p. 577). When the listener deviates from expected gaze patterns, this has consequences for the speaker's oral production of the story. Thus, despite the seemingly monologic nature of the story telling activity, a close investigation of gaze patterns reveals that listener and speaker are actively engaged in *collaborative* conversation.

Other researchers have conducted functional analyses of gaze in face-to-face interaction that have revealed how gaze plays a systematic and integral role in the construction of an interaction. Goodwin (1980) provides more evidence for the saliency of gaze in conversational interaction. He finds that speaker re-starts and pauses function to solicit listener's gaze at the speaker at the beginning of a turn-at-talk. Kendon's (1967) detailed account finds many functions and patterns of gaze in interaction, including: 1) participants gaze at their partner more while listening than

while speaking, 2) gaze facilitates smooth exchanges between turns-at-talk, and 3) mutual gaze within long turns at talk coincides with listener response.

Now, given that gaze 1) is necessary to access print materials and 2) has interactive functions, how will gaze be used in conversational interaction that includes print materials? Monk and Gale (2002) provide some clues about how gaze to a shared object may influence an interaction. They find that full gaze awareness, defined as knowing what someone is looking at, reduces the number of words and the number of turns-at-talk necessary to complete a task. They conclude that full gaze awareness reduces "the degree to which participants need to verbally check their own and the other person's understanding of what has been said" (p. 273). Though their study did not look at print materials, but at shared video images, it does reveal how gaze may pattern with a shared object in interaction. Their study suggests that print materials in classroom interaction may function to facilitate verification of a partner's comprehension.

As these studies of gaze show, interaction can hardly be reduced to the oral language produced. Multimodal resources play an important role in face-to-face interaction. Close examination of these multimodal resources will allow for investigation of how students incorporate print materials into face-to-face interaction.

Research Question

From a Vygotskian perspective, social interaction mediates the development of new psychological signs, such as an L2. This is the basis for socio-culturally oriented

studies of interaction in SLA. However, studies of interaction in the classroom need to include consideration of more than just oral language. There are two reasons for this. First, as Harklau (2002) and Weissberg (2000) point out, written language is an integral part of L2 learning. To equate classroom *interaction* with *oral interaction*, ignores the importance of written language in SLA. Furthermore, written language as a semiotic system may mediate acquisition of oral language. Researchers cannot get a full picture of the second language acquisition process by looking only at oral language.

Second, conversational interaction is always multimodal. Participants rely on gaze, gesture, posture/proxemics and other modes to (re)create meaning in interaction. As a material resource, print adds to the multimodal mix of an interaction. In the classroom, much student interaction is structured by the teacher to suggest certain use of different communicative modes. For example, certain activities involve codified use of gestures or pantomime to elicit vocabulary items. Other activities require students to produce written answers to questions, or to stand back-to-back and communicate orally without reference to any visual cues. Though teachers design pedagogical tasks to be used with certain modes, learners are responsible for the process of production, which may or may not adhere to the design blueprint provided by the teacher. Analysis of peer dyadic conversational interaction can reveal how learners employ various multimodal resources to communicate successfully as they develop their abilities with the L2.

Though much research has looked at linguistic aspects of oral interaction in the L2 setting, no research has taken a multimodal approach to interaction to investigate the use of print materials. My research question is:

> In peer dyadic interaction in the L2 classroom, how do students use print materials as they construct conversational interactions?

This question is important because peer dyadic interaction is a staple of many communicatively-oriented ESL classrooms and print materials are commonly used to facilitate those interactions. A better understanding of the nature of interaction with print materials will further our understanding of the process of SLA in general.

CHAPTER 3

METHOD

In this chapter, I first provide a general overview of my research methodology. I then describe the Lab School setting and explain how I selected data for this study from the Lab School corpus. I provide a description of my data set and the participants present in the video data. Finally, I detail the data analysis procedures that I followed.

Description of Research Methodology

Because little SLA research has investigated how students incorporate print materials into classroom dyadic interaction in the L2 setting, this study is necessarily exploratory in nature. Rather than verify theory or replicate previous research, this study seeks to develop a theoretical framework that accounts for student behavior in relation to print materials as students complete teacher-assigned conversational tasks. In order to develop descriptions of and explanations for student use of print materials, I used methods of grounded theory as developed by Glaser and Strauss (1967) and elaborated by Strauss and Corbin (1998). Developing grounded theory is an inductive process that allows for conceptual categories to emerge from microanalysis of the data and comparisons across data. I used grounded theory to develop detailed descriptions of 'student use of print materials' and to look at how such print material use is incorporated into conversational interaction.

The Lab School Setting

This study used data collected at the National Center for the Study of Adult Learning and Literacy ESOL Labsite at Portland State University (hereafter, the Lab School).[3] This five-year grant-funded research project is a collaboration between Portland State University (PSU) and Portland Community College (PCC). PSU provides two dedicated classrooms that are outfitted with audio and video recording equipment. PCC offers its regular course of adult ESOL classes at the PSU site. This collaborative effort allows for the ongoing collection of video data from typical adult ESOL classes (Reder, Harris, & Setzler, 2003).

The composition of the student population at the Lab School is similar to other PCC sites, with Spanish, Chinese, Russian, Vietnamese and Korean being the most common student L1s. During the first four years of daily recording, there were nearly 700 students at the Lab School, representing over 30 L1 backgrounds. Student skill levels range from low beginners in Level A (Student Performance Level 0-2) to intermediate speakers in Level D (Student Performance Level 4-6).[4] The classroom teachers are experienced ESOL professionals who have taught for many years.

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[3] The National Labsite for Adult ESOL (known locally as the Lab School) is funded, in part, by grant R309B6002 from the Institute for Education Science, U.S. Dept. of Education, to the National Center for the Study of Adult Learning and Literacy (NCSALL). The Lab School is a partnership between Portland State University and Portland Community College. The school and research facilities are housed at the university while the registration, curriculum, and teachers of the ESL students are from the community college.

[4] Please see PCC website (http://www.pcc.edu/pcc/pro/basic/esl/levels.htm) for more explanation of skill levels.

All Lab School students watch an informational video in their L1 that describes the Lab School research project.[5] They also read and sign consent forms in their L1. Participation is voluntary, and students who do not wish to be recorded are registered for classes at other PCC sites. Despite the option to avoid recording, however, nearly all students consent to participate in the research study.

Audio and video data collection of classes is accomplished via the following set-up: Each of the two PSU classrooms has six ceiling-mounted cameras. Four stationary cameras allow for broad views of the teacher, students and the white boards. The two remaining cameras are remotely controlled and each camera follows one designated student per class session. In order to capture student language produced during pair activities, the two students who are followed by the mobile cameras also wear wireless microphones during the entire class session. Students sit at two-person tables and the wireless microphones capture audio from each microphone-wearing student and his or her partner. Teachers assign microphones at the beginning of each class period and each student typically wears the microphone two to four times during a ten-week term. The teacher also wears a wireless microphone and two ceiling-mounted microphones capture general classroom audio. This set-up allows for a unique 'fly-on-the-wall' view of student pair interaction while also providing audio and video recordings of teacher language.

[5] The Lab School orientation video is offered in six languages (Mandarin, Cantonese, Spanish, Russian, Vietnamese and French). An audio orientation is also offered in Korean. The written consent form is additionally available in Arabic, Bosnian, Farsi, Japanese, Somali, Turkish and Thai. For students who speak other languages, every attempt is made to find an interpreter. If one cannot be found, students are allowed to sign an English consent form if they can indicate that they fully understand, or they are registered at another PCC site.

Lab School video data is well suited for this study because it offers an intimate view into typical conversational interactions in the L2 classroom without the sudden introduction of cumbersome recording equipment or intrusive outside observers. Rather than relying on contrived situations, experimental changes to classroom procedure, or data elicitation techniques, this study investigates typical peer interactions in the ESOL classroom.

In addition to video data of action and interaction in the classroom, the Lab School Multimedia Adult English Learner Corpus (MAELC) also includes supplementary data such as: close-up video images of teacher text on the white boards; close-up video images of students producing texts such as notes, worksheets, etc.; copies of all teacher-provided worksheets and hand outs; and periodically-collected student writing samples. Such access to classroom print materials was vital to my study and allowed me to investigate how students incorporate print materials into dyadic interaction.

Data Selection

In thinking about ways to study the role of print materials in dyadic interaction, I initially considered a quasi-experimental design. For example, one way to investigate the use of print materials in the classroom would be to compare the "same task" as completed first with teacher-provided print materials and completed again with no print materials provided by the teacher. I was unsatisfied with the prospect of this research design for a number of reasons. First, the reality of classrooms is such that no

two class sessions are ever exactly alike. A task presented to energized students in one class session may lead to lively conversation. On the other hand, as many teachers know, the same task presented on a different day can elicit faltering interaction and lapse quickly into silence.[6] Second, besides differences between class sessions, the "same task" used to practice a different target form can lead to differences in the nature of ensuing student interaction. Third, different students can take divergent approaches to the same task. With so many factors (class session, task target form, student variables) influencing the nature of an interaction, it would be difficult to isolate the effects of print materials in any given interaction. (See Ellis, 2000 for a further discussion of how task variables are not the only influence on task outcomes in SLA.)

One of the strengths of Lab School data is that it allows for exploration of classroom action and interaction as it unfolds in a typical classroom setting, without experimental changes or intrusions. In thinking about how to use Lab School data to investigate the question of print materials in use in the classroom setting, I considered identifying 'purely oral' interactions and comparing those to interactions involving print materials. It quickly became apparent that virtually all interactions in the classroom involve print materials in some way, be it worksheets and textbooks or teacher writing on the whiteboard and alphabet signs posted on the classroom walls. But would it still be possible to categorize tasks on some sort of 'presence of print'

[6] Reasons for this vary from students being weary, distracted, or indifferent, to outside factors such as current events or even the weather.

scale and compare interactions across contexts, that is, compare students completing 'print-heavy' tasks and 'print-light' tasks?

Two issues prevented me from following this research route: one practical and one conceptual. First, the practical: Lab School video data follows two dyads during each class session. Student microphones are assigned at random and a given student may only be selected for close video recording a few times a term. Because students often sit with different partners each day, there will not necessarily be data of the same dyad during multiple class sessions.[7] Thus, identifying a 'print-heavy' task completed by two dyads during one class session and comparing it to a 'print-light' task completed by two different dyads in another class session would obscure the influence of the print materials themselves. Differences between the interactions could be attributed to changes in the task target form, variation between class sessions, individual student characteristics and other variables.

The second issue was conceptual: In comparing interactions across 'print-light' and 'print-heavy' contexts, how would I measure differences between the interactions? Would I look at interactional features such as confirmation checks and clarification requests? Linguistic features such as pronoun use, clause length, etc.? Discourse markers? Fluency, accuracy and complexity? I was faced with the question: Which factors would be most salient to comment on how the use of print materials may have an impact on an interaction?

[7] Students are commonly singled out for close video recording during multiple class sessions in a given term (3, 4, 5 or even 6 sessions). However, microphone assignment is random and because of attendance, holidays and other factors, some students are infrequently present in the data.

Given that little previous research has investigated the use of print materials in L2 classroom conversational interaction, there was no pre-existing framework that provided a list of relevant features to analyze. Because of this, I decided to look inductively and qualitatively at a smaller number of interactions in order to first discover the precise nature of student interaction with print materials and then investigate the impact of that on student interaction with their partner. In deciding to face the data without pre-determined categories, my analysis was guided by the principles of grounded theory (Glaser and Strauss, 1967).

Description of the Data Set

Ultimately, I decided to limit my analysis to interactions taken from a single class session – January 10, 2003.[8] I chose this class session for analysis based on the following criteria:

1) contains at least three pair interactions, each longer than three minutes
2) the same two pairs of students are recorded throughout the class session
3) the pair activities involve different types of print materials

The first two criteria ensured that the class session I selected actually contained ample footage of student dyadic interaction. Both of the students wearing the microphone were seated with a partner and they worked with the same partner throughout most of the class session. Selecting a session with at least three pair interactions, rather than

[8] There was an added advantage to this decision: by not looking at different class sessions over the course of one (or more) terms, I eliminated the possibility that L2 language and literacy development might have led to changes in the ways that students use print materials.

one longer interaction, allowed me to compare the same student dyads as they were engaged in different pedagogical tasks. In fact, the selected class session contained seven pair interactions. The third criterion ensured that the multiple interactions involved different types of print materials.

After I had selected a single class session, I chose from among the available dyadic interactions in that class session. From the seven pair tasks in the selected class session, I chose to analyze three tasks that involved different kinds of print materials: a calendar, a blank grid and a short story. Rather than look at three tasks based on short story texts, I looked at tasks with print materials that differed from each other in terms of presence of written language, layout, informational content load, etc. Some of the tasks were explicitly designed to teach reading and writing skills, while others involved only 'incidental' use of print materials. Looking at a variety of print materials in use allowed me to explore a wider range of the possible ways that print can be used in interaction.

Table 3.1 provides an overview of the tasks and the interactions included in this thesis. As I approached each task, there were often more than two interactions available for analysis. In both the calendar task and the grid task, the microphone-wearing student interacted not only with her table-mate, but also with another student. These additional pair interactions were included in the analysis and allowed for more comparison across dyads.

Table 3.1
Overview of Three Tasks and Eight Interactions

Task	Participants (Initials)	Interaction Length (mins.)
Calendar	Vanida/Thu (V/T)	5
	Rosalinda/Camille (R/C)	1.5
	Rosalinda/Tina (R/N)	2.75
Grid	Vanida/Thu (V/T)	1.75
	Vanida/Tina (V/N)	3.5
	Rosalinda/Camille (R/C)	7.5
Short Story	Vanida/Thu (V/T)	8
	Rosalinda/Camille (R/C)	8

Participants

The participants in this study were five PCC students who attended ESOL classes at the Lab School during Winter Term, 2003. Participants were not chosen based on any specific characteristics, but were simply the five students who were recorded in dyadic interaction on January 10, 2003. As can be seen in Table 3.2, which provides an overview of student characteristics, the five participants vary in terms of linguistic, national and educational background. While this small sample of students is not representative of the larger Lab School student population, the diversity among the five participants is reflective of the diversity of the student population in general. The fact that all five participants in this study are women was not an intentional decision, but was simply a function of who happened to be recorded during the class session analyzed for this study.

Table 3.2
Participant Characteristics

Student Pseudonym	L1	Country of Origin	Age	Gender	Years of L1 Ed
Vanida (V)	Thai	Thailand	43	F	4
Thu (T)	Vietnamese	Vietnam	20	F	12
Rosalinda (R)	Spanish	Mexico	34	F	6
Camille (C)	French	Cameroon	38	F	6
Tina (N)	Spanish	Peru	31	F	12

Vanida wore one of the student microphones and was seated at a two-person table with Thu. Rosalinda wore the other student microphone and was seated at a two-person table with Camille. Tina was seated at a table adjacent to Rosalinda and she worked with Rosalinda during part of one task. Tina also interacted with Vanida during a task where the teacher instructed students to leave their seats and talk to a number of students around the classroom.

Data Analysis

The first step in my analysis was to identify and describe the pair tasks present in the class session. In describing the tasks, I looked at both the teacher-provided print materials and teacher instructions regarding how students should structure their interaction and incorporate print materials into the interaction. In analyzing the student interactions that resulted from these tasks, I considered first the multimodal nature of the print materials themselves and then the multimodal nature of the interaction.

First, print materials consist of multiple semiotic modes including written language, layout, punctuation, color and others (see analysis in Kress & van Leeuwen, 2001). Print materials present in the interaction may or may not include written language. For example, a calendar provided by the teacher has a grid form embellished by printed numerals in each cell and three letter abbreviations for days of the week in a row across the top of the grid. The word *January* appears in the top left corner of the page. This print material does not contain much written language.[9]

[9] See Appendix A for hard copies of teacher-provided print materials that are present in the video data.

I looked closely at the multimodal design of the print materials in order to discern any influence that print materials might have on students' design of the conversational interaction. For example, students may orally reproduce the written language that is visually available in the print materials. In addition to looking at written language in print materials, I considered the possible influence of other design elements on student conversational interaction. For example, layout of blanks on a page could potentially influence the order of student spoken production of questions.

After looking closely at the print materials themselves, I considered the multimodal nature of student interaction. I began by looking at how students use other semiotic modes in order to incorporate print materials into the interaction: posture/proxemics (e.g. so that they are facing towards the page), gaze (so that eyes can focus on written symbols), head movement (so that eyes may reach the correct spot on the page or white board) and gesture (to point to a spot on the page). Though print materials may be present in many environments, it is only possible to know that someone is reading by noting how they make use of other modes to access print materials. For example, their posture is oriented toward the text, their gaze is on the text, their oral language matches (to some degree) the written language printed on the page, and their finger may trace the written words as they produce them orally.

In order to focus my attention specifically on how students' physical movements functioned to incorporate print materials into the interaction, I first watched the video without listening to the audio recordings. I took notes on students' physical relationship to the print materials involved in the interaction, e.g. pointing to

a page or the whiteboard, shared gaze on a worksheet, writing or taking notes. I wrote a description of students' general tendencies and overall physical orientation to each other and to any print materials. I also recorded any particularly interesting or anomalous moves to focus on in further analysis. Watching the video in this way sensitized me to the physical means students employ as they make use of the material affordances of print materials (Norris, 2004).

Next, I watched the video again (and again and again) and created a detailed transcript that included: 1) **spoken language**; 2) **physical moves** that incorporate (or overtly exclude) print materials such as gaze, gesture and posture; 3) **written language** produced by students; and, 4) **print materials** attended to at a particular moment. By placing all of these features side by side (linguistic and non-linguistic, verbal and non-verbal), I was able to analyze the interaction holistically and identify the interactional function of spoken language, physical moves, written language and print materials.[10]

Many of the interactional functions that I identified in the data are widely found in the SLA research – confirmation checks, clarification requests, repetition, etc. However, I did not discriminate on the basis of mode and found that many interactional features alternately appeared as physical moves or as spoken turns-at-talk. That is, a student could point to a number on a page or they could say the word aloud. I focused specifically on moves that related to the print materials present and

[10] Though this multimodal approach to analysis focused on many of the non-verbal or paralinguistic aspects of communication, there are many aspects of the interactions that are beyond the scope of this analysis. For example, I did not closely investigate the interactional functions of laughter or touch. Rather, I focused my analysis on student use of print materials.

asked the questions: Which types of moves can involve print materials? What is the result of students' choice of modal expression (to use print materials or not) on the continuing interaction? Does student choice of modal expression change over the course of the interaction?

Following methods of grounded theory, I began with analysis of one interaction to identify salient conceptual categories and then turned to another interaction to see if these categories fit the next chunk of data. I proceeded through the interactions in the class session by analyzing each interaction in depth – first describing physical use of print materials and then developing provisional explanations for student choice of mode and for the results of those choices on the interaction.

As I successively moved through the interactions in the class session, I tried out the analytic concepts that I had developed to see if they fit each following interaction. I refined categories and concepts as I progressed and this influenced my choice of subsequent interactions for analysis. For example, when I noticed students attending to written forms in a task where the print materials had relatively little written language, I chose for comparison an interaction where the print materials contained an abundance of written language. This allowed me to further elaborate my understanding of the different interactional moves that may be accomplished by attention to written language (and other features of print materials).

After completing this qualitative analysis of the data, I identified some particularly prominent properties of student use of print materials for quantitative

analysis. I counted instances of student pointing to print materials, student gaze shift from page to partner while asking a question, and student gaze shift from page to partner while providing an answer. Though this quantitative analysis involved only raw counts, it provided a broader view of student behavior both within and across the interactions. It also served to confirm impressions developed through the qualitative analysis.

Through these qualitative and quantitative methods, I was able to develop a set of analytical categories that can be used to describe how students use print materials in interaction.

CHAPTER 4

RESULTS AND DISCUSSION

After watching student interactions, I identified three factors that emerged as central means by which students integrate print and partner in interaction: 1) student physical orientation to the print materials and to their partner, that is, the physical layout of the immediate environment, 2) student pointing to the print materials, and 3) student gaze to print and partner. A close investigation of these physical moves, in conjunction with oral language, reveals how students use print in interaction with their partner.

In this chapter, I describe how physical layout, pointing and gaze function in eight interactions. First, I present a list of terms that I use throughout the chapter. The bulk of the chapter is then divided into three main sections. These correspond to the three pair tasks that I analyzed – calendar, grid and short story. Each task section begins with a description of the teacher's instructions for the task and the print material that she provided for student use. This is followed by an overview of the student interactions in that task. The bulk of each task section is divided according to the various ways that print is used as a communicative means in that particular task. For example, gaze patterns or production of written representations. There is a summary at the end of each task section and a summary at the end of the chapter.

List of Terms

Focal spot: A person, object or visual representation that is present in interlocutors' immediate physical environment and that is the referent of a physical expression such as gaze or pointing.

Gaze: An action or state of looking at a person, object or visual representation. A change in the focal spot of gaze is described as a *gaze shift*.

Pointing: A physical movement of the hands and fingers to indicate a focal spot.

Physical Layout: The location of persons and objects (print materials, tables, chairs, walls, floor) in relation to each other in interaction.

Visual Reference: To locate a focal spot by use of gaze.

Physical Reference: A physical expression that guides or directs gaze to a particular focal spot. That is, a physical expression that leads to a particular visual reference. For example, pointing to a word on the page. Physical reference is often pointing, but can be other physical moves such as a shift in the layout of a print material in conjunction with a deictic head movement. The act of writing is also a type of physical reference to a newly created visual representation. *Note:* Physical expressions such as iconic and metaphoric gestures can be used to indicate ideas, objects or people that are not present in the immediate environment. For example, an iconic gesture where the hands trace the shape of a circle can be used to describe the size of a pizza, even if that pizza is not present in the immediate physical environment. I use the term physical reference narrowly to mean physical deictic gestures to a physical element of the surrounding context.

Oral Reference: An oral linguistic expression that guides or directs gaze to a particular focal spot. That is, an oral linguistic expression that leads to a particular visual reference. For example, a teacher's instructions to "read question number four" leads to students visual reference to where question number four is printed on the page. *Note:* Oral linguistic reference can easily be made to objects, people and ideas not physically present in the immediate environment. For example, I can use the words *my friend* to refer to a person who is not present in the immediate physical environment. Despite this, I use the term oral reference narrowly as a counterpart to physical reference. Physical reference and oral reference have the same intention – to guide visual reference – it is only the communicative *means* that differ.

Mutual Gaze: A state where two people gaze at each other and make eye contact.

Joint Gaze: A state where two or more participants in an interaction gaze on the same person, object or representation, or an identical object or representation. Joint gaze can be two students simultaneously looking at the same focal spot, or it can be sequential gaze at the same focal spot. To establish a joint gaze is to share a visual reference.

Calendar Task: "What day is January twenty-second?"

Description of Task Instructions and Teacher-Provided Print Materials

In this task, the teacher provides each student with a one-sheet printed calendar of the current month – January 2003 (see Appendix A). There is not much explicit linguistic information printed on the calendar page: three-letter abbreviations for days of the week, numerals, and the word *January*. Because of this, the role of the print

material in the task is not to provide linguistic support, but to serve as a content source for the oral interaction. As the teacher sets up the task, she demonstrates the role of the calendar page in the pair interaction.

First, the teacher introduces ordinal numbers – their pronunciation and their use when expressing dates. She writes some ordinal numbers on the side board. Next, she uses an overhead projection of the calendar to orient students to the calendar format and the English words associated with the calendar (dates and days of the week). She instructs students to "look at the calendar" and she asks questions such as "How many Wednesdays are there?" After using the calendar to make some announcements about class schedule and upcoming events, the teacher demonstrates the pair task.

The teacher asks the class, "What day is January first?" and elicits answers from several individual students. Next, she instructs students to, "Ask me," and she models answering the questions. Finally, she instructs students to "Please practice together… Practice the question and pronunciation." As evidenced in her instructions, the teacher's stated goal for the task is for students to practice the pronunciation of ordinal numbers and to practice the question form she has provided: *What day is ___ ?*

Both of the teacher's stated goals for this task involve practicing oral language. In order to enact this task according to the teacher's instructions, students will produce in one mode – oral language, but they must attend to input from two modes – oral language from their partner and visual input from the calendar page. Consequently, as students construct this interaction, they are working not only to negotiate oral

language with their partner, but also to navigate the calendar page itself. The teacher provides support for using the print materials when she projects the calendar onto the white board and refers to it as she models the task.

The print material in the calendar task can be conceived of as a *content source* for the task. Students must look to or attend to the calendar page before they can supply an answer to their partner. Because there are few linguistic forms on the calendar page, it is not unlike a picture, providing informational content but not linguistic content.

Overview of the Three Calendar Interactions

As can be seen in Table 4.1, Vanida and Thu work together for the entire five minutes allotted for the task. During the same time, Rosalinda has two shorter interactions with different partners – first Camille and then Tina. These three interactions all display differences in terms of students' physical layout with print and partner. This has implications for the use of both gaze and pointing in the interaction.

Table 4.1
Overview of Three Calendar Interactions

Participants (Initials)	Interaction Length (mins.)
Vanida/Thu (V/T)	5
Rosalinda/Camille (R/C)	1.5
Rosalinda/Tina (R/N)	2.75

Because the calendar task consists of a repeated question/answer pattern, I was able to analyze each of the question/answer sequences individually and compare across sequences. All students had the opportunity to initiate question/answer

sequences. Within each of the three pairs, students alternated between the role of *initiator*, who initiated the question/answer sequence by asking the question, and the role of *responder*, who answered the question. The question/answer sequences varied in many ways including: number of turns-at-talk, instances of oral negotiation, use of pointing, gaze patterns, and whether the answer provided was correct. An overview of each question/answer sequence in the three interactions can be found in Appendix C.

First, I consider patterns of gaze to print and partner in the calendar interactions. Gaze tends to be more orderly and predictable in more structured interactions (Norris, 2004). The calendar interactions follow a quite structured question/answer sequence and are the most structured interactions in this study. Therefore, patterns of gaze emerge more prominently and are more easily discernable in the calendar interactions. Deviations from patterns are also quite noticeable. Next, I present examples of pointing and discuss how pointing facilitates links between different modal representations. Finally, I provide examples of sustained of *joint gaze* and discuss some implications of joint gaze in interaction.

Calendar Interactions – Gaze to Print and Partner

The calendar task requires that students gaze to the calendar page in order to make visual reference to a particular spot on the page. The oral *What day is ___ ?* question is an oral reference to a particular cell on the calendar. The student who is the *responder* links that oral representation to a written representation (in this case not linguistic, but numerical) when they gaze at the calendar page and make visual

reference to the corresponding cell. The *responder* then orally describes the cell in terms of the corresponding day of the week and thus conveys to the *initiator* that she has successfully made visual reference to the identical cell. The pair has established joint gaze. Though it is theoretically possible that students could engage in oral interaction with their partner while maintaining a steady gaze on the calendar page throughout the interaction, this does not happen in the data set.

Before I present examples of gaze patterns in the calendar interaction, I would like to make two comments concerning gaze in the video data. First, much previous research has shown that gaze is salient to participants in interaction (e.g. Bavelas et al., 2002; Goodwin, 1980; Kendon, 1967; Monk & Gale, 2002). However, gaze is also useful for the outside observer. For the researcher, gaze functions as an important indicator of when and how students attend to print and partner. Second, it is important to note here that it is not always possible to determine student gaze from the video data. However, even slight head movements are readily observable and are a good indication of gaze shifts. Also, a student's speech and movements often coincide with their partner's gaze shifts. These cues make gaze more readily apparent. In cases where it is impossible to determine the focal spot of student gaze, I have noted that the data is indeterminate.

Figure 4.1 provides a transcript of a question/answer sequence with typical gaze patterns.[11] Camille, in the role of *responder*, looks at her partner as she listens to the question in line 1. After the question is completely articulated, Camille continues to look at Rosalinda in line 2 as she repeats the date from the question as a

[11] See Appendix D for a description of transcription conventions.

confirmation check. It is only after Rosalinda replies with a nod in line 3 and Camille is satisfied that she understands Rosalinda's oral production, that Camille turns her gaze to her calendar page in line 3. After making visual reference the answer on the page, Camille shifts her gaze back to Rosalinda in line 4 as she says the answer. Camille's gaze pattern is typical of students in the *responder* role. She does not maintain a steady gaze on her page, but rather maintains a steady gaze on her partner and only looks to her page as necessary in order to visually reference the corresponding calendar cell.

Speech	Rosalinda Gaze		Camille Gaze
1. R: what is day is (+) s_ twenty-three_ January twenty-three	shifts→partner	**[MG]**	shifts→partner
2. C: twenty-three	steady partner	**[MG]**	steady partner
3. R: ((nods))	steady partner		shifts→her page
4. C: twenty-three Thursday	steady partner	**[MG]**	shifts→partner
5. R: Thursday	shifts→her calendar page		steady partner

Figure 4.1. Rosalinda & Camille Calendar Task – Typical Gaze Patterns.[12]

As the *initiator* of the question/answer sequence, Rosalinda must also gaze to the page in order to determine what answer she can expect to hear from her partner. Line 1 of the transcript above shows that Rosalinda looks at her calendar page as she asks the question. As she comes to the end of the question turn-at-talk, her gaze shifts to her partner. At this moment, the partners make eye contact, that is, they establish a steady mutual gaze. They maintain a mutual gaze throughout the oral negotiation in line 2 and until Camille shifts her gaze to her page in line 3. Even as Camille looks at her page, Rosalinda's gaze remains steadily on her partner until after Camille has

[12] Please see **www.labschool.pdx.edu/Viewer/viewer.php?DavilaThesis** to view the video of this transcript. You will be prompted to download and install the *ClassAction Viewer* program. You will then have access to a playlist that includes video clips of 17 of the 19 transcript examples in this thesis.

produced an oral response in line 4. After brief mutual gaze in line 4, Rosalinda's gaze shifts back to her calendar page in line 5 as she orally confirms the answer and readies for the next question/answer sequence. In the role of *initiator*, students typically look to the calendar page at the beginning and at the end of the question/answer sequence. They look to their partner in the middle of the sequence as they complete any negotiation sequences and then wait for a response to the question.

This example provides evidence of three important gaze patterns that occur repeatedly across the three calendar interactions. First, students shift their gaze from the page to their partner during or at the end of the turn-at-talk where the initial question is asked. I refer to this as *question gaze*. Second, students shift their gaze from the page to their partner as they produce the answer. I refer to this as *response gaze*.[13] Question gaze and response gaze suggest that students generally look to their partner when they expect some reply from their partner – either an answer to a question or an acknowledgement of an answer provided. Despite the fact that their partner's response is in oral form and students are capable of *hearing* the answer no matter where they *look*, students nonetheless generally look to their partner as they listen.

The third prominent gaze pattern in the above example is mutual gaze during confirmation checks and other repair sequences, which can be termed *mutual negotiation gaze*. This is in some ways an extension of the *question gaze* and *response gaze* categories. The *question gaze* category initially emerged while looking at students as they voiced the teacher-provided *What day is ___ ?* questions. However,

[13] Counts of these gaze patterns across the three calendar interactions can be found in Appendix B.

other types of questions such as confirmation checks, comprehension checks, clarification requests, as well as questions not related to the task, are also often marked by the speaker's gaze shift to her partner. Likewise, *response gaze* includes not only the response to the initial task question, but also replies to any intervening sequences like negotiation. Students often do not look to their page during these quick back-and-forths and so they can maintain a steady mutual gaze as they ask questions and respond in the process of oral negotiation.

The transcript in Figure 4.2 provides an example of how *mutual negotiation gaze* relates to print materials. In line 1, Rosalinda, the *responder*, looks at her partner as she listens to the question. After Tina asks the question, the pair establish mutual gaze as Rosalinda repeats the date from the question as a confirmation check in line 2. These first few lines are similar to the previous example.

Speech	Tina Gaze		Rosalinda Gaze
1. N: what day is January ehh (+) *thirty-ehhth	steady partner quick glance to her page	**[MG]**	steady partner
2. R: thirty-eighth	steady partner	**[MG]**	steady partner
3. N: mm ((nods))	steady partner		shifts→her page
4. R: thirty-eight	steady partner	**[MG]**	shifts→partner
5. N: ((slight nod))	steady partner	**[MG]**	steady partner

Figure 4.2. Rosalinda & Tina Calendar Task – Mutual Negotiation Gaze.

However, Rosalinda's multiple gaze shifts in lines 3 and 4 are quite complex and reveal students' strong preference for mutual gaze during negotiation sequences. Rosalinda shifts her gaze to her calendar page in line 3, and then she very quickly shifts her gaze back to Tina in line 4 and repeats the date from the question once again. Rosalinda could have continued to look at the calendar page as she tried to locate the written numeral that corresponds to Tina's oral question. However,

Rosalinda intentionally looks back to Tina as she seeks more oral feedback. Rosalinda is not able to establish visual reference to an answer on the page because she has not yet understood the oral utterance from her partner. In this case, Rosalinda looks to her partner in order to listen; she visually attends to her partner as she aurally attends to her partner's oral language. Tina's oral production in this sequence sounds very much like the number "thirty-eight." I return to this question/answer sequence in the next section to see how the pair resolves these communication difficulties.

Though *question gaze*, *response gaze* and *mutual negotiation gaze* are typical gaze patterns, it is useful to note when they do not occur. In Rosalinda and Tina's interaction, Tina is the *initiator* of seven question/answer sequences.[14] Of these seven questions, four result in wrong answers. Two of those wrong answers lead to substantial negotiation and students establish *mutual negotiation gaze*, as seen in the previous example in Figure 4.2. However, the remaining two question/answer sequences with wrong answers are marked by no negotiation. Interestingly, these instances of no negotiation are also marked by no gaze to partner. In these cases, Tina does not establish question gaze. Rosalinda and Tina do not negotiate the date of the question as in the previous example. Furthermore, they do not negotiate after a wrong answer has been provided. Figure 4.3 provides an example of an interaction with little negotiation and atypical gaze patterns.[15]

[14] See Appendix C for a table of all question/answer sequences in Rosalinda and Tina's interaction.
[15] In this example, it is impossible to determine the focal spot of Rosalinda's gaze with certainty. There is no head movement and her gaze is likely steady on her calendar page.

Speech	Tina Gaze	Rosalinda Gaze
1. N: what day is January f_ *faours	steady her page	*steady her page*
2. R: Sunday	steady her page	*steady her page*
3. N: Saturday	steady her page	*steady her page*
4. R: oh oh Saturday ((laughs))	glance to N's page	*steady her page*

Figure 4.3. Rosalinda & Tina Calendar Task – No Negotiation.

In the above example, there is no *question gaze*. After Rosalinda gives the wrong answer in line 2, Tina maintains her gaze to her page as she supplies the correct answer and moves on to the next question. Rosalinda does not ask for more explanation and Tina does not look to her partner to see if more explanation is necessary. They do not negotiate pronunciation of the misunderstood word or practice oral production, nor does either partner offer an explanation of where the miscommunication occurred. Steady gaze on separate print materials corresponds here with a lack of oral negotiation. It also corresponds with lack of much interaction at all. This question/answer sequence is notably short.

Figure 4.4 shows a transcript of Rosalinda and Camille's final question/answer sequence before their interaction ends. This question/answer sequence is also quite brief. Note that Camille does not look up to Rosalinda throughout the entire exchange. As Rosalinda asks the question in line 1, Camille begins to write in her notebook. Though Camille answers Rosalinda's question in line 2, her one-word answer is brief. Camille is very much engaged with print materials at this moment, and the interaction between the partners ceases.

Speech	Rosalinda Gaze	Camille Gaze
1. R: what is_ what is day is January twen_ twenty-fi_ twenty-five xxx	shifts→partner	steady her page picks up pencil and begins to write
2. C: Sunday	steady partner	steady her page
3. R: Sunday (+) it's good	shifts→her page	steady her page

Figure 4.4 Rosalinda & Camille Calendar Task – End of the Interaction.

Student gaze to partner is a strong indication that the student is attending to their partner and to any oral language their partner might produce. In sequences where students maintain a steady gaze on their own print materials, there is often no negotiation. Sometimes, a partner's steady gaze at print materials may even dissuade a student from initiating or continuing interaction with their partner.

In this section on gaze, I described patterns in how students typically structure gaze to print and partner in question/answer sequences and during negotiation of meaning. I defined *question gaze*, *response gaze* and *mutual negotiation gaze* as key patterns that emerged across the three calendar interactions. *Mutual negotiation gaze* suggests that gaze to partner is a type of visual attention to partner, which corresponds with close aural attention to partner's oral language. This is a pattern that will re-emerge in the subsequent tasks. Next, I look at how physical reference to print materials functions in the calendar interactions.

Calendar Interactions – Physical Reference to the Calendar Page

Physical reference includes both pointing and other physical moves that involve shifts in the physical layout of print and partner. Examples of other physical

moves include moving the page or tilting the page to facilitate the student's own or a partner's visual reference.

Table 4.2 presents the total number of points to the calendar page for each student, and the context of that pointing. Though this table is only a raw count of points, it reveals significant differences in pointing behavior. Rosalinda and Camille do not point to their calendar pages at all during their interaction. However, Rosalinda does point twice to the calendar during her interaction with Tina, who also points two times. Rosalinda and Tina's points all occur during repair sequences. Thu also points three times during repair sequences, while Vanida uses points not in repair sequences but together with initial oral production of the answer. Vanida and Thu each employ one instance of other types of points, a repeat point and a question topic point, respectively, that will be explained thoroughly below.

Table 4.2
Calendar Task: Context of Points to Print Materials

Students	Total Points	Repair Sequence	With Initial Answer	Repeat a Point	Read Aloud
Vanida	9	-	8	1	-
Thu	4	3	-	-	1
Rosalinda	0	-	-	-	-
Camille	0	-	-	-	-
Rosalinda	2	2	-	-	-
Tina	2	2	-	-	-

Instances of pointing during repair sequences occurred in two dyads. The transcript in Figure 4.5 provides two examples of repair sequence points. This transcript is an extension of the question/answer sequence presented in Figure 4.2 above. When Tina initiates the question/answer sequence by asking the question in

line 1, her pronunciation of the date ordinal number sounds like "thirty-eighth," though her meaning is "thirtieth." Rosalinda has two oral confirmation checks in lines 2 and 4 in an attempt to understand Tina's oral production of the date in question. Despite Rosalinda's repeated attempts to understand Tina's oral question, Tina is not able to orally clarify her pronunciation. In line 6, Rosalinda displays her understanding that Tina has asked about January "thirteen" and she replies with the corresponding day of the week, "Monday," in line 8.

1.	N:	what day is January ehh (+) *thirty-ehhth
2.	R:	thirty-eighth
3.	N:	mm ((nods))
4.	R:	thirty-eight
5.	N:	((slight nod))
6.	R:	oh thirteen
7.	N:	thir_ *thirty-ehhth [xxx
8.	R:	[Monday
10.	N:	no Thursday
11.	R:	oh **/leans in and moves page towards Tina/**
12.	N:	**/points: her page/** thir_ *thirty-ehhth (+) [*thirty-ehhth (+) um-
13.	R:	[((laughs)) <spn = xxx confundido con> **/points: her page/** thirteenth
14.	N:	no thir_ (thirteenth)
15.	R:	(thirteen)
16.	N:	(*thirty-ehhth) um

Figure 4.5. Rosalinda & Tina Calendar Task – Physical Moves during Repair.

Tina identifies Rosalinda's answer as wrong in line 10 and provides the day of the week that corresponds with the ordinal number she was attempting to pronounce. Though Tina orally supplies the day of the week, she does not immediately provide any additional explanation to further clarify the pronunciation difficulties, nor does she check to see if Rosalinda has established visual reference to the corresponding cell on the grid. In line 11, through a combination of shifts in physical layout and gaze shifts, Rosalinda reveals that she does want further clarification.

First, it is helpful to describe the general physical layout of the interaction. Rosalinda and Tina are not seated at the same two-person table, but are at adjacent tables. There is an aisle between the two tables that creates a physical gap between the two students. Rosalinda sits sideways in her chair, facing Tina. Rosalinda holds her calendar page in front of her, in the aisle. In line 11 of the above transcript, Rosalinda employs shifts in two modes – gaze and physical layout – to initiate a repair sequence. Rosalinda looks briefly to her own calendar page and then to Tina as she leans forward across the space between their seats, extending her calendar page towards Tina and bridging the physical gap between them. This physical movement with her paper towards her partner puts the calendar page in a central location. This movement suggests that Rosalinda still has not established visual reference to the correct cell on the calendar page, and she seeks further clarification from Tina.

Though the goal of this calendar task is for students to practice oral production and comprehension of the ordinal numbers, Rosalinda and Tina have not been able to establish oral comprehension. However, in relation to print materials, the goal of each question/answer sequence can also be thought of as establishing visual reference to a particular cell on the calendar page. This can be accomplished through oral reference to the number in the cell, or it can be accomplished through physical reference to the cell on the calendar page. In line 12, Tina responds to Rosalinda's physical moves by pointing to the cell on her calendar as she repeats the date orally once again. After she places the point on her page, Tina looks to Rosalinda to gauge her comprehension.

In line 13, Rosalinda laughs and uses a mixture of English and Spanish – their shared L1 – to explain that she had understood "thirteenth." As Rosalinda explains, she also points to *13* on her calendar page. In this case, Rosalinda uses physical reference as she says the number because the pronunciation of *thirteenth* and *thirtieth* has proven to be so difficult for the partners to resolve orally. She uses physical reference in order to avoid confusion between words with similar pronunciation. Because oral reference to the numbers on the page was problematic, Rosalinda and Tina use physical reference to the numbers on the page to resolve the miscommunication. In this case, physical reference to the date on the calendar page unambiguously resolves oral pronunciation difficulties by offering an alternate means to indicate the same intended referent. This use of pointing can be termed *disambiguation of oral forms.*

It is not only Rosalinda and Camille, but also Vanida and Thu who use points in this way. The transcript in Figure 4.6 provides an example of this, as well as three other uses of pointing in interaction. Thu is the *initiator* in this question/answer sequence. The pair immediately runs into communication difficulties when Vanida provides an incorrect answer in line 3. Vanida still misunderstands the date in line 5 and Thu points to the calendar page in line 9 in order to provide an unambiguous physical indication of the referent. Thu's point is similar to the points described in the previous example.

1.	T:	um what day is	[January	[twenty-second
2.	V:		[uh huh	[uh huh
3.	V:	oh Tuesday **/points: her page/**		
4.	T:	twenty-second		
5.	V:	sec_ second **/points: her page/**		
6.	T:	twenty-second	[not second twenty-second	
7.	V:		[twenty-s-	
8.	V:	twenty- second		
9.	T:	**/points: Vanida's page/**		
10.	V:	oh **/points: her page/** xxx ((gestures to her mouth))		[I no listen
11.	T:	**Vanida's page/** how do you xxx		[how do you_ **/points:**
12.	V:	huh? (+) uh twenty-second		
13.	T:	twenty?		
14.	V:	uh ((nods)) twenty-second		
15.	T:	twenty		
16.	V:	((laughs))		
17.	T:	((nods)) oh		
18.	V:	ok this_ ok um		

Figure 4.6. Vanida & Thu Calendar Task – Different Functions of Points.

However, this point differs from the previous example because Thu does not point to her own calendar, but she points to Vanida's. Though this may seem like an incidental difference, it hints at a significant and sustained implication of the physical layout of the interaction. Each of the five points in this question/answer sequence – and all of the points in Vanida and Thu's interaction – are to Vanida's page, not Thu's. Rather than alternately orient to each other's calendar pages, Vanida and Thu only make physical reference to Vanida's calendar page.

The fact that both partners make physical reference to the same calendar page is not a chance occurrence, but is made possible because the pair organizes the physical layout so that Vanida's page is in a central location. Vanida sits sideways in her chair facing Thu and places her page sideways in the middle of the table. Vanida's calendar page is in a central location and can be easily seen by both Vanida and Thu,

though it is upside down from Thu's vantage point. Vanida's hands are positioned near her page, poised to easily move over the page. Thu's head and gaze are turned to the side towards Vanida throughout much of the task.[16]

The physical layout of the interaction has implications for the use of pointing. In previous examples, other pairs used points in repair sequences. This typically involved a shift in physical layout and gaze as students made brief visual reference to the calendar page. In Vanida and Thu's interaction, however, attending to a point does not require a shift of gaze or physical layout. The physical layout already allows for pointing to be used throughout the question/answer sequences, not just in repair sequences.

Rather than use points in response to repair sequences, Vanida points to the answer as she initially produces the answer orally. Because of the physical layout of the interaction, Thu is well-positioned to observe Vanida's pointing. If the pair were sitting further apart, and if Vanida were holding her paper close to herself, Thu would not be able to observe Vanida's points and they would not serve an interactional function.

An example of Vanida's points can be seen in line 3 of Figure 4.6, where Vanida says "Tuesday" as she points to the corresponding cell on the calendar. After Thu repeats the date in question in line 4, Vanida again points to the answer cell in line 5, this time she says not the day of the week, but the date she has understood, the

[16] This is in stark contrast to the physical layout of Rosalinda and Camille's interaction. Camille is seated at the far edge of the two-person table and she moves her calendar page closer to herself at the beginning of the interaction. There is considerable distance between the partners as they sit at their table and they never share visual or physical reference to the same calendar page.

"second." Vanida represents the answer in multiple modes from the beginning of the question/answer sequence.

Rather than function as simple repetition of meaning, however, representation in the two different modes has different implications. Vanida's oral production indicates that Vanida is orienting to the wrong cell on the calendar. However, her pointing gesture functions to visually communicate additional information regarding the nature of oral (mis)understanding. Thu asked about the "twenty-second," but Vanida responded with a point to the *2nd*. Vanida's pointing allows Thu to not only identify Vanida's answer as wrong, but to offer a detailed explanation of how Vanida's answer differs from the intended answer. In line 6, Thu says, "not second, twenty-second." This explicit oral comment on the nature of the pronunciation misunderstanding would not be possible without Vanida's physical point to the *2nd* as she provides the answer.

There are two other points in this question/answer sequence. After Vanida's point to the intended answer, the *22nd*, in line 9, Vanida immediately follows Thu's point with a point of her own in line 10. This type of physical repetition of a physical move, which can be termed a *repeat point*, occurs throughout the data and seems to function much like an oral repetition. That is, a repeat point can be a receipt token or acknowledge that a point has been attended to.

The final point in Figure 4.6 comes after the repair sequence has been resolved. In line 11, Thu points to the *22nd* as she indicates that she would like to hear Vanida's pronunciation of the word. In this example, Thu makes physical reference to a given

written form and requests help identifying and producing a corresponding oral representation. This example differs from previous instances of pointing in repair sequences. In those cases a given oral representation was linked by means of pointing to a written representation. In this case, the written representation is given and students use print materials to focus on negotiation of the oral form. Though this example involves a written numeral, not a linguistic form, it nonetheless exemplifies a common linkage from written modes to oral language – from a written representation (word, letter, number) to the corresponding oral form. This is a type of reading aloud that will reappear during analysis of the short story interactions.

In this section on pointing and physical layout, I looked at how meaning can be alternately represented in multiple modes, especially oral language and pointing to written representations. Pointing can be used to disambiguate oral forms during repair sequences. In this case, a given oral representation is linked to a corresponding written representation through pointing. Links between multimodal representations can also be made from a given written representation to an oral representation as in reading aloud. Furthermore, when pointing and oral representations are used simultaneously to provide answers, is becomes apparent that representations in different modes are not identical but they can convey different information.

Next, I look more closely at one instance where students employ both oral representations and pointing to written representations. Oral language is not always the initial mode of representation, and I identify sustained joint gaze as a key component that allows for both students to attend to the same written representations.

Calendar Interactions – Sustained Joint Gaze on Print Materials

Gaze is a key component of pointing. If one partner does not see a point, it has little communicative value, just as an utterance that is not heard has little communicative value. In all of the above examples, one student points in order to direct her partner's gaze to a particular focal spot on the calendar page. When both partners look at the same focal spot on the page, I call this *joint gaze*. When pointing is used in repair sequences, partners' joint gaze on a written representation links that written representation to a previously unintelligible oral representation. This type of joint gaze is typically very brief – just long enough to visually identify the number on the page. However, sometimes students establish joint gaze prior to any oral miscommunication or negotiation. In the case of Vanida and Thu, the physical layout of their interaction allows for them to have a sustained joint gaze on Vanida's calendar page. This type of sustained joint gaze has implications for use of oral language and other communicative modes in the interaction.

In seven of the nine question/answer sequences where she is the *responder*, Vanida points to the corresponding cell on her calendar page during the turn-at-talk in which she orally provides the answer to the question.[17] Because Vanida and Thu have a joint gaze on Vanida's calendar page, Thu is not reliant solely on Vanida's oral language production, but Vanida's points are also salient for Thu. When Vanida represents her answers both orally and physically, Thu can readily access both representations. This was shown in the previous example (Figure 4.6) where Thu saw Vanida point to the *2nd* instead of the *22nd*.

[17] See Table in Appendix C for details on each question/answer sequence in the interaction.

Interestingly, the way that Vanida uses points during her answer turns-at-talk changes over the course of the interaction. In the beginning of the interaction, Vanida points at the same time as she produces the answer orally. In later question/answer sequences, however, Vanida points *before* orally producing the answer. This is shown in line 6 of Figure 4.7 where Vanida orally repeats the date, pauses, and then points to the corresponding cell on the calendar page. In line 7, Thu sees this point and immediately responds to the answer with a nod *before* Vanida produces the answer orally in line 8.

Speech and Pointing	Vanida Gaze		Thu Gaze
1. T: mm ok (+) what day January fourteenth fourteenth	shifts→partner	**[MG]**	shifts→partner
2. V: fourteenth?	steady partner	**[MG]**	steady partner
3. T: fourteenth ((nods))	steady partner	**[MG]**	steady partner
4. V: fourteenth	shifts→her page		steady partner
5. T: yes	steady her page	**[JG]**	shifts→V's page
6. V: fourteen (+) **/points: her page/**	steady her page	**[JG]**	steady V's page
7. T: ((nods))	steady her page		shifts→her page
8. V: Tuesday	steady her page		steady her page

Figure 4.7. Vanida & Thu Calendar Task – Pointing as Primary Mode.

This slight adjustment in sequence reveals a shift in which modes are most salient in the interaction. Here, physical reference to the page is the initial mode by which Vanida and Thu communicate. Oral production of the answer is no longer strictly necessary, but is actually a bit redundant. In fact, by employing physical means to display her comprehension, Vanida avoids any potential difficulties of L2 oral production. Though one of the goals of the language classroom is for students to practice oral language and develop their oral language skills, print materials provide a way to avoid oral language. Physical means of communication are easy to use and readily indicate comprehension of partner's oral language.

Calendar Interactions – Summary

Gaze to print and partner in the calendar interactions followed rather structured patterns and three categories of gaze emerged from the data: *question gaze*, *answer gaze* and *mutual negotiation gaze*. Students shifted their gaze to the calendar page to find an answer to the question, but tended to maintain a steady gaze on their partner as they engaged in oral interaction, especially negotiation sequences. When these gaze shifts to partner did not occur, oral negotiation was also absent. This suggests that oral negotiation and gaze to partner may be related. Pointing to print materials was used to link ambiguous oral representations to corresponding written representations during repair sequences. Alternatively, pointing was used to refer to a problematic written form while students negotiated over the appropriate pronunciation of the corresponding oral form. Finally, it was shown that sustained joint gaze can facilitate physical means of interaction and make oral language somewhat redundant.

Grid Task: "Please talk to four students and write."

Description of Task Instructions and Teacher-Provided Print Materials

In the grid task, the teacher provides each student with a sheet of paper printed with a blank 5 x 5 grid (see Appendix A). There is no text on the page and this print material itself provides no linguistic input whatsoever. In contrast to the calendar print material, the grid also provides no informational content.

Prior to the pair task, the teacher provides questions and instructs students to write them in the first row of the grid. The teacher models this task by drawing a large

replica of the grid on the board and writing the appropriate questions in the top row of the grid. The five row headings are:

- Name
- When is your birthday?
- When did you come to America?
- When do you go to class?
- When do you go shopping?

After she writes the questions in the top row of the grid on the board, the teacher has the class as a whole read the questions aloud to practice oral production of the question forms. She explains to students that they have five questions in the top row of the grid and four blank rows remaining on the grid. Her instructions for the pair task are for students to "please talk to four students and write" their information on the grid.

Much like the calendar task, the grid task requires that students ask their partner questions in relation to a print material. However, the grid task differs from the calendar task in two important ways. First, answers to the grid questions are produced based on personal experience, not based on answers found on the page. The *responder* student does not have to look to the grid page to find the answer. Second, students produce not just oral language (as in the calendar task), but they produce written language as well.

Because the answers provided in this task are personal, it is not necessary for students to look to the grid page in order to find the answers to the questions. In theory, the *responder* student is engaged in a purely oral activity that does not involve use of print materials – she simply responds orally to her partner's oral query. The

initiator, on the other hand, would likely attend to the print material as she asks the question – either to explicitly repeat the written form of the question aloud (that is, read the question aloud), or at least to determine which question is next in the sequence. After receiving an oral answer from her partner – which could include oral negotiation and would likely involve gaze to partner – the *initiator* would then turn to her grid page and write the answer in the appropriate cell. For the *initiator*, one question/answer sequence would involve attention to print materials at the beginning and ending of the sequence, with oral interaction with her partner sandwiched in the middle.

Despite the sequential nature of the task – first talk to you partner, then write the answer – the three grid interactions are not neatly divided into separate speaking and writing segments. Producing a written representation of the answer is not just a record of information obtained orally, but rather written representations play an integral role in the interaction.

Overview of the Three Grid Interactions

Table 4.3 shows the three grid interactions that were analyzed. As can be seen in the table, Vanida and Thu's grid interaction is quite quick – less than 2 minutes. After the interaction with Thu is completed, Vanida leaves her seat and joins another pair in the classroom. The three students work together and Vanida fills in two additional rows on her grid. Because this was a group interaction, rather than a dyadic interaction, I chose not to analyze this portion of the video data.

Table 4.3
Overview of Three Grid Interactions

Participants (Initials)	Interaction Length (mins.)
Vanida/Thu (V/T)	1.75
Vanida/Tina (V/N)	3.5
Rosalinda/Camille (R/C)	7.5

After the group interaction, Vanida crosses the room and begins an interaction with Tina. Vanida and Tina's interaction is almost twice as long as Vanida's interaction with Thu. However, it is still roughly only half as long as Rosalinda and Camille's interaction, which is 7½ minutes. Because Rosalinda and Camille's interaction is so lengthy, I did not look at Rosalinda as she interacted with other students during this task. (See overview tables of each question/answer sequence in Appendix C.)

I would like to make a note here on the video data for Rosalinda and Camille's grid interaction. Because of the position of the camera in relation to Camille, it is at times difficult to determine exactly her gaze in this interaction. It is clear that Camille's gaze is on Rosalinda or Rosalinda's grid page, but it is impossible to tell the exact focal spot.

In looking at the grid interactions, I begin with an extended example from Rosalinda and Camille's interaction, which shows how the pair progressively integrates written representations into their interaction. In the following section, I illustrate some of Vanida's use of print materials to stand in for oral communication. Next, I briefly consider the impact of written representations on the nature of the oral language that is produced. In the final section on the grid interactions, I describe how

communication can occur through joint gaze to print materials as one partner is engaged in writing.

Grid Interactions – Physical Reference to the Grid Page

The transcript in Figure 4.8 shows an example of extended negotiation between Camille and Rosalinda during a single question/answer sequence, initiated by Camille. Through nearly 30 turns at talk, Rosalinda and Camille repeatedly refer to various available print materials. Over the course of this interaction, physical reference to print materials becomes more explicit and more directed.

1.	C:	ok (+) what is you_ (4) what i_ do you (birthday)
2.	R:	um my birthday [is March (+) March
3.	C:	[birthday
4.	C:	March
5.	R:	**/points: board/** March number three (March)
6.	C:	**/writes/**
7.	R:	xxx ((sighs))
8.		*another student approaches and wants to enter the conversation*
9.	R:	xxx the day is ((nods at another student and gestures)) March the day is March
10.	C:	((nods))
11.	R:	sixty-eight
12.	C:	**/writes/** sixty (1) eight
13.	R:	eight_ *sixty-eighh
14.		*other student leaves*
15.	C:	**/writes/** mm **/turns her page toward R/** xxx
16.	R:	mm no /**points: C's page/** the_ [the month is three
17.	C:	[oh xxx **/erases/** hm?
18.	R:	the month is three [is March
19.	C:	[month xxx three xxx
20.	R:	[**/points: board/** March March
21.	C:	[**/points: board/** xxx (+) ah March ok **/erases/**
22.	R:	[**/writes: her birthday/**
23.	C:	[**/writes/** three six_
24.	R:	sixty-eight **/turns her page toward C/**
25.	C:	three three
26.	R:	three [three sixty-eight
27.	C:	[oh ok **/writes/** (4) sixty-eight
28.	R:	yes **/writes: answer to next question/**
29.	C:	**/points: answer on her page/** three three xxx
30.	R:	mm
31.	C:	three three sixty_ **/points: answer on her page/**
32.	R:	eight **/points: answer on her page/** sixty-eight **/points: C's page/** sixty-six
33.	C:	**/writes/** ok
34.	R:	yes correct

Figure 4.8. Rosalinda & Camille Grid Task – Physical Reference.[18]

The first point to print materials in this interaction is not actually to the grid page, but to the side board. As Rosalinda says "March number three" in line 5, she raises her arm and points her finger to the side board where the teacher has listed all of the months and their corresponding numbers. The first time that Rosalinda says her

[18] Because of privacy concerns, only a small portion of the video for this example is available for public viewing. The birth date used in Figure 4.8 has been changed to protect the anonymity of the student.

birth month in line 2, she provides the answer only orally. It is only after Camille initiates negotiation with her repetition in line 4, that Rosalinda points to the side board as she repeats her answer in line 5.

It is important to note that this point does not narrowly indicate a particular number or word, like the points in the calendar interaction. The side board is on the other side of the room, and there are many things written on it. Because of this, Rosalinda's point to the board is only a general reference indicating where Camille needs to look in order to locate a written representation of the month. This general point to the side board does not immediately disambiguate oral forms. However, because the grid page does not provide written representations of the answers to the question, it cannot be used to disambiguate oral forms in this way. So, pointing to the side board reveals that students actively look for available written representations in the immediate environment in order to enable alternative means of representation, that is, in order to use written representations as a means of communication. After initially providing the answer only through oral language, Rosalinda seeks to reiterate her answer through physical means.

The second use of print materials occurs after Camille writes the answer on her grid page. In line 15, Camille retracts her writing hand, turns her page towards Rosalinda, and shows her written answer to Rosalinda for confirmation. Here, Camille explicitly invites Rosalinda's gaze in order to receive confirmation of her written answer. When answers are orally produced as in the calendar interactions, partners almost always supply an oral acknowledgement of the answer. When answers are

produced in writing, however, acknowledgement must sometimes be explicitly sought – as Camille does here.

In line 16, Rosalinda stretches a bit awkwardly across the table in order to point narrowly and specifically to a particular spot on Camille's page. As she points, Rosalinda very clearly enunciates "the month is three." The pair has now established joint gaze on a written representation of the answer that is close at hand. Rosalinda can make a narrow physical reference specifically to a written form and contrast her speech (an oral representation) with Camille's written representation. Based on Rosalinda's feedback, Camille erases her answer in line 17 and prepares to re-write it.

More physical reference to print materials comes when Rosalinda again points to the side board in line 20. Rosalinda again seeks to provide her answer simultaneously across physical and oral modes. Camille follows Rosalinda's point with a point of her own in line 21. Camille's point is not necessarily intended to direct Rosalinda's gaze, but it functions somewhat like a physical receipt token, acknowledging comprehension of Rosalinda's point. Camille's point here can be categorized with Vanida's *repeat point* in her calendar interaction with Thu (Figure 4.6). This type of pointing is a physical response to a partner's physical move. This is similar to the way that oral repetition is used as a receipt token to acknowledge an interlocutor's speech and indicate comprehension.

Next, Rosalinda introduces a new written representation into the interaction when she turns to her own page and writes the answer – her own birth date – in the appropriate column in the top row of her grid in line 22. Her personal answer to the

question now appears in written form in the same cell as the written question. The teacher did not instruct students to write their own information on their grids. Rosalinda's reason for this action becomes clear in line 24 when she lifts her paper and tilts it so that Camille can see the written representation of the birth date. By writing the answer on her grid page, Rosalinda can now make a more narrow physical reference to the written representation to accompany her oral answer. She no longer has to rely on the side board as the focal spot of a general physical reference.

This representation of meaning across multiple modes – written and oral – has implications for use of oral language in the task. In producing a complete written representation of her birthday and showing it to Camille, Rosalinda takes some of the communicative burden off of the mode of oral language. In addition to repeatedly hearing an oral representation of the birth date, Camille now has close visual access to a written representation. Camille no longer needs to comprehend oral language and then link that to a written representation. Rather, Camille can see the written form and reproduce that same written form on her own grid. Comprehension is no longer absolutely necessary to complete the task, as rote written reproduction will serve the same purpose.

Additional oral negotiation leads to one final pointing sequence. In line 32, Rosalinda again orally repeats the year – "sixty-eight" – as she simultaneously points to the written numeral on her own page. In contrast to the previous instance where Rosalinda simply tilted her page so that Camille could see the written form, here Rosalinda points narrowly to the relevant numeral as she provides Camille with both

written and oral representations of the answer. Furthermore, Rosalinda then explicitly contrasts the correct year as it is written on her page and the year written on Camille's page. Rosalinda points to the written numeral on Camille's paper and orally identifies it as "sixty-six." Again, Rosalinda uses both written and oral representations of the number. In this final pointing sequence, Rosalinda purposefully reiterates her meanings across modal representations as she contrasts the two numbers.

In the calendar interaction, students simply pointed to the calendar page to reiterate representations across oral and written modes. Here, however, students have to locate or create a written referent, which they readily do. Rosalinda and Camille make reference to written forms that are available on the side board and to written forms that they create on their grids. The links between written and oral forms have become progressively more explicit over the course of this question/answer sequence. In the beginning, Rosalinda simply provides an oral form and Camille is meant to create the written form. Next, Rosalinda represents her answer orally and with a general physical reference to the written form on the side board. Eventually, Rosalinda writes the answer herself and so creates a complete written representation of her answer for Camille to copy. Finally, when Camille falters as she copies, Rosalinda simultaneously provides oral and written representations and explicitly links the two modes as she contrasts two numbers. By making links between oral and written forms more explicit, Rosalinda supports Camille in the task of producing the answer in written form. The act of writing is not an individual activity, but rather both partners

participate in the act of writing. Likewise, the production of the answer in written form functions as a comprehension check on the oral interaction.

Rosalinda's providing information in oral and written modes is not just repetitive. That is, it does not just increase the chances that Camille will understand in one mode if the other mode is problematic. Beyond enabling comprehension, multimodal representation means that Camille no longer has to transfer orally-obtained information into written form, but can reproduce an available written form. The above example shows that multimodal representation both 1) reiterates meaning across modes and 2) provides explicit support with production of written forms.

The intense use of print materials in this sequence has implications for the rest of Rosalinda and Camille's interaction. In the immediately following question/answer sequence, Rosalinda already has her answer written on her grid (see line 28 in Figure 4.8) as Camille asks the question – "When did you come to America?" As she answers the question orally, Rosalinda also points to the written answer on her page. Rather than rely on oral negotiation as a means to repeat or clarify oral production, Rosalinda reiterates her answer across both oral and written forms from her initial production of the answer. Rosalinda does not wait for oral negotiation in order to use the written form to disambiguate oral language, rather she uses representations across modes from the start.

As she provides the answer, Rosalinda does not have *answer gaze* to her partner. Her gaze remains steady on her paper and she writes the next answer into her grid. Camille stops writing after she completes only part of the answer, and she looks

up to Rosalinda's paper. Rather than orally ask for explanation/repetition, Camille looks to the written representation of the answer on Rosalinda's page. She then turns back to her own grid and finishes writing the answer. Rather than use oral language to negotiate production of the written form, Camille refers to the existing written form and copies it.

In this section, the example in Figure 4.8 revealed that Rosalinda initially provides answers only in oral form. She then looked for and created written representations to enable alternate means of communication. In the subsequent question/answer sequence, there was less negotiation and Camille makes visual reference to the written representation rather than initiate an extended negotiation sequence. In the next section, more examples show how production of written forms is not only an end result of the question/answer sequences, but functions as a means of communication.

Grid Interactions – Creating and Exploiting Written Forms

In the role of *responder* in the grid interactions, Rosalinda provided both written and oral representations of her answers. Vanida engages in similar behavior and is particularly eager to use written forms as a means of communication in interaction. The next three examples reveal how her use of written forms shapes her interactions with Thu and Tina. It is largely due to her use of written materials that Vanida is able to so quickly complete the task – her interaction with Thu is less than two minutes and her interaction with Tina is 3½ minutes.

Vanida's first interaction is with Thu and Vanida begins in the role of *initiator*. Like the previous examples, Vanida and Thu also find available print materials to refer to in their interaction. The pair makes physical reference to Thu's student name card, which is readily accessible on their table, as Vanida writes Thu's name on her grid. However, they do not use other written representations on the grid or on the side board during the first part of their interaction, when Vanida is the *initiator*.

Figure 4.9 provides an entire transcript of Thu in the role of *initiator*. As Thu assumes the role of *initiator*, she asks Vanida, "How about you?" in line 1. Rather than answer the questions orally, Vanida uses a shift in layout, pointing and oral language to suggest an alternate means of communication in line 2. During the first part of the interaction, Vanida's paper was at a ninety degree angle to the table and was upside down from Thu's vantage point. In line 2, Vanida shifts her paper so that it is facing Thu and she runs her finger along underneath the top row of her grid. These moves allow Thu to see that Vanida has already written her answers in the top row of her grid. Along with these physical moves, Vanida says "same." This indicates that Thu can reproduce these *same* written forms on her own grid, that is, she can copy the answers from Vanida's grid.

1.	T:	how about you
2.	V:	xxx same **/turns her page toward T and points: her answers on page/**
3.	T:	oh ok
4.	V:	((laughs)) ok? that's easy ((laughs))
5.	T:	**/writes/**
6.		*26 seconds silence as Thu writes*
7.	V:	that's it ok I xxx ((gets up from her seat))
8.	T:	**/continues to write/** ((nods))

Figure 4.9. Vanida & Thu Grid Task – Written Answers.

In line 4, Vanida says this strategy is "easy." Though completing the task by reproducing or copying written forms is undeniably quicker than producing written representations from oral forms, there is a lack of oral interaction for almost 30 seconds as Thu writes Vanida's answers in line 5. Rather than carefully match oral language to written forms, Thu copies written forms directly to written forms. In order to facilitate this, Vanida intentionally entered her own information into the top row of the grid instead of printing the questions there, as the teacher had instructed. She then shifts the physical layout in order to make these written forms available to Thu.

In both of her grid interactions, Vanida displays a preference for reproducing written forms, rather than dealing with oral forms. Figure 4.10 provides an example of how Vanida manages to copy even in the role of *initiator*. In line 1, Vanida asks Thu "You class same me?" The teacher-provided question was "When do you go to class?" This slight alteration in the form of the question has significant implications for how Vanida will obtain an answer from Thu and write that answer.

1.	V:	you class same me **/points: own page/**
2.	T:	um [Tuesday
3.	V:	[same
4.	T:	[yes is same ((nods))
5.	V:	[yes ok **/writes/**
6.		*6 seconds silence as Vanida writes*
7.	V:	ok [Friday
8.	T:	[(Friday)

Figure 4.10. Vanida & Thu Grid Task – Compare Answers.

In line 2, Thu does not answer Vanida's question, but responds to the teacher-provided question that she expected to hear. That is, Thu begins to tell Vanida what days of the week she attends class. However, in line 3, Vanida does not acknowledge

Thu's answer, but repeats part of her question – "same" – as she looks up from her page to Thu. Vanida does not want to hear what days of the week Thu attends class. Rather, Vanida wants to know if Thu's class schedule matches her own class schedule, which is conveniently printed in the top row of her grid. In line 4, Thu looks at Vanida's grid and answers Vanida's question – "yes is same." Vanida then writes the answer. Though this example is taken from Vanida's interaction with Thu, Vanida uses the same question form in her interaction with Tina.

Rather than receive an oral answer from her partner and have to generate the corresponding written form, Vanida's question – "You class same me?" – leads her partner to compare her answer to an already existing written form and comment on the existing form. An answer of "same" allows Vanida to simply copy the already existing written form from the top row of her grid into the second row. This subtle shift in the question allows Vanida to shift part of the communicative load from oral to written modes. Rather than generate the written form of the answer, she can simply copy that written form into the appropriate cell.

These two examples reveal that Vanida's use of modes in interaction differs from the teacher's instructions in notable ways. First, Vanida writes her answers on her grid page in order to communicate with her partner through written representations, rather than oral language. Second, Vanida alters the nature of one of the teacher-provided questions so that her partners comment on her written schedule instead of producing an oral rendition of their own class schedule.

In her interaction with Tina, Vanida uses a similar approach to communication through written representation. In fact, there are five times during Vanida and Tina's interaction that Vanida points to her own grid and says "here" to invite Tina to copy from her page. Just as she did with Thu, Vanida is offering her answers to the questions in written form by indicating where she has already written those answers on her own grid. Though Thu readily copied Vanida's information, Tina has a different response.

The transcript in Figure 4.11 shows Vanida and Tina's negotiation over the use of written representations. In line 1, Vanida finishes writing Tina's answers on her grid and prepares to return to her own seat. Though Tina has not yet been in the role of *initiator*, Vanida assumes that Tina has already copied the answers. In line 2, Tina says "wait, wait, wait" to indicate that the interaction is not yet completed. Tina assumes the role of *initiator* in line 4 and asks Vanida a question. Vanida responds in line 5 with a point to her own paper as she says "here." Vanida probably doesn't hear Tina's suggestion in line 6 that Vanida "say me," that is, that Vanida provide an oral answer to the question. Tina asks the same question two more times in line 8 and line 10 and Vanida continues to respond by pointing to her paper.

1.		*Silence as Tina watches Vanida write. Vanida finishes writing and stands up.*
2.	N:	oh wait wait wait ((Tina puts hand on top of Vanida's))
3.	V:	uhm?
4.	N:	when is your birthday
5.	V:	here **/points: own page/**
6.	N:	ok [say me
7.	V:	[((laughs))
8.	N:	when your birthday
9.	V:	[here **/points: own page/**
10.	N:	[when your birthday
11.	V:	[here **/points: own page/**
12.	N:	[((gestures)) say it say it say it practice
13.	V:	ok ((leans down towards Tina)) birthday
14.	N:	yeah

Figure 4.11. Vanida & Tina Grid Task – Oral Language for "Practice."

Since Vanida is providing the answer in written form, she appears not to understand why Tina continues to repeat the question. When Tina explains, in line 12, that Vanida "say it" for "practice," Vanida seems to understand that Tina is suggesting oral interaction despite the fact that she can get the answers from the written representations. Vanida says "okay" in line 13, and the pair's interaction continues for about another minute.

Tina's insistence that Vanida provide answers not just in written form, but in oral form, reveals that she has a different understanding of the goals of the classroom interaction. If the goal of the interaction is conceived of as filling in all of the appropriate information on the grid, then oral production is not strictly necessary. However, Tina displays an understanding of classroom interaction as an opportunity to practice oral language production. Though written representations are sufficient to facilitate communication, should they be used to replace oral language production?

Tina's behavior indicates her view that oral language production is an important component of classroom interaction.

Despite Tina's insistence on oral production, however, she actually attends not only to Vanida's oral answers, but also to the written representations on Vanida's page. This is evidenced when Tina writes the answer *Tuesday, Saturday, Friday*. This answer matches the answer as it is written on Vanida's grid page. However, Vanida's oral answer is "Tuesday, Friday, Saturday." Also, when Vanida falters in reading aloud an answer from her own grid page, Tina does not hesitate in her copying, but simply reads the answer aloud for Vanida. Even though Tina has suggested that Vanida use oral language, speech is not always the primary means of representation. It is in some ways redundant.

The examples in this section show how written representations can be used instead of oral language in interaction. Also, even when oral language is produced, it may not be attended to as other modes represent the same information as well. In the following section, I present examples where oral language is the primary communicative means, but is still heavily influenced by print materials in the interaction.

Grid Interactions – Oral Representations Mimic Written Representations

Though all of the participants in the grid interactions actively seek written representations to refer to as they negotiate answers, sometimes these written representations are not available. In these cases, students use oral language to

represent the answer, but more specifically, they use oral language to represent the *written form* of the answer. That is, oral language can be altered to more closely match written forms. Students manipulate oral language to mimic the written forms that need to be entered into the grid.

Camille provides two examples of this. First, when she tells Rosalinda her birth date, she uses two different oral forms – "twenty-two" and "two two" – to refer to the day. Her use of "twenty-two" indicates that she is aware of the typical oral pronunciation of the number. However, during instances of oral negotiation where Camille is explicitly leading Rosalinda to write the date, Camille uses "two two." This form more closely matches how the numeral appears in written form. However, this form is not commonly used in oral expression of birth dates. Another example of a similar expression occurs when Camille orally provides the year that she arrived in the United States. She says: "two thousand two [pause] two zero zero two." Here, Camille uses oral language to provide support for Rosalinda's production of written forms.

Thu and Tina both alter their oral representations of the month in a similar fashion. The transcript in Figure 4.12 shows Thu quickly shift from the form "January" to the numerical form the teacher has instructed students to write – *1*. In this way, Vanida can more readily transcribe Thu's oral production into written form.

1.	V:	my birthday
2.	T:	um January_ [one one
3.	V:	[Ja-
4.	V:	one

Figure 4.12. Vanida & Thu Grid Task – Shift in Oral Form.

Students use oral language that closely mimics the forms of the written representations that they must produce. This is another example of how students try to navigate the links between oral and written representations. In the final section on the grid interactions, I consider the use of gaze as students produce written forms.

Grid Interactions – Gaze to Partner, Sustained Joint Gaze, and Written Production

In the calendar interactions, student patterns of gaze to partner included *question gaze*, *answer gaze* and *mutual negotiation gaze*. Though the grid interactions were not as structured as the calendar interactions, many of the same gaze patterns emerged. *Question gaze* was particularly common during interactional moves such as confirmation checks, clarification requests and other oral queries directed at a partner. There were also instances of extended *mutual negotiation gaze* during sequences of intense oral negotiation.

Gaze to print materials in the calendar interactions was necessary in order to find an answer to the questions. In the grid interactions, students do not need to look to the grid page to find an answer to the questions. In fact, the *responder* student may not need to look at the grid page at all. The *initiator* may look to the questions printed in the top row of the grid and read those aloud to begin each question/answer sequence. This type of reading aloud from printed written language is common in the short story interactions and will be dealt with in more detail in the next section.

Joint gaze to the grid page is often facilitated by physical reference to the page and is common in the grid interactions, as it was in the calendar interactions. As has

been shown in the above examples, students frequently use physical reference to the grid page to direct visual reference to written representations on the page.

One of the most significant instances of visual reference occurs when students look to the page as they write the answers. The act of writing on the page usually requires the writer to gaze at written representations as they are being produced. Because gaze follows the hand as it produces written language, the act of writing provides a partner with an accurate display of the writer's visual focal spot. This means that the act of writing itself often facilitates joint gaze on the grid page. The implications of this joint gaze with writing are discussed in the example below.

The transcript in Figure 4.13 is taken from Vanida and Tina's interaction. In lines 1-5, student interaction does not conform to *initiator* and *responder* roles. Rather than orally ask and answer questions, both students are engaged in reproducing written representations. In line 1 Tina provides oral and written representations of her name by saying her name as she picks up her name card and turns it towards Vanida. Vanida acknowledges Tina's answer in line 2. In line 3, Tina locates the written representation of Vanida's name on Vanida's grid and begins to copy it on to her own grid. Tina begins writing in line 3 though Vanida does not provide physical reference to her own name until line 4. Line 5 shows that there is a pause in the talking as both students copy information onto their grids. During this first sequence, the oral language produced is very limited. Both students are separately engaged with written language and they do not establish simultaneous joint gaze on any of the print materials.

1.	N:	my name is Tina /picks up name card/
2.	V:	uh Tina **/writes/**
3.	N:	**/writes/**
4.	V:	me here **/points: own page/**
5.		*Six seconds silence as both students write.*
6.	V:	((laughs)) my birthday you **/shifts page/**
7.	N:	uh November seven **/writes/**
8.	V:	seven **/writes: "7"/**
9.	N:	[yes
10.	V:	[okay **/moves page closer to Tina/**
11.	N:	November seven eleven
12.	V:	[**/writes: "11"/** eleven xxx
13.	N:	[no **/points: Vanida's page/** November is xxx **/writes on Vanida's page/**
14.	V:	xxx
15.	N:	November **/writes/**
16.	V:	uhum
17.	N:	**/writes/** November seven **/returns page to Vanida/**
18.	V:	uhum ok

Figure 4.13. Vanida & Tina Grid Task – Joint Gaze.[19]

In line 6, Vanida asks Tina a question for which there is no existing written representation. Tina provides an oral answer in line 7, and then shifts her gaze back to her own page to continue writing. In this case, Vanida must create a written representation based solely on Tina's oral answer. As she attempts to do this, Vanida listens closely to Tina in order to hear exactly the numbers that she needs to write. After Vanida hears Tina say "November seven" in line 7, she writes *7* as the first digit in the date in line 8. It seems that Vanida is not listening for a month word, but she listens only for numbers that she can transcribe directly into written numerals.

After writing the first number in line 8, Vanida's gaze remains on her own paper, her hand is poised to write the next digit, and she waits for Tina to voice the next number that needs to be written. Tina, engaged in her own writing, does not repeat her birth date. In line 10, Vanida shifts her gaze away from her paper, and looks

[19] Because of privacy concerns, only a small portion of the video for this example is available for public viewing. The birth date used in figure 4.13 has been changed to protect the anonymity of the student.

up with a quick glance to Tina. Vanida shifts her paper closer to Tina and looks back down at her paper, ready to write. This quick shift of gaze and layout functions to let Tina know that Vanida awaits further input in order to produce the written date.

After this movement by Vanida, Tina shifts her gaze to Vanida's paper and looks to see the status of Vanida's writing. The pair has now established *joint gaze* on Vanida's grid page. Tina repeats her birth date – month and date – again in line 11. Also in this line, Tina reframes her oral production to more closely match the written form. That is, Tina first says "November" and then changes this to "eleven." Vanida writes *11* in line 12. Vanida has now written the date as *7/11*.

Because of the joint gaze when Vanida finishes writing the date, Tina sees that the date is written incorrectly. Tina then points to Vanida's written answer in line 13. Rather than fully explain the mistake orally and initiate an oral repair sequence, Tina shifts Vanida's paper closer to her and Tina writes directly on Vanida's paper. Tina crosses out what Vanida has written and writes *11/7*. In line 17, Tina orally repeats her birth date again as she presents the written representation to Vanida.

In the beginning of their interaction, Vanida and Tina are separately engaged with their own grid pages. They reproduce written forms on their grid pages by copying existing written representations. There is not much oral language or interaction with partner during this part of the interaction. In the next part of the interaction, Vanida and Tina establish joint gaze on Vanida's page and they both attend to the same written forms. They maintain joint gaze throughout the remainder of the interaction until Tina assumes the *initiator* role. Because of the joint gaze, Tina

can respond directly to the written representation that Vanida produces. Tina responds not primarily through oral language, but by providing Vanida with the correct written representation. As in the calendar interactions, sustained joint gaze provides access to alternative, physical means of communication.

Grid Interactions – Summary

Producing written answers on the grid page does not just occur after successful oral communication has been completed. Rather, production of written forms colors the entire interaction. Students in both *initiator* and *responder* roles look for and create written representations in order to reiterate oral language. Those written forms can be used to disambiguate oral forms, as was seen in the calendar interactions. Furthermore, written forms can be used to communicate without accompanying oral forms. Even when oral language is the primary communicative means, the forms of oral language can shift to more closely match written forms. In the grid interactions, gaze to partner still occurs during oral negotiation sequences. However, students can be quite engaged in interaction even without gaze to partner. Through sustained joint gaze on the grid page, the act of writing itself can communicate student's comprehension or misunderstanding.

Short Story Task: "Read the story with your partner."

Description of Task Instructions and Teacher-Provided Print Materials

In this task, the teacher provides each pair of students with one *Collaborations Beginning 2* textbook and asks them to open to page 8 (see Appendix A). The largest thing on the page is a picture of a man and a woman dancing and smiling for the camera. Above the picture there is a title for the page, followed by instructions for students. Underneath the picture is a smaller box with a short story written by the woman in the picture. In the story, the writer introduces herself and recounts some of her likes and dislikes. Below the story, there are two attribution lines which give the student writer's name and identify her as an ESL student at a particular school.

Both the content and the layout of this print material are designed to be accessible and engaging for ESL students. If this page consisted solely of closely-packed lines of written text, it would not be as readily accessible to most low-level ESL students. The large picture provides both visual variety on the page and context for the content of the story. The written text itself is laid out in four short paragraphs, despite containing only seven sentences. Thus the text on the page is not dense, but there is ample space between the lines of the text.

The content of the story is intended to engage ESL student readers and to lead them to relate the story to their own experience in the classroom and as immigrants. According to the Introduction of the *Collaborations* textbook, it is an explicitly student-centered textbook. It aims to provide students with the linguistic and problem-solving skills to be good students and to successfully adapt to life in their new country.

In her instructions to students regarding the text, the teacher reminds students that they have already read this story during the previous class session. In this current class session, they will review the story. First, she reviews vocabulary from the story with the class. Though there are printed instructions on the textbook page, the teacher does not explicitly instruct students to read or follow those instructions. Rather, she tells students to "read the story with your partner" and "study the story." The teacher announces that after the pair work there will be a dictation based on language in the story.

At the core of this interaction for both pairs of students is creating links between the written representations on the page and oral production, that is, *reading aloud*. The short story interactions involve much more written language than the previous interactions. The calendar page did not contain much written language. Likewise, though students produced written forms in the grid interaction, many of those written forms were not linguistic, but numerical. It can be assumed that most students have command of the numerical system. Therefore, the numbers themselves should not be problematic as links are made between written numbers and oral L2 representations. However, students are learning written L2 representations at the same time as they learn oral L2 forms. This can make forming links across written and oral L2 linguistic representations more difficult than forming links between representations where one system is well-known to the student.

This task is relatively unstructured and could be accomplished by students in a variety of ways. For example, one student could read the entire story aloud while their

partner listens (but does not read from the book). Alternatively, students could first read the story silently and then discuss new vocabulary words with their partner. Given the range of possible activity that could result during this task, it is especially difficult to predict how student interactions will unfold. However, in order to read together, at least one student must use gaze to make visual reference to the written language on the page. In terms of interaction with partner, it is possible that students will not produce any oral language, but only read silently by themselves. However, if the pairs do read together, then they will likely produce oral language as they interact with each other.

Overview of the Two Short Story Interactions

Each of the microphone-wearing students only interacts with one partner during the short story task. Both Vanida & Thu and Rosalinda & Camille interact for the entire eight minute pair segment.

One major difference between the short story interactions and the previous interactions is that the short story task provides no blueprint for student interaction. There are no question/answer sequences and no roles such as *initiator* and *responder*. Reading is often an individual activity, and students are fully capable of trying to read on their own. However, both pairs employ a variety of multimodal means in order to work together with the text.

The two pairs interact with the print material in very different ways. Vanida and Thu work together as Vanida creates a written reproduction of the original text.

Though not instructed by the teacher to do so, Vanida decides to create a written reproduction of the short story. After some initial opening discussion, Vanida begins to write the first word of the story in her notebook and she then elicits Thu's assistance by suggesting to Thu: "Ok. You tell me. You read, please. I listen." Vanida is clearly poised to write the words as Thu reads them aloud, and Thu readily works with Vanida to produce a written reproduction of the text. Thu attends closely to Vanida's written (re)production and the pair maintains a sustained joint gaze on Vanida's text throughout much of their interaction.

Rosalinda and Camille, on the other hand, read the story aloud together. As they begin reading, Rosalinda first moves the textbook closer to her, points to the first word of the text and begins reading aloud: "I'm Kattia Aguilar. …" As Rosalinda reads, her finger follows along under the words on the page. She continues to read most of the first paragraph (ten words) at which point Camille interrupts her. Camille points to one of the first words in the story and asks a question.

Before Camille's interruption, the task was like an individual read-aloud activity. Rosalinda looked at the text as she read aloud at her own pace and she likely assumed that Camille was participating by listening. When Camille intervenes, she shows that she is hardly a passive listener in this interaction. When Camille stops Rosalinda's reading aloud with a question, she changes the nature of participant roles in the interaction. Rather than *speaker* and *listener*, both students are now *readers*. The language of the activity is not longer restricted to an oral repetition of the written language on the page, but includes questions, answers, and expansion on the text. In

order to read together, Rosalinda and Camille have to negotiate a sustained joint gaze as the focal spot moves from word to word. They must be aware of their partner's interaction with the text as the same time that they attend to the text itself.

I begin the remainder of this section on the short story interactions by considering gaze patterns. Students gaze at the print material more in this interaction than in others. They also sustain joint gaze on the text for longer periods of time. Next, I consider how students negotiate links between the written representations in the text and the production of corresponding oral forms. Finally, I consider some of the difficulties students face when independently establishing their own visual reference to the text.

Short Story Interactions – Gaze to Partner and Joint Gaze on Written Productions

In this short story task, all students gaze primarily on the print materials in front of them. As there are no structured question/answer sequences in these interactions, there are no structured patterns of gaze shift to partner. However, the previously-defined category of *question gaze* persists in these interactions as well.

In Rosalinda and Camille's interaction, both participants gaze at the text for a majority of the interaction. Rather than read independently, they establish a joint gaze on the text and read together. Rosalinda and Camille both contribute to determining the shared pace of reading and the common focal spot of visual reference that moves along with their reading aloud. Periodic gaze shift to partner is one means that contributes to establishing joint gaze to the text and maintaining a shared focal spot.

In Rosalinda and Camille's interaction there are 17 instances when Rosalinda looks away from the textbook page to gaze at Camille. Most of these instances fall within the previously-defined *question gaze* category. Rosalinda's gaze to her partner sometimes occurs with an explicit oral question such as a comprehension check or a clarification request.

The transcript in Figure 4.14 reveals how gaze functions during oral negotiation of a particular written representation. In this example, Rosalinda looks to her partner after Camille's oral pronunciation of a word differs from hers. After Rosalinda reads "Costa Rica" aloud in line 1, Camille repeats the word while stressing a different pronunciation of "Costa *Hica" in line 2. Camille's intonation indicates that she is trying to differentiate her pronunciation from Rosalinda's. In line 3, Rosalinda responds by looking to Camille and repeating the word again. This time, Camille accepts Rosalinda's pronunciation with a nod in line 4. Both partners produce oral forms that correspond to the written language on the page. As they try to align their oral pronunciation, Rosalinda's gaze shifts to Camille and they work together to produce a more accurate oral (re)production of the written form.

Speech	Rosalinda Gaze		Camille Gaze
1. R: I from (1) Costa Rica	steady text	**[JG]**	steady text
2. C: Costa *Hica	steady text	**[JG]**	steady text
3. R: Rica	shifts→partner		steady text
4. C: ((nods))	shifts→text	**[JG]**	steady text

Figure 4.14 Rosalinda & Camille Short Story Task – Partner Gaze.[20]

Vanida and Thu's interaction is different because they do not read the text aloud together. However, they are both involved in Vanida's creating a written

[20] Because of privacy concerns, the video for this example is not available for public viewing.

reproduction of the text. They rarely look at each other throughout the entire interaction. Their gaze generally shifts between the original written text on the textbook page and the written reproduction that Vanida is producing in her notebook. Rather than look to Vanida to watch her oral production, Thu looks intently at Vanida's notebook page and attends to her ongoing written production.

Based on Vanida's initial description of – "You read, please. I listen." – it seems as if Vanida will listen and write as Thu reads the story aloud. Vanida would attend to her partner's oral language and transfer it into written form. This transcription of oral language would seem to be good preparation for the upcoming dictation activity. However, Vanida does not just listen to Thu, but she also frequently looks at the story in the textbook and copies letters from the textbook page into her notebook. The pair's gaze and oral language falls into a pattern where, first, Vanida looks to the textbook page as Thu says a word or letter aloud. This means that Vanida has simultaneous access to written and oral forms. Next, Vanida shifts her gaze to her notebook and says the word or letter aloud as she writes it. Thu maintains steady gaze on Vanida's reproduction throughout this process.

Throughout most of the interaction, Thu's gaze is steady on Vanida's page with infrequent looks to the textbook page to read the next few words. Vanida's gaze, on the other hand, frequently shifts between her notebook page and the textbook page. These shifts happen between every letter or two. Vanida is producing her written text based on both her aural access of Thu's oral reference to the text and her own visual reference to the text itself. Evidence that Vanida does indeed attend to both oral and

written forms can be seen in certain transcription mistakes that the pair makes. For example, when Thu mistakenly says the letter *e* instead of *i*, Vanida writes *i*. This indicates that Vanida based her written form on Thu's oral production. On the other hand, Vanida at times repeats a letter aloud from the text before Thu does. This indicates that she does make direct visual reference to the written forms in the textbook.

Vanida and Thu establish a sustained joint gaze on Vanida's notebook. As she creates a copy of the text, Vanida must look to her own page in order to write. For Thu, however, this sustained joint gaze on Vanida's notebook page allows her to attend to Vanida's written production and respond to her physical moves – in this case, writing. In looking steadily at Vanida's notebook page, Thu visually assesses the pace at which Vanida's writing is proceeding and responds to Vanida's ongoing written production.

Over the course of the interaction, it seems that Thu responds more to Vanida's written production than to Vanida's oral production. The transcript in Figure 4.15 illustrates this. In line 3, Thu says the letter "a." In line 4, Vanida says the letters "a" and "n" as she looks at her notebook page. Thu could be expected to continue her oral production by saying *c*, the letter following *n*. However, because Thu is looking at Vanida's page, she sees that Vanida has not yet written the letters *a n*, though she has said them aloud. Because Thu has not yet seen the letters *written* on Vanida's page, in line 5, Thu repeats the letter "a." Vanida then repeats the letter orally and writes the letter in line 6. It is only in the next line (line 7), that Thu moves on to say the next

letter. Thu's steady gaze on Vanida's paper, combined with her repetition of letters, shows that she is not relying on Vanida's oral pronunciation of the letters to gauge Vanida's written production, but is watching to visually confirm that Vanida has successfully printed the letters in her notebook.

Speech and Writing			Thu Gaze		Vanida Gaze
1.	T:	*dan	steady Vanida page		steady textbook page
2.	V:	*dan ~d?~ **/writes: "d"/**	steady Vanida page	**[JG]**	shifts→her page
3.	T:	~a~	steady Vanida page		shifts→textbook page
4.	V:	~a n~	steady Vanida page	**[JG]**	shifts→her page
5.	T:	~a~	steady Vanida page	**[JG]**	steady her page
6.	V:	~a~ **/writes: "a"/**	steady Vanida page	**[JG]**	steady her page
7.	T:	~n~	steady Vanida page	**[JG]**	steady her page

Figure 4.15. Vanida & Thu Short Story Task – Joint Gaze while Writing.

In the next section, I present examples of how students negotiate links between written representations and oral production.

Short Story Interactions – Linking Written Representations to Oral Production

One of the most straight-forward examples of students linking written representations to oral forms is when they explicitly point to a word on the page as they identify the word orally. The transcript in Figure 4.16 provides an example of this. In line 2, Vanida says "sometime" and then turns to the textbook and points to the word on the page. She then asks for confirmation that she has identified the correct written form. In line 3, Thu follows Vanida's point with a *repeat point* that acknowledges and confirms Vanida's point. This example shows that Vanida and Thu use physical reference to establish a given written representation as the referent of oral negotiation. They make an explicit link between written representations and oral forms.

1.	T:	sometime
2.	V:	sometime (this is) sometime **/points: textbook page/**
3.	T:	yes **/points: textbook page/**
4.	V:	ok
5.	T:	(sometime)
6.	V:	sometime

Figure 4.16. Vanida & Thu Short Story Task – Identifying Written Form.

The transcription in Figure 4.17 provides an example where Rosalinda links not only written and oral forms, but also a gestural form of the word. This transcription shows the pair as they read the sentence "I try to be strong, but I am …" In line 1, Rosalinda moves her hand from a resting position to point to the word *try*. Her finger follows along with the text in the next few lines of transcription as she reads until the word *strong*. In line 7, Rosalinda looks to Camille with a question about the meaning of the word *strong*. Rosalinda uses a gesture that is meant to have the same meaning as the word in the text. Rosalinda makes the gesture by raising both of her arms into the air with her elbows bent at shoulder height and her fists clenched, in a muscle man pose. After making this gesture and looking to Camille, Rosalinda returns her finger to the word *strong* in line 10, and underlines the word with her finger again as she repeats it. Rosalinda links representations across three modes. She orally repeats the word, points to the written form and employs a descriptive gesture to indicate the word's meaning.

1.	R:	I_ I *stri **/points: "try"/** *stri
2.	C:	I *estray
3.	R:	to **/points: "to"/**
4.	C:	to
5.	R:	[be [*estrong **/finger follows: "be strong"/**
6.	C:	[be [strong
7.	R:	[*estrong is strong ((gestures "strong"))
8.	C:	[stro-
9.	C:	I *stri to stro_ [I *stry to *estrong [*bost
10.	R:	[strong **/points: "strong"/** [I don't know **/finger follows: "strong but"/**
11.	C:	[xxx- [*bott I am
12.	R:	[*estrong [*bott I am **/finger follows: "strong but I am"/**

Figure 4.17. Rosalinda & Camille Short Story Task – Multiple Modes.

Though Rosalinda employs multimodal means, Camille does not actually attend to Rosalinda's multimodal rendition of the text. While Rosalinda deals with the word *strong*, Camille, in line 9, twice moves her own gaze back to the beginning of the sentence and re-reads the first part of the sentence. She does not acknowledge Rosalinda's gesture, point and oral repetition of the word *strong*, nor does she align her own reading to the same spot and negotiate with Rosalinda about the word *strong*. Rather, Camille continues at her own pace and reads beyond the word *strong* in line 9. Rosalinda and Camille re-establish a joint focal spot in line 11 when Rosalinda joins Camille's pace and continues to read the rest of the sentence. This example shows that physical reference sometimes does not lead to joint gaze and negotiation of a written form.

Another example shows that Rosalinda and Camille do at times negotiate as they read together. In line 1 of the transcription in Figure 4.18, Rosalinda's finger follows along with the text *I dance* as she reads the two words aloud. After this first oral production of the words, Rosalinda returns her finger to *I* and retraces the two

words along with her oral repetition. She then moves her finger to point to the next line of text. Rosalinda often uses her finger to point in this way, even during her mumbled, private speech reading of words. This indicates that this type of physical reference is not necessarily intended to direct her partner's visual reference, but provides support for the reader's own visual reference as well.

1.	R:	I dance I dance **/finger follows: "I dance I dance"/ /points: next line of text/**
2.	C:	I *dan [no dance
3.	R:	[I dance
4.	C:	**/points: 1st "dance"/** dance this is dance this_ **/points: 2nd "dance"/**
5.	R:	dance
6.	C:	uh dan_ uh dance
7.	R:	xxx

Figure 4.18. Rosalinda & Camille Short Story Task – Identify Written Form.[21]

This transcript shows that Camille uses points to direct Rosalinda's visual reference and create a joint gaze. The second paragraph of the text reads: "I love to **dance** salsa. Sometimes, Alexito and I **dance** [line break] during break!" Rosalinda and Camille read the first occurrence of the word *dance* without additional comment or explanation. In line 1, it is the second instance of the word *dance* that Rosalinda reads aloud. In line 2, Camille repeats "I *dan" and then says "no dance" to indicate her belief that something has been misread. Camille then points to the first instance of the word *dance*, which is at the beginning of the line of text. As she points to the first instance of *dance* in line 4, Camille correctly identifies the written form and says "this is dance." Through pointing and oral language, she explicitly links the written representation to oral language. She then shifts her finger to the second occurrence of the word *dance* where it appears later on the same line and says "this_" and does not

[21] Because of privacy concerns, the video for this example is not available for public viewing.

complete the sentence. Rosalinda, who has followed Camille's physical reference with her gaze, makes visual reference to the same written form and reads it aloud – "dance" – in line 5.

Camille initiates the pointing sequence in order to contrast two written forms. Camille's pointing displays Camille's visual reference for Rosalinda. Rosalinda attends to her partner's point and a joint gaze on a given segment of the text is established. Pointing in this sequence serves a crucial function that allows both partners to jointly accomplish the task of identifying and comparing two written forms.

In this section, I presented examples where students work together to negotiate links between oral and written L2 representations. Though the example in Figure 4.17 indicates that students do not always work together in this way, interaction with partner can facilitate the production of oral forms that correspond to written forms. That is, students work together to read aloud. In the next section, examples show how interaction also facilitates creation of a written reproduction.

Short Story Interactions – Reproducing Written Representations

Though it is Vanida and Thu who spend the bulk of their interaction collaborating to produce a written reproduction of the text, Rosalinda and Camille also copy the text. However, they do not interact with each other as they create these reproductions. They create these copy texts as an individual activity after their oral interaction has come to a close. Rosalinda only writes for a little over 2 minutes. In

this time, she writes 23 words out of the 49 in the text. In contrast, Vanida writes 31 words, but she works with Thu for almost six and a half minutes. Copying written productions is not unproblematic for either Vanida or Rosalinda. Both students erase and re-copy words. Rosalinda miswrites *dance* as **danse* in the fourth sentence of the text, though she correctly writes *dance* in the next sentence.

Instances where Vanida copies written forms from the text also reveal difficulties in matching written forms to written forms. Vanida works independently to copy the text into her notebook while Thu is temporarily distracted by another student. During this time, Vanida occasionally has trouble orienting herself to the correct spot on her own notebook page. There are also 15 instances when Vanida looks to the original text and then turns to her notebook but does not write anything. Rather, she looks back to the textbook again before she can visually locate the written form she needs and successfully create a copy.

1.	T:	~n~
2.	V:	~n~ **/writes: "n"/**
3.	T:	~c~
4.	V:	~c_~ **/writes: "v"/**
5.	T:	~c~ not ~v~ (+) ~c~ **/points: "c"/**
6.	V:	oh ok I_ I looked here /**points: textbook page/** ((laughs)) **/erases: "v"/**
7.	T:	((laughs)) oh
8.	V:	~c~ **/writes: "c"/**
9.	T:	~e (+) e~
10.	V:	~e~ **/writes: "e"/** ((laughs))

Figure 4.19. Vanida & Thu Short Story Task – Visual Reference.

The transcript in Figure 4.19 shows how negotiation with a partner can help mitigate difficulties encountered in copying text. This transcription is a continuation of the spelling of the word *dance* that was begun in Figure 4.15, above. In line 3, Vanida

follows the typical pattern and is looking at the textbook as Thu says aloud the next letter to be written – "c." In line 4, Vanida turns her gaze to her notebook page, repeats the letter after Thu, and writes it. However, Vanida stops her vocalization before she has fully said the whole letter and she writes *v* instead of *c*. Rather than follow the information that she hears from Thu, Vanida is writing based on what she has seen on the textbook page. Vanida likely does not fully articulate the letter because she realizes that it does not correspond to the letter she is writing.

Thu, watching steadily as Vanida writes each letter, immediately recognizes Vanida's mistake and in line 5 she initiates a repair sequence. First, she provides an oral contrast of the two letters – "c not v." This orally alerts Vanida that there is a problem. When Vanida looks up to the textbook page, Thu points to the page in order to direct Vanida's gaze to the corresponding letter on the textbook page.

Vanida's mistake with the letters *c* and *v* shows the potential difficulties of relying on visual information to copy a text. As she corrects her written form, Vanida acknowledges that it can be challenging to establish visual reference to the correct spot on the textbook page. In line 6, Vanida exclaims, points to the textbook page, and then goes on to explain that she was looking at the wrong place on the textbook page. Though copying a word or a letter from one page to another may seem a simple task in a literate L1 environment, Vanida struggles with this task a number of times during this interaction.

Short Story Interactions – Summary

The short story interactions are the least structured of all the interactions in this study. Despite this, certain patterns are similar to those found in the calendar and grid interactions. *Question gaze* is present in the short story interactions and includes gaze shift to partner for implicit and explicit question moves. Students do not have much *mutual negotiation gaze* in these interactions, but they do have long stretches of sustained joint gaze. Though students do not share a gaze on each other (mutual gaze), they do share a gaze on the text (joint gaze). Steady gaze on print materials does not necessarily mean there is little interaction with partner. For example, Thu watches Vanida's written production and responds directly to what she sees written on the page. For Rosalinda and Camille, maintaining sustained joint gaze enables them to negotiate over oral production of words as they read aloud.

Chapter Summary

The calendar interactions provided a structured environment which revealed patterns where gaze to partner occurred when a student was expecting an oral response from her partner. Physical reference to print materials was used in the calendar interactions when oral reference failed to successfully establish joint gaze to a particular cell on the calendar page. Sometimes, joint gaze was established before an oral answer was provided. In the grid interactions, joint gaze on written answers was established in order to confirm the accuracy of those answers. Also, physical reference to existing written forms allowed for reproduction of written forms rather than

production of written forms based solely or primarily on oral language. It was shown that physical reference to print materials can lead to less oral language or alterations to oral forms in some cases. Finally, in the short story interactions, Rosalinda and Camille used physical and oral reference to establish a joint gaze as they read words aloud from the text. Vanida and Thu maintained a joint gaze on Vanida's written reproduction of the text and this joint gaze was integral as Thu supported Vanida's written production.

CHAPTER 5

CONCLUSION

In this chapter, I first provide a summary of findings and an answer to my research question. I continue with a discussion of ESL classroom interaction as a multimodal phenomenon, and the implications of this multimodal perspective on oral language use and SLA. I close with reflections on the limitations of this study, pedagogical implications and applications, and suggestions for further research.

Summary of Findings

In this study, I applied a multimodal perspective to the question of how students use print materials as they construct dyadic conversational interactions in the ESL classroom. Though there are many modes involved in any face-to-face interaction, I focused mainly on two modes that seemed most relevant in the students' interaction with print materials – gesture and gaze. I found three main uses of deictic gesture in interaction: 1) repair sequences, 2) reading aloud, and 3) print as primary mode. In addition, I identified *joint gaze* and *mutual negotiation gaze* as key patterns of gaze in conversational interaction. Though student use of print materials varied across pairs and across tasks, these gaze and gesture patterns appeared in multiple dyads during the completion of various tasks.

In terms of gesture, I looked specifically at deictic gestures, or physical reference to print materials. I found three main categories of student physical reference

to print materials. In the first category, students use physical reference to print materials during a repair sequence in order to disambiguate, clarify or confirm a preceding oral form. One example of this is when students point to the correct answer on the calendar page after their partner has provided an incorrect oral response. In this case, physical reference to print materials follows attempts at oral communication and provides an alternate means of communication.

In the second category, students use physical reference to print materials in order to identify a given written form and then negotiate the meaning or pronunciation of the corresponding oral form. This type of physical reference can be thought of as reading aloud because there is oral production of a given written representation. Pointing to a written representation can lead to negotiation of either the written form itself, or the corresponding oral form. For example, in the grid task, students pointed to and corrected their partner's written forms. In the short story task, students pointed to written forms in the textbook and negotiated over both pronunciation of the oral form and meaning. Using physical reference to establish joint gaze on print materials can be a powerful way to fix the referent of oral negotiation.

In the third category, physical reference to print materials functions as the primary mode of communication and is not necessarily accompanied by production of the corresponding oral form. For example, Thu watches Vanida point to an answer on her calendar page, and confirms that answer as correct *before* Vanida says the answer aloud. Another example can be found during the grid task when students supply their answers in written form and avoid oral production. When physical means of

communication precede production of oral forms, oral language is at times unnecessary and can become somewhat redundant. Students may even avoid production of oral language altogether.

Gaze plays a key role in student use of print materials in interaction in several ways. First, all communication through physical reference to print materials is contingent on gaze. Much like an utterance that is not heard, a point that is not seen has little communicative value. Students establish their physical orientation to print materials and to their partner in order to facilitate gaze to both print and partner. Second, joint gaze is key to students' using print materials *together* in interaction. Sometimes, creating and confirming joint gaze is the primary goal of the task in the ESL classroom. In the calendar task, for example, a student looks at a particular cell on the calendar and provides an oral reference to that cell – the date. The partners then establish joint gaze on the same cell, and that *joint gaze* is confirmed by oral production of the corresponding day of the week. As can be seen when students struggle to communicate during the calendar task, establishing joint gaze is not always a simple task. Students use both physical reference and oral reference to print materials in order to establish a joint gaze on a particular spot on the page. Finally, I found that students often make eye contact during sequences of intense oral negotiation. I call this *mutual negotiation gaze*. This finding indicates that students do not look to print materials when they focus on oral communication with their partner. Rather, students look to their partner as they listen to oral language and negotiate oral production.

Both deictic gesture and gaze are key to students' use of print materials as communicative means during face-to-face interaction in the ESL classroom. Through gesture and gaze, students use print materials to support, supplement and supplant the production of oral language in interaction. Students use multimodal communicative resources to exploit the communicative potential of print materials in interaction.

Discussion

This thesis has explored face-to-face interaction as a multimodal phenomenon. Face-to-face interaction is not just oral interaction, but it also includes other modes such as gaze, posture, proxemics, gesture, and physical layout. Fortunately, L2 learners are already experts at multimodal communication – they use it daily as they communicate in their L1. Of course, use of modes such as gaze and proxemics differ according to students' socio-cultural background and individual variations. If the goal of the English language classroom is to teach students how to communicate successfully with people from another culture, then variations in these multimodal aspects of communication can be important aspects of the curriculum.

Likewise, literate L2 learners are already familiar with the many functions and uses of print in everyday interaction. However, as ethnographic studies of literacy have shown, the use of written language and print materials varies depending on socio-cultural context. Especially for immigrant students, part of learning to read and write in a new language can be learning to navigate different types of literacies and bureaucracies in their new home country (Currie & Cray, 2004).

Learning to use print as a tool to foster language development may also be a new type of literacy for students. When asked to read and write during L2 classroom interaction, students construct interactions based on their own cultural, educational, and personal understandings of how written language facilitates language acquisition. Little research has investigated how student actions and interactions with print influence the process of language learning.

Use of written language as the primary means of mediating social interaction is not uncommon in L2 pedagogy. Many teachers use dialogue journals, for example. Likewise, computer-mediated communication (both synchronous and asynchronous) is increasingly popular in L2 pedagogy. These are established pedagogical activities in which written language mediates interaction between people. However, both dialogue journals and computer-mediated communication involve interaction between people who are not in the same place at the same time.

What is not as well established is that written representations also mediate face-to-face interactions. Communication in face-to-face interaction in the adult ESL classroom is not totally, or even primarily, oral. It involves not only oral and written language, but also many other modes of communication. This can be seen when students draw pictures, pantomime, use their L1, or write an L2 word. By employing multimodal means of communication, students expand their communicative capabilities. Though student abilities in their developing L2 may be limited, use of alternative communicative modes can be a creative and effective way to facilitate interaction and enable communication.

Although multimodal means can facilitate *communication*, how do they relate to use of *language* and second language acquisition? With respect to written language, this study has shown that physical use of print materials can support, or scaffold, use of oral L2 as a communicative means. One example of this is when Vanida accompanies her oral answer by pointing to the calendar cell. Her oral answer is incorrect while her pointing reveals the nature of her misunderstanding (see Figure 4.6). Physical reference to print materials is not just repetitive of oral reference, but can reveal the meaning of ambiguous or unclear oral forms. Likewise, physical reference to a written form can facilitate oral negotiation of that form.

Intense use of multiple communicative modes in conversation provides support for ongoing, successful interaction. Much research has suggested the interaction plays a key role in the process of second language acquisition. If print materials enable interaction and interaction contributes to SLA, does this mean that the more print materials the better?

No.

As was shown above, students are quite creative in using print materials as the primary means of communication in interaction. This has implications for oral language in the interaction. Firstly, if students avoid speaking altogether, then the *quantity* of student oral language production declines. Furthermore, even when students accompany physical reference to print materials with a corresponding oral form, the *quality* of oral communication in the interaction may change. Vanida and Tina provide a clear example of this during their grid interaction. When Vanida offers

her answers in written form, Vanida urges her to "Say it, say it, say it. Practice." In this interaction, oral language no longer functions to represent meaning; it does not carry a communicative load. Rather, oral language production is simply "practice."

The implications of oral language as "practice" can be seen in Tina's behavior in the ensuing interaction. Though Vanida does say most of her answers aloud, Tina maintains a steady gaze on print materials throughout the remainder of the interaction and there is little oral negotiation between the partners. Tina looks at Vanida's grid page and copies the answers onto her own grid page. Though she has encouraged Vanida to practice her L2 speaking skills, Tina does not attend primarily to Vanida's oral language, and it has little interactional function.

In situations where oral language is not the initial representation of meaning, but is only additive, it can at times be ignored with no ill effects on the interaction in general. If talk in interaction does not carry a real communicative load, then students are not obliged to attend closely to their partner's speech. Though teachers and students may intend to communicate through oral language, speaking may become only mimicry or "practice."

This duality of print as a tool that *supports* oral communication and print as a communicative means that *replaces* oral communication is not entirely new. Many classroom teachers encounter a similar duality in regard to L1 use in the classroom. It can at times be undeniably useful, and facilitate interaction, to provide an L1 translation of a given word or phrase. However, many teachers would discourage over-reliance on L1 use in the L2 classroom, e.g. translating every utterance.

There is further similarity between print materials use and L1 use in the classroom – many learners rely heavily on both. Just as many students prefer to look up every word in their dictionary to find an L1 translation, so many students prefer to concentrate on tangible written representations rather than ephemeral oral productions. In this study, Vanida herself provides an explanation for this phenomenon. As she offers her written answers to Thu during their grid interaction, she comments that this type of communication is "easy." Vanida's behavior highlights how students can use written language to construct successful interactions while at the same time avoiding use of oral language.

Limitations

Limitations of this study include the small amount of data. I was able to watch only four or five students in any given task. Other students who completed these same tasks may have used print materials in other ways. Despite this, I did find patterns across dyads in terms of gaze and pointing behaviors. Another limitation is that all interactions in this study included teacher-provided print materials. All of the pair interactions in this class session involved teacher-provided print materials. Print materials can be a good way for the teacher to give shape to student interactions. However, student use of multimodal communicative resources during interactions without print may show marked differences from the interactions considered in this study.

Pedagogical Implications and Applications

The findings of this study have implications for task design. In providing materials for use in student interaction, teachers can consider whether they want students to share a joint gaze on a single worksheet or textbook, share reference to a single representation on the board, or use separate pages hidden from their partner. A shared worksheet may encourage students to use physical reference to the page to facilitate the interaction. This may be appropriate when the teacher's goal is simply to foster communication between classmates, for example, during a community-building exercise at the beginning of a term. On the other hand, when teachers want students to focus specifically on communication through oral language, they can provide a single representation on the board or instruct students to keep their papers hidden from their partner. In this way, students are not able to readily use physical reference to print materials and must rely more on other communicative modes, such as oral language.

This study also highlights how instructions to students regarding the use of print materials may be key. Teachers can explicitly instruct students to look at their partner's page, or to keep their page hidden from their partner. If a task involves both speaking and writing, teachers can suggest that students attend first to oral interaction with their partner, and only pick up their pens and pencils after the oral interaction is complete.

Considerations of gaze may also be useful for classroom teachers. Though the gaze findings presented here are still preliminary, teachers may want to observe how gaze functions in their own classrooms. Teachers can explicitly draw students'

attention to gaze in interaction; they can instruct students to look at their partner and not read sentences from the page. Teachers can suggest that students look at each other when talking to foster more negotiation and attention to oral language. It remains to be seen what impact, if any, such instructions to students would have on interaction and oral negotiation in the L2 classroom.

Further Research

This study suggests further research on interaction in the L2 classroom. First, further research is needed into the interactional functions of gaze in L2 interaction. Does student gaze to interlocutor facilitate comprehension and interaction? Does mutual gaze foster oral negotiation? Studies of gaze in the L2 classroom may also consider how cultural differences in gaze patterns can impact multicultural interactions.

A second area for further research concerns individual differences in student use of print. Do students differ in their use of print materials based on cultural background, years of prior education, literacy levels, or other factors? If so, do these differences influence development of student skills with oral and written language? Ethno-pedagogical research into how students are trained to use print materials in language-learning classrooms may reveal much about imbalances in student acquisition of written and spoken language. Furthermore, research on classroom language acquisition that is more 'purely oral' – for example, with literacy-level students – could provide a contrast to typical writing-intensive approaches to SLA.

Finally, the most essential implication of this study for further research is the need to approach L2 interaction from a multimodal perspective. Studies that purport to investigate interaction in SLA through analysis of only oral language disregard much of learners' communicative behavior. In some cases, analysis of oral language will completely overlook students' primary means of communication. Though many studies mention 'paralinguistic' or 'nonverbal' features of communication, most studies do not acknowledge the vital role that physical and visual modes often play in interaction.

Attention to communication in multiple modes is especially important in an L2 context. Because interlocutors do not have full command of the L2, they may use other modes to carry more of the communicative load in interaction. At the same time, multimodal investigation of L2 interaction illuminates the relationship between oral language and other modes in a novel way. Multimodal research in SLA provides a unique insight into how oral language patterns with other modes in interaction.

Multimodal theory is often applied to contexts where computers and new electronic technologies are being used and developed. However, written language is also a powerful technology, and this study has shown that written language can be investigated through the lens of multimodal theory. Applying a multimodal perspective to the use of print materials can be especially useful in the field of SLA, where the common goal is to acquire both spoken and written language. This study is a first step towards understanding how oral, visual and physical means of communication play a role in the process of second language acquisition.

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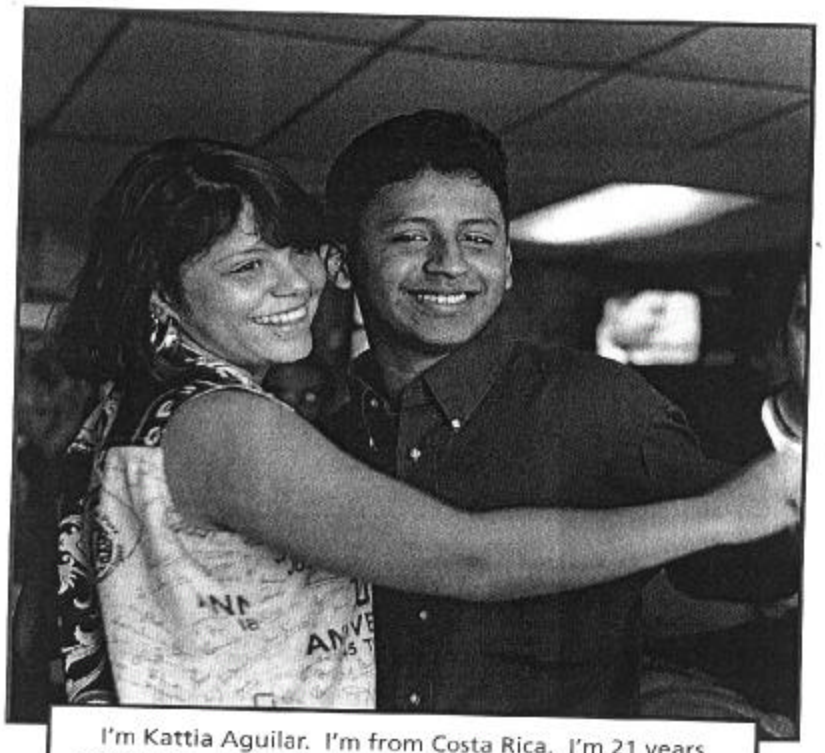
APPENDIX A
REPRODUCTIONS OF TEACHER-PROVIDED PRINT MATERIALS

Short Story Textbook Page

More Stories from Miami

Read more about Kattia and Guy-Charles, students from the Miami class. Try to find something that **you** have in common with each one. Underline it.



I'm Kattia Aguilar. I'm from Costa Rica. I'm 21 years old and single.

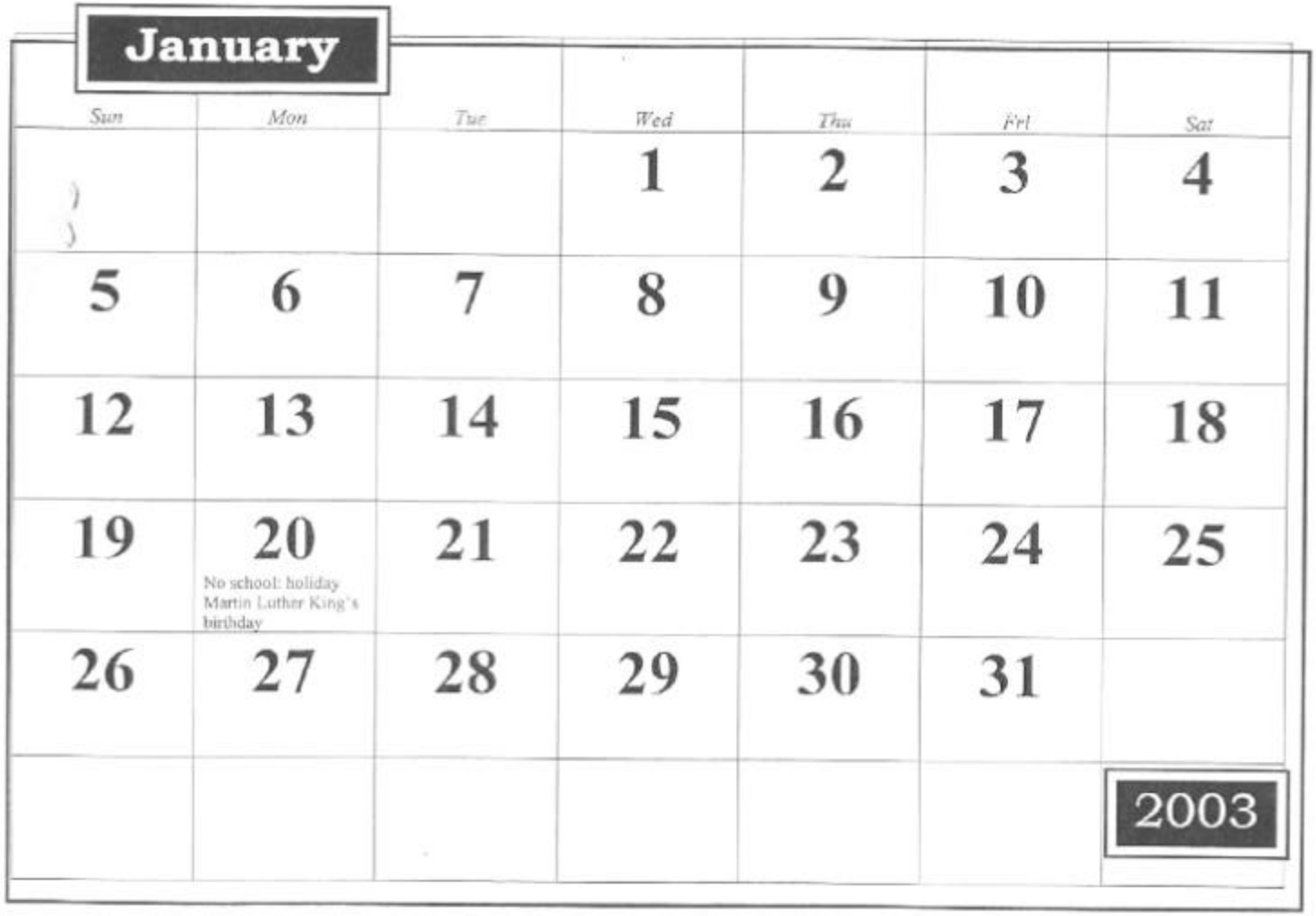
I love to dance salsa. Sometimes Alexito and I dance during break!

I like to cook, too, but I don't like to clean the kitchen.

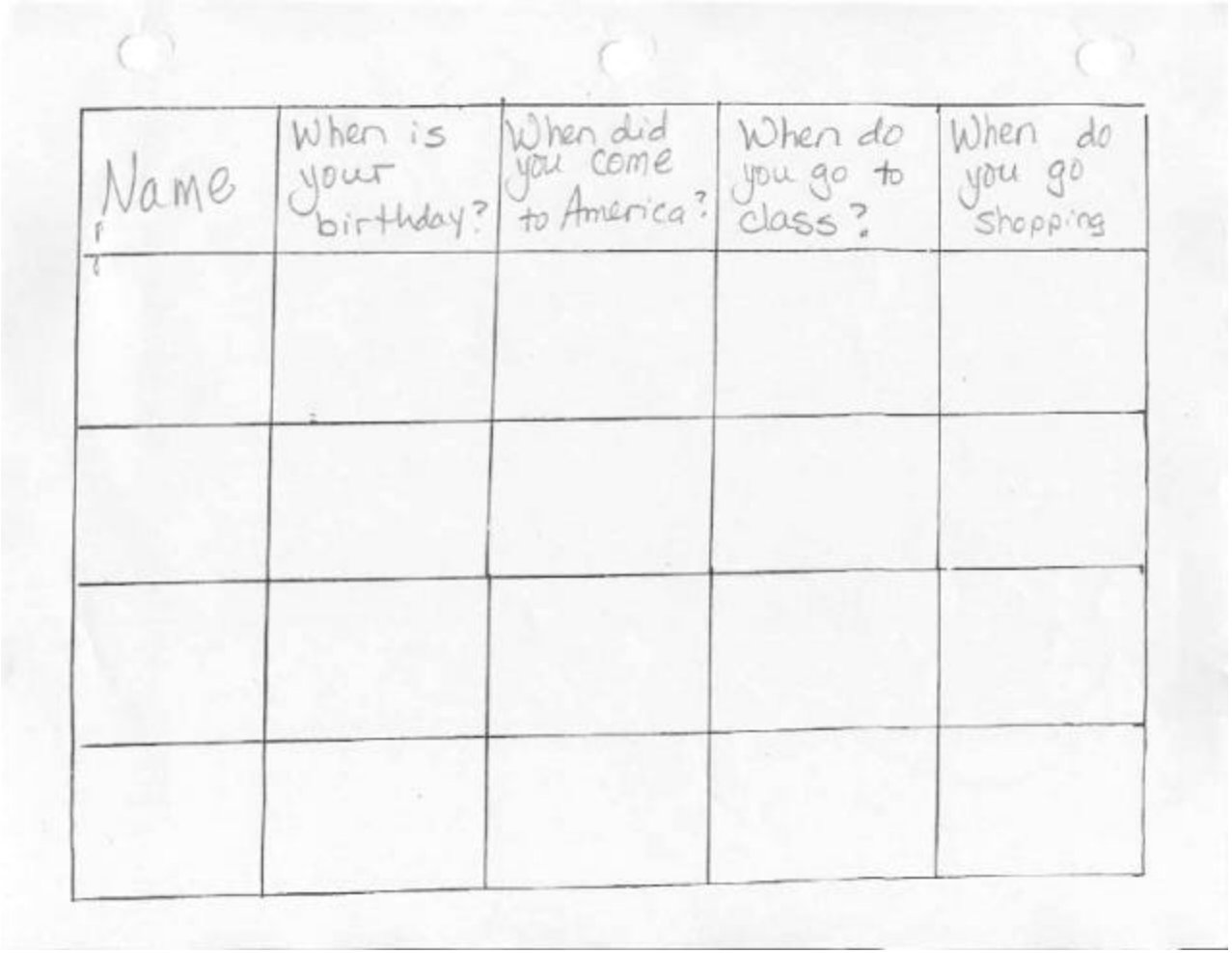
I try to be strong, but I'm sensitive and sentimental.

Kattia Aguilar (left) studies ESL at Lindsey Hopkins Technical Educational Center in Miami.

Calendar Page



Grid Page



Name	When is your birthday?	When did you come to America?	When do you go to class?	When do you go shopping

APPENDIX B
RAW COUNTS OF POINTS AND GAZE TO PARTNER

Calendar and Grid Points

Calendar Task: Number and Location of Points

Students	Total Points	Own Calendar	Partner's Calendar
Vanida	9	9	-
Thu	4	-	4
Rosalinda	2	2	-
Tina	2	2	-
Rosalinda	0	-	-
Camille	0	-	-

Grid Task: Number and Location of Points

Students	Total Points	Own Grid	Partner's Grid	Calendar	Side Board	Name Card
Vanida	2	1	-	-	-	1 (partner's)
Thu	1	-	-	-	-	1 (own)
Vanida	14	12	-	2	-	-
Tina	6	1	3	1	-	1 (own)
Rosalinda	12	5	2	2	2	1 (own)
Camille	6	1	2	2	1	-

Calendar Task Gaze

Calendar Task: Question Gaze to Partner

Students	Total # of Questions Asked	Gaze Shift to Partner	Gaze Steady on own Paper	Other
Vanida	5	3	2	-
Thu	9	8	-	1[a]
Rosalinda	4	4	-	-
Camille	3	3	-	-
Rosalinda	2	-	-	2[b]
Tina	7	4	2	1[b]

Notes: [a]Gaze shift to partner's paper, then to partner.
[b]Data indeterminate.

Calendar Task: Answer Gaze to Partner

Students	Total # of Questions Answered	Gaze Shift to Partner	Gaze Steady on own Paper	Other
Vanida	9	3	5	1[a]
Thu	5	5	-	-
Rosalinda	3	2	1	-
Camille	4	3	1	-
Rosalinda	7	5	-	2[b]
Tina	2	-	-	2[b]

Notes" [a]No answer provided. [b]Data indeterminate.

Grid Task Gaze

Grid Task: Question Gaze to Partner

Students	Total # of Questions Asked	Gaze Shift to Partner	Gaze Steady on own Paper
Vanida	5	2	3
Thu	1	-	1
Vanida	5	2	3
Tina	4	-	4
Rosalinda	5	5	-
Camille	5	4	1

Grid Task: Answer Gaze to Partner

Students	Total # of Questions Answered	Gaze Shift to Partner	Gaze Steady Own Paper	Gaze Steady Partner's Paper	Other
Vanida	1	-	1	-	-
Thu	5	1	-	4	-
Vanida	4	-	1	3	-
Tina	5	-	-	5	-
Rosalinda	5	3	2	-	-
Camille	5	1	-	-	4[a]

Notes: [a]Data indeterminate. Gaze on partner or on partner's paper.

APPENDIX C
DETAIL OF CALENDAR AND GRID QUESTION/ANSWER SEQUENCES

Grid Task: Vanida and Thu

Question Number	Question Topic	Initiator	Turns-at-talk
Q1	name	Vanida	10
Q2	birthday	Vanida	10
Q3	U.S. arrival	Vanida	12
Q4	class	Vanida	6
Q5	shopping	Vanida	5
Q6	multiple questions	Thu	7

Grid Task: Vanida and Tina

Question Number	Question Topic	Initiator	Turns-at-talk
Q1	shopping	Vanida	8
Q2	name	Vanida	5
Q3	birthday	Vanida	17
Q4	U.S. arrival	Vanida	5
Q5	class	Vanida	19
Q6	birthday	Tina	20
Q7	U.S. arrival	Tina	4
Q8	class	Tina	8
Q9	shopping	Tina	4

Grid Task: Rosalinda and Camille

Question Number	Question Topic	Initiator	Turns-at-talk
Q1	name	Rosalinda	16
Q2	birthday	Rosalinda	24
Q3	U.S. arrival	Rosalinda	8
Q4	class	Rosalinda	25
Q5	shopping	Rosalinda	3
Q6	name	Camille	11
Q7	birthday	Camille	28
Q8	U.S. arrival	Camille	4
Q9	class	Camille	6
Q10	shopping	Camille	6

Calendar Task: Vanida and Thu

Question Number	Date in Question	Initiator	Turns-at-talk	Confirmation Checks[a]	Answer?	Pointing?
Q1	15th	Thu	7	V2	right	-
Q2	17th	Thu	8	V1	wrong	V with answer
Q3	25th	Thu	12	V1	none	T provides answer
Q4	19th	Thu	5	V1	right	V with answer
Q5	2nd	Vanida	5	T1	right	-
Q6	1st	Vanida	3	none	right	-
Q7	22nd	Thu	17	V3	wrong	V twice with answer T provides answer U repeats point T with follow-up question
Q8	31st	Thu	5	V1	right	V with answer
Q9	1st	Vanida	11	T1	right	T clarifies answer
Q10	3rd	Vanida	5	T1	right	-
Q11	20th	Vanida	5	T1	right	-
Q12	14th	Thu	8	V2	right	V with answer
Q13	12th	Thu	7	V2	right	V with answer
Q14	16th	Thu	5	V1	right	V with answer

[a]V=Vanida, T=Thu, followed by number of confirmation checks.

Calendar Task: Rosalinda and Camille

Question Number	Date in Question	Initiator	Turns-at-talk	Confirmation Checks[a]	Answer?	Pointing?
Q1	15th	Camille	9	R1	right	-
Q2	3rd	Camille	5	R1	right	-
Q3	23rd	Camille	3	none	right	-
Q4	6th	Rosalinda	5	none	right	-
Q5	28th	Rosalinda	5	C1	right	-
Q6	23rd	Rosalinda	5	C1	right	-
Q7	25th	Rosalinda	3	none	right	-

[a]R=Rosalinda, C=Camille, followed by number of confirmation checks.

Calendar Task: Rosalinda and Tina

Question Number	Date in Question	Initiator	Turns-at-talk	Confirmation Checks[a]	Answer?	Pointing?
Q1	2nd	Tina	2	none	right	-
Q2	30th	Tina	15	R3	wrong	N provides answer R clarifies answer
Q3	14th	Tina	3	none	right	-
Q4	12th	Tina	3	none	right	-
Q5	4th	Tina	4	none	wrong	-
Q6	20th	Tina	8	R1	wrong	N provides answer
Q7	27th	Tina	3	none	wrong	-
Q8	2nd	Rosalinda	2	none	right	-
Q9	30th	Rosalinda	4	none	wrong	R provides answer

[a]R=Rosalinda, N=Tina, followed by number of confirmation checks

APPENDIX D
TRANSCRIPTION CONVENTIONS

Symbol	Description of Symbol	Meaning
-	hyphen Ex: um-	interruption
_	underscore Ex: do you_	false start
*	asterisk Ex: *thirtyeith	mispronounced words
?	question mark Ex: second?	rising intonation
xxx	triple lowercase exes	incomprehensible speech
( )	parentheses Ex: (Friday)	uncertain transcription
(( ))	double parentheses Ex: ((nods))	additional description of non-linguistic communicative moves
~ ~	tildes Ex: ~a~	used when the names of letters are said aloud
< >	angled brackets Ex: <spn>	oral production in a foreign language
(#)	number inside parentheses Ex: (3)	a pause in speech, where the number indicates the pause length in seconds
(+)	plus symbol inside parentheses	a pause of less then one second, but more than half a second
[[	aligned square brackets	overlapping speech
/ /	forward slash Ex: /writes/	physical involvement with print materials
[MG]	letters m & g inside square brackets	mutual gaze
[JG]	letters j & g inside square brackets	joint gaze
→	arrow Ex: shifts→partner	gaze shift