READING AUTHENTIC TEXT IN THE HYPERMEDIA ENVIRONMENT: THE EFFECTS OF QUESTION GLOSSES ON COMPREHENSION PROCESSES OF INTERMEDIATE LEARNERS OF GERMAN AS A FOREIGN LANGUAGE

By

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This study examined to what extent and how question glosses in the hypermedia environment enabled intermediate learners of German as a foreign language to go beyond the surface and textbase level and construct a situation model of a text based on appropriate cultural background knowledge. Question glosses are interspersed questions that function to prompt the reader to either activate pre-existing knowledge or to become aware of a cultural difference or knowledge gap and avoid misreading a text. A misreading is defined as an instance when the reader constructs a mental model that contradicts explicitly stated information as well as the "unseen" in a text. Eight participants read eight texts over a period of eight weeks. Data collection combined immediate recall and think-aloud protocols, pre- and post-study questionnaires, as well as exit interviews after each reading. Two groups of readers alternated between reading texts with and without question glosses, while holding all other variables constant: access

to external and internal dictionaries, and multimedia hyperlinks (geographical, historical, cultural information).

Recall protocols yielded two different types of comprehension scores. The propositional scores established how efficiently readers recognized words and pieces of information at the surface level of a text. It was found that question glosses improved the recall of propositions for some readers who lacked lower-level processing skills, but made no difference for readers who demonstrated a higher degree of automaticity in lower-level processing. In contrast, the weighted idea unit analysis indicates to what extent participants constructed coherent textbase models of a text. Five participants recalled more main and supporting ideas when reading a text with than without question glosses. By combining the results of the quantitative analysis of the recall and think-aloud protocols, a connection between the percentage of idea units and the number of look-ups and causal inferences emerged. Question glosses usually triggered more look-ups, and more look-ups resulted in higher idea unit scores and a higher number of causal inferences. Readers who struggled with bottom-up processing generated more causal inferences and fewer misreadings than the more fluent readers. Furthermore, the qualitative analysis of the think-aloud protocols revealed that over time question glosses provided assistance and training for most readers with regard to higher-level processing skills.

CHAPTER 1
INTRODUCTION

Truly understanding any text, and particularly a text written for a discourse community other than one's own, requires both general topic knowledge and culturally bound knowledge. The reader must become aware of systems of thinking and knowledge structures different from her/his own and develop the cognitive framework to make sense of the new information in foreign texts. This study examines the effects of question glosses as comprehension aids for intermediate learners of German as a foreign language (FL) in the hypermedia environment. Question glosses are interspersed questions intended to prompt the reader to either activate appropriate pre-existing knowledge or to become aware of a cultural difference or knowledge gap, and to look up relevant background information. These prompts are not meant to lead the reader to a certain interpretation of the text, but rather to empower her/him to independently interact with authentic target language text and avoid misreading it.

The new National Standards in Foreign Language Learning in the 21st Century [NSiFLE] (U.S. Department of Education, 1999) addresses the central importance of the "appropriate cultural interpretation of meanings that occur in written or spoken forms where there is no recourse to the active negotiation of meaning with the writer or speaker" (p. 36). According to Standard 1.2 on interpretive communication, it is crucial that we distinguish between the notion of reading or listening comprehension as "understanding a text with an American mindset" (p. 36) and the cultural interpretation of a text. Interpretation implies the "ability to read (or listen) between the lines" (p. 36).

The five goal areas of Communication, Cultures, Connections, Comparisons, and Communities (known collectively as the Five Cs as set forth by the new standards), are represented by five interconnected circles, signifying that all of them ought to be part of the language learning process for all students and at all levels. Standards 2.1. and 2.2. about Cultures state that students must demonstrate an understanding of the relationship among the practices (patterns of social interactions) and perspectives (meanings, attitudes, values, ideas) and products (books, tools, foods, laws, music, games) and perspectives of the target language culture (pp. 49, 50). For example, along with learning the appropriate phrases for interacting with native Germans and knowing the geographical and historical facts about Germany, L2 learners must also "develop understandings of why or why not something is important" (Bernhardt & Kamil, 1998, p. 43). Clearly, while linguistic competence is necessary for understanding a foreign text, it is not in itself sufficient. In order to achieve the Five Cs, L2 reading instruction must receive greater attention than in the past and find a way to help readers develop cultural understanding.

L2 Reading Instruction in Undergraduate Programs

L2 reading may well be at the heart of the language and culture dilemma. It is possible that a student who has completed beginning and intermediate college-level courses is capable of decoding what is written on the page in black and white about people, places, and events, but lacks the training and the resources to "read between the lines." Experts agree that introductory FL courses do not adequately prepare university students to read, understand, and participate in meaningful discussions about authentic target language literary and cultural texts (Bernhardt, 1994; Bretz, 1990; Friedman, 1992; Kramsch, 1985, 1993; Schulz, 1983; Swaffar et al., 1991). However, in advanced-level

courses, we expect FL students to apply the linguistic knowledge acquired in previous language courses to critically read and understand lengthy target language texts. That rarely happens. Often the teaching of literature turns into "a massive process of explanation by the teacher or even of translation" (Collie & Slater, 1987, p. 7).

In *Reading for Meaning: An Integrated Approach to Language Learning,* Swaffar et al. (1991) outlined a curricular shift in undergraduate programs of American universities from culturally neutral dialogues to authentic texts, from the discrete practice of grammar rules to an integrative use of grammar linked to meaning, and from vocabulary lists to be memorized to vocabulary understood and cued in the L2 context (p. 12). At the same time, the authors make the point that while new curricula may reflect current theory and research, new concepts are not easily realized in practice. Many textbooks for learning a second language (L2) at the beginning- and intermediate-levels still "promote the idea that mastery of textual vocabulary and structures is requisite for reading and thus subvert interactive processing" (p. 30). Rather than training students to become active participants in the construction of meaning, instructional materials and practices often encourage word-for-word reading and surface translation behavior. Accordingly, students read simplified texts on simplistic topics and answer questions about explicitly stated information in the text. The emphasis is not on making sense of the text as a whole, but rather on producing grammatically correct answers to discrete questions about isolated facts in the reading. Bernhardt and Kamil (1998) argue that although current introductory FL textbooks are full of cultural items and facts, they do not and should not be expected to provide the kind of cultural "backdrop" (p. 43) necessary for L2 learners to understand the "why" behind the facts.

Higher education has institutionalized the separation of language and culture in education. Although the language teaching profession has come a long way towards recognizing and exposing the divide as a false dichotomy, it is still deeply entrenched in our institutions of higher learning. In the 1960s and 70s, basic "language training" was seen as "remedial work," while "scholarly training" began in the upper-level literature courses (Swaffar et al., 1991, p. 6). This disparity between language and culture learning is still visible in many FL language and literature departments today. While graduate students and non-tenured faculty teach the language courses, professors of literature teach the advanced-level content courses. The separation of language and culture is evident in classroom practices as well as in the textbooks used in beginning and intermediate German language courses. The issues addressed in the dialogues and so-called cultural readings frequently operate in a cultural no man's land. Rather than addressing cultural differences, authors of textbooks often follow a "melting pot" strategy in which cultural otherness is absorbed to the point that it fits into a seemingly universal cultural scheme in which nothing is really foreign. For example, students of German in the United States are taught that they attend *Klassen,* although the German university does not use the term *Klasse* for any university level course. Without gaining access to the cultural dimension of the meaning of words like *Schule*, *Universität*, *Studium*, and *Student*, American students wrongly equate German and American institutions. As a result, students coming from a traditional language program may produce grammatically correct German sentences, but what they say does not make sense outside their German classroom in the United States.

In introductory literature courses, the problem is further compounded by an approach to reading that posits that meaning does not reside in the text but rather in the

reader. Reader-response theory (Fish, 1980, 1994, 1995) dismisses the idea of authorial intent as well as historical context. It focuses primarily on the reading process and the reader's experience as she/he reads a particular literary work. The reader provides the content by projecting her/his own understanding or culturally determined assumptions onto the text. Thus, the text functions primarily as a mirror reflecting its reader. Clearly, one of the problems of the reader-response theory is its failure to account for the potential of a text to expand the reader's understanding of the world.

Language is never used outside a specific cultural and historical context. In order to avoid misreading a text, one cannot ignore the author and the time and society in which she/he wrote. Language is both "an expression of an individual's thoughts and the values of a community, both text and context" (Kramsch, 1993, p. 10). Schleiermacher (1998) argued that "every utterance is to be understood only via the whole life to which it belongs, i.e., because every utterance can only be recognized as a moment of the life of the language-user . . . and every language-user can only be understood via their nationality and their era" (p. 9).

In the face of dwindling enrollments and in an attempt to make FL learning a more intellectual enterprise, German language and literature departments are reinventing themselves as cultural studies departments, with a greater emphasis on the study of culture at the undergraduate level (Schneider & von der Emde, 2000). Culture courses are frequently cross-listed with other departments to attract more students. Consequently, these courses are often taught in English. However, "a cultural studies curriculum that is not integrated into the language-learning process from the beginning runs the risk of reproducing the same damaging institutional split between so-called content courses and language learning" (Schneider & von der Emde, 2000, p. 18). Also, German language

departments throughout the United States are re-examining the intermediate level curriculum (Rava, 2001) in order to stem the tide of dropouts. It is widely recognized among L2 professionals that there must be a renewed commitment to help intermediate-level students acquire the necessary cultural framework that will enable them to engage with authentic target language text at a deeper level.

Computer Assisted Language Learning (CALL) at the University Level

The new national standards require that L2 students should have "access to a range of technologies" to help them "strengthen linguistic skills, establish interactions with peers, and learn about contemporary culture and everyday life in the target country" (U.S. Department of Education, 1999, p. 35). Many FL professionals are recognizing and making use of certain inherent features of the World Wide Web (WWW) that are consistent with current language learning theories: availability of authentic materials, communication capabilities through networking, multimedia capabilities, and the hypermedia structure of information (Chun & Plass, 2000, p. 161). Hypermedia permits the linkage of text, sound, graphics, or video to and from any other medium type. The WWW brings contextual information that has traditionally been provided by the teacher or gathered from a variety of printed sources to each reader's fingertips. The reader interacts with the hypertext more freely than with traditional print to co-construct meaning by the choices she/he makes, providing a new sense of agency for the reader (Purves, 1998). However, the very nature of the hypertext, particularly its flexibility and the freedom of choice it affords, does not necessarily facilitate readers' use or understanding of textual information (Spires & Estes, 2002). Research into web-based reading has shown that reading from a screen is more difficult than reading print (Thurstun, 2004). Hypertext, even in the reader's native language, may be more

cognitively demanding than linear text (Calisir & Gurel, 2003; Rouet & Levonen, 1996) unless we develop online-tools that provide support and guidance for the reader (Shapiro, 1998).

While audiotape-based language labs have generally been replaced by multimedia centers on U.S. campuses, textbooks come with their own CD-ROM and/or websites, and many individual instructors use the WWW in some fashion, classroom practices in general and reading instruction in particular appear to lag behind current theories of language learning. Teachers' practices are shaped by their own educational experiences and are therefore resistant to change (Cuban, 1993; Johnson, 1992). Teachers who reject CALL are not necessarily technophobes. Research shows that inadequate teacher training and lack of institutional support may be to blame (Brantmeier, 2003b; Lam, 2000). Brantmeier (2003b) studied informed instructors' perceptions on "CALL and Second Language Acquisition (SLA)" and "CALL and L2 reading." These "informed instructors" were Ph.D. students enrolled in a seminar on SLA and CALL. They all had been teaching language courses at the undergraduate level in a university setting. Brantmeier found that these instructors were open to integrating new technologies into their teaching if these technologies were grounded in L2 reading theories and research. However, they also expressed concerns about the time commitment necessary and the reliability of technical systems.

Researchers in Applied Linguistics, SLA, and other related fields, together with their graduate students and technical support staff, are driving the development, implementation, and testing of CALL. Networked CALL is understood as an expansion of CALL (Chapelle, 2000) and is based on the idea that language learning occurs as individual learners negotiate meaning. The computer serves to connect individual

learners. Computer mediated communication (CMC) makes it possible for learners of a FL at an American university to interact with native speakers (NSs) of the target language. Reports on online collaborative projects emphasize their potential for promoting intercultural understanding as well as language acquisition (Kern, 2000; Mueller-Hartmann, 2000; Schneider & von der Emde, 2000). CULTURA (Furstenberg, 2003; Furstenberg et al., 2001) is a prime example of a pedagogical approach that successfully integrates the Five Cs. Students at MIT learning French as a FL and their French counterparts in Paris who are learning English explore a variety of parallel topics and readings and write about their discoveries in their respective native languages. Each group reads and questions the other's understanding of a particular topic based on their own viewpoints. Thus, cultural knowledge is not a static phenomenon to be transmitted from the instructor to the student, but rather a dynamic process where students are participating in "a reciprocal construction of one another's cultures" (Kern et al., 2004, p. 248).

Innovative instructor/designers (Ducate & Lomicka, 2005) used German native speaker web logs (blogs) with 3rd semester German students and French native speaker blogs with 4th semester French students for reading and micropublishing. A blog is a website with dated entries, lists of links, commentaries, and personal thoughts. Students chose one blog and read it throughout the semester. The following semester, the students created their own blogs and wrote postings about assigned topics.

While networked CALL applications such as CULTURA and individual innovators are setting the pace, much work remains to be done in studying actual learning outcomes and in working with teachers on the practical application of new CALL models. Access to authentic materials, participation in online communities, and

opportunities for intercultural communication do not necessarily mean that students are learning the L2 and becoming culturally literate. In her recent report on the progress of L2 reading research, Bernhardt concludes that we still do not know "how to understand the use of electronic aids in independent reading" (Bernhardt, 2005, p. 143). Without instructional support, readers are "forced to fend for themselves" and "are haunted by the fact that they have no real way of knowing whether they have understood highly technical material" (p. 143). Bernhardt challenges the field to "meet its ethical demand to support such readers" (p. 143).

This study is an attempt to better understand how and to what extent question glosses in the online reading environment help intermediate-level learners of German cope with lengthy authentic German text. Can we conceive of the online reading environment as a "zone of proximal development" (Vygotsky, 1978), a "safe" place where the individual L2 reader independently interacts with authentic target language text and receives guidance as needed? Is it possible to design environments that encourage the reader not only to focus on meaning at the word and sentence level, but also to tap into the individual and collective *"Lebenswelt"* (live world) to which the text refers and to develop an awareness and appreciation of cultural realities different from her/his own?

CHAPTER 2
REVIEW OF LITERATURE

Reading in an L2 is a multidimensional process and reading in the multimedia environment adds another layer to an already complex process. This chapter provides an overview of the use of the computer for L2 learning and the role of reading within three predominant theoretical paradigms. It will become evident that networked CALL has the potential to transform L2 literacy. Current L2 reading models, schema theory, and the construction of mental models as they relate to readers' inferencing will be discussed. In order to establish the rationale for electronic comprehension aids other than vocabulary glosses, this chapter examines the usefulness of hypermedia environments that were created by researchers to help intermediate-level learners of an L2 to become better readers. The effect of question glosses for intermediate-level readers of German is examined within the framework of activity theory (Leontiev, 1978).

CALL and L2 Reading

Over the past two decades, CALL gradually changed in accordance with SLA theories and the advance of new technologies. In general, one can identify three major, but overlapping, theoretical movements: the *structural* in the late 1960s and 1970s, the *cognitive/constructivist* in the late 1970s and 1980s, and the *sociocognitive* in the 1990s and the early 21st century (Warschauer & Kern, 2000).

A structural perspective of language emphasizes a formal analysis of the language system and was aligned with Skinner's stimulus response theory and Pavlov's classical conditioning experiments. The principal role of the computer in the structural approach

was that of mechanical tutor to provide grammar and vocabulary tutorials, language drills, skill practice, and immediate feedback. The grammar-translation method was the predominant approach for reading foreign texts. The objective was to train learners to analyze and translate texts as a way to learn grammar. While audio-lingual teaching focused on the spoken language, it operated on the same principles. Students were instructed to read out loud for correct pronunciation.

In the late 1970s and 1980s, this model of SLA was increasingly replaced by the cognitive/constructivist model. According to this theory, an individual's language development is guided by innate cognitive structures (Chomsky, 1959, 1965) and learners actively construct a new language system as they receive comprehensible input (Krashen, 1982). Errors are no longer "bad," but, rather, a natural part of interlanguage (Selinker, 1972). According to interlanguage theory, learners gradually reach target language competence by continually testing their hypotheses about the rules of the L2 as they process input. In this model, reading receives much more attention. Texts serve as input for "unconscious processing or as objects of problem solving and hypothesis testing" (Warschauer & Kern, 2000, p. 7). Reading is perceived as a psycholinguistic process (Goodman, 1967; Smith, 1994) and, according to interlanguage theory, readers are taught how to use both bottom-up and top-down strategies to comprehend a text. The individual reader constructs meaning as she/he activates her/his existing frame of reference. Accordingly, learners use the opportunities for exploration and problem solving provided by multimedia environments to construct new knowledge. Computers are used for individualized instruction. CALL empowers students with "greater flexibility in switching between the various modes of input . . . to suit their individual

needs" (Hubbard, 1996, p. 484). The computer is programmed to react to user input and provide feedback based on individual user request.

At the same time that cognitive approaches were becoming popular, theories of communicative competence (Canale & Swain, 1980; Hymes, 1971) and appropriate use of language became important concepts in language instruction. Based on the assumption that language develops through social interaction and negotiation of meaning, this theory argues that L2 language teachers are expected to create opportunities for authentic language use. As a result, instruction becomes more task- and content-based. In this model, the goal is to help learners read and understand a text as embedded in a particular sociocultural context and to achieve a level of L2 literacy that encompasses the appropriate use of the language along with "underlying systems of thought" (Swaffar et al., 1991, p. 216). As described in the introductory chapter, 21st century cutting-edge technology such as network-based CALL has the potential for facilitating L2 learners' interaction with native speakers of the target language and their participation in the construction of cultural knowledge.

The three generations of CALL as described above only roughly correspond with the three major theoretical movements in language teaching and learning. One must keep in mind that classroom practices with or without CALL are not necessarily reflective of current theory and that practices vary depending on the need and goal of the moment. Warschauer's (2000) ethnographic study of four different L2 college classrooms showed that the use of CALL applications depended largely on the individual teacher's belief and the institutional context. He concluded that the teacher who prefers a structural approach will use technology in a structural way. Someone who believes in the cognitive/ constructivist approach will look for ways to use the technology to provide exploration

and problem solving activities (p. 45), and someone who adheres to an interactionist view will use the computer as a tool to engage learners in authentic target language use.

While Chapelle (2000) agrees with Warschauer and Kern's (2000) assessment of a historical progression in the development of CALL, she sees very little "evolutionary progress" (p. 205). She believes that some of the software designs from the 1970s keep reappearing not because they proved to be effective, but because "some members of each generation were satisfied to reinvent rather than determined to evolve" (Chapelle, 2000, p. 205). There appears to be a need to unify CALL research methodology as well as the criteria for the evaluation of CALL software. Since the late 1990s, network-based CALL applications such as globally linked hypertext and CMC have challenged the field of SLA to examine CALL activities within the new sociocultural paradigm. Network-based CALL applications not only "serve the new teaching/learning paradigm, they also help shape the new paradigms" (Warschauer & Kern, 2000, p. 12).

Activity Theory

This section describes the rationale for using activity theory, a sociocultural approach, to understand and explain the effects of question glosses on the comprehension processes of individual participants reading in network-based CALL. A sociocultural theory approach "foregrounds sociality to individuality, language as socially constructed rather than internally intrinsic, language as both referential and constructive of social reality, and notions of distributed and assisted activity in contrast to individual accomplishment" (Thorne, 2000, p. 225). Activity theory (Leontiev, 1978), a component of sociocultural theory, explains how learning is situated and how it unfolds in different ways under different circumstances. These circumstances include "the specific individuals each with their different histories" (Donato, 2000, p. 47). In the present

study, the cognitive processes of individual participants reading foreign text in the hypermedia environment are situated in the context of each participant's history: i.e., language proficiency, previous experience in learning German, preferences regarding the use of the computer and the Internet, and study abroad experience. (See Appendix A). Furthermore, the reading activity is embedded in external circumstances such as the university setting and the multimedia lab.

Another central tenet of activity theory is agency. In Vygotsky's view, human beings use physical and symbolic tools or artifacts to establish relationships between themselves and the world at large. Symbolic tools or cultural artifacts are created, passed on and re-created over time, and passed on from generation to generation (Lantolf, 2000). Thus, "human beings are agents who act upon the world and engage in activity, constructing their environment in unique ways" (Roebuck, 2000, p. 83). Research subjects are viewed as unique individuals with personal histories who approach the task with their own set of goals, desires, and motivations. The individual participant's orientation to the task (goals, needs) or her/his intentionality will determine the outcome. Therefore, any given activity varies according to the participants and the circumstances. Activity theory distinguishes between the activity and the task. The reading tasks as planned by the researcher, with her agenda in mind, are nothing more than "behavior blueprints (…) imposed on subjects" (Coughlan & Duff, 1994b, p. 175). Activity on the other hand, is the "behavior that is actually produced when an individual (or a group) performs a task. It is the process, as well as the outcome of the task, examined in its sociocultural context" (p. 175). Thus, from the perspective of activity theory, while the assigned reading tasks could potentially enable readers to construct situation models based on appropriate background information, "there can be no guarantees, because what

ultimately matters is how individual learners decided to engage with the task as an activity" (Lantolf, 2000, p. 13). Roebuck (2000) found that individuals often reinterpret the meaning or intent of a difficult cognitive task.

Another important theme of activity theory is the re-externalization of inner speech. Within Vygotskyan theory, language is the primary mediational tool in the development of human cognition. Social speech evolves into private speech when a child starts to use language for problem solving. We ask ourselves questions, answer our own questions, or tell ourselves we are wrong. Usually, around the age of seven, private speech becomes subvocal and turns inward. The child begins to 'think words,' but not necessarily produce them (Vygotsky, 1986, p. 230). Inner speech is believed to be "the dominant mode of verbal thought and (…) a central fixture governing our higher mental functions such as planning, guiding, and monitoring the course of activity" (McCafferty & Ahmed, 2000, p. 199). However, when faced with problem-solving tasks, these processes can be re-externalized to maintain or regain control over them in performing the task (Frawley & Lantolf, 1985; Smith, 1996). In this study, the task of thinking-out-loud while reading revealed how readers puzzled through difficult passages and how they "repositioned" themselves when they felt in danger of losing face (Roebuck, 2000, p. 94).

Theoretical Models of L2 Reading

The L2 reading process is both cognitive and social in nature. Theory building about L2 reading requires that the process be broken down into its various components. It is important to keep in mind that within the sociocultural framework that this study adopts, while various components of the reading process are analyzed separately, but must also be understood holistically and interdependently as situated activity (Thorne, 2000, p. 236). This review of L2 reading theories attempts to show the explanatory

power of an interactive compensatory model of L2 reading and explores the crucial role of background knowledge.

Bottom-up, Top-down, and Interactive Processing

Grabe (1991) defines reading as "an array of lower-level rapid, automatic identification skills and an array of higher-level comprehension/interpretation skills" (p. 383). This view of reading overlaps with metaphoric descriptions of reading as "bottom-up," "top-down," and "interactive." In an effort to unpack the complex process of reading, researchers have identified general component skills and knowledge areas such as "automatic recognition skills, vocabulary and syntax knowledge, formal discourse knowledge, content/world knowledge, synthesis and evaluation skills/strategies, and metacognitive knowledge and skills monitoring" (Grabe, 1991, p. 379). While L1 and L2 reading research are based on many of the same concepts, there are important differences to consider. College-level L2 readers should be able to draw on their L1 literacy. They already have acquired a great deal of knowledge about the world and have developed comprehension/interpretation skills. In contrast to L1 readers who start school with an already formidable vocabulary base, the adult L2 reader has to learn all new vocabulary along with the syntax of the target language in the span of three to four years. According to Nagy and Herman (1987), 40,000 words are required for advanced reading. It is widely believed that automaticity in lower-level processing plays an important role in fluent reading. Fluent readers tend to have a large vocabulary base and good knowledge of grammar.

L2 reading research has focused extensively on lower-level or bottom-up processing. A number of recent studies confirm that there is indeed a high correlation between L2 vocabulary knowledge and reading comprehension (Droop & Verhoeven,

2003; Laufer, 1997; Schoonen et al., 1998) and knowledge of grammar and reading comprehension (Alderson, 1993; Fender, 2001, 2003). In their study of 3rd and 4th grade minority children in Holland, Droop and Verhoeven (2003) found strong evidence of a high correlation between vocabulary development and later reading ability (r^2 =.71). Laufer (1997) reported correlation scores between .50 and .75 on several studies looking at vocabulary, and Schoonen at al. (1998) found a correlation of .71 between vocabulary knowledge and reading scores for 8th grade students of English as a foreign language.

While research of bottom-up processes emphasizes the decoding of a text, top-down processing typically involves not only the use of background knowledge but also of higher-level knowledge structures and metacognitive skills (Carrell, 1988). Skilled readers synthesize and evaluate new information, draw inferences, and use strategies. A skilled reader knows how language works and is aware of her/his own cognition. Metacognitive strategies, such as previewing, skimming, comprehension monitoring, planning ahead, checking effectiveness of strategies and revising them, summarizing main points, etc. (Grabe, 1991, p. 382) are viewed as major components in L2 reading. A number of studies show that strategy training improved reading comprehension (Anderson, 1991; Barnett, 1989; Cohen, 1990; Swaffar et al., 1991).

Compensatory Processing

The present study takes the interactive process-oriented approach to explore how and to what extent participants use the available online resources, in particular question prompts and additional background information, to comprehend what they read. Both text-based and knowledge-based factors operating simultaneously drive the reader's evolving perception of the text. Prior knowledge or background knowledge is defined as the reader's existing knowledge of the world. Researchers often distinguish between

factual and cultural background knowledge. Factual knowledge may be knowledge about specific topics and/or domains, the kind of knowledge one usually learns in school, including knowledge about language. Culture-specific knowledge or cultural awareness is a very specific kind of background knowledge and can include both cultural-historic knowledge as well as knowledge that has been passed on from generation to generation (Bensoussan, 1986; Bernhardt, 1991). In Vygotskian terms, knowledge of a culture is the ability to participate in the characteristic activities of a community and "learning is a matter of changing patterns of participation" (Gee, 2000, p. 196). Thus, knowledge may be implicit in the text as "information held by the writer and assumed to be known by the reader" (Bernhardt, 1991, p. 93). The knowledge held by the individual reader is highly idiosyncratic and may or may not be relevant to the text at hand.

Studies have shown that the less attention the reader has to pay to decoding the surface structure of the text, the more processing capacity is left for top-down processes such as inference and analysis (Carpenter & Just, 1986; Koda, 1992; Spiro, 1980; Spiro & Meyers, 1984; Stanovich, 1980). An interactive compensatory process model of L2 reading (Stanovich, 1980) explains how the reader constructs meaning as she/he engages in both bottom-up and top-down processes. According to Stanovich, "a pattern is synthesized based on information provided simultaneously from several sources" (1980, p. 25). The reader compensates for a deficiency at one level of processing by increased processing at another level. Donin and Silva (1993) studied native speakers of English learning French and concluded that intermediate level students use "high-level conceptual processing to overcome limitations imposed by lack of automaticity in sentence-level syntactic and semantic processing as suggested by compensatory processing models of reading" (p. 395). In other words, compensatory processing "illustrates that knowledge

sources are not additive, but rather operate synchronically, interactively, and synergistically" (Bernhardt, 2005, p. 140).

L1 Literacy and L2 Reading

Although most experts in the field of L2 reading would agree that background knowledge plays an important role in the comprehension process, there are lingering questions about the impact of L1 literacy knowledge on L2 reading. According to the short circuit hypothesis (Bossers, 1991; Clark, 1980; Taillefer, 1996), unless L2 learners have achieved a certain level of automaticity in lower-level processing, they will not be able to draw on their L1 literacy and their knowledge of the world. In this case, background knowledge would not compensate for L2 deficiencies. The excessive cognitive load on the reader's short-term memory would prevent her/him from making connections with already existing knowledge structures in long-term memory. In other words, the less proficient L2 reader cannot 'think' beyond the meaning of a word, a sentence, or a proposition (beyond the textbase level of the text). On the other hand, according to the interdependence hypothesis (Cummins, 1976), the L2 reader who is fluent in her/his L1 is capable of top-down processing and makes use of the same kind of strategies to comprehend a text in the L2 as in her/his L1 (Horiba et al., 1993).

Since the late 1990's, the discussion has turned to how much of the L1 literacy skills contribute to L2 reading comprehension, under what conditions, and in which contexts (Bernhardt, 2000, 2005; Bernhardt & Kamil, 1995). In an attempt to reconcile the findings of earlier, mostly quantitative studies about the role of L2 knowledge, and more recent studies of the contribution of L1 literacy, Bernhardt (2000) proposes a revised model of theoretical distribution of reading factors: general literacy ability (or L1 literacy) constitutes 20% of any given comprehension score, grammar about 30%

(vocabulary 27% and syntax 3%), and 50% of any given score is unaccounted for (p. 803). This large unexplained variance lies in the individual differences of the L2 reader and includes comprehension strategies, level of engagement and motivation, and background knowledge.

Background Knowledge

Afflerbach (1990) studied the influence of prior knowledge on the strategies used by expert readers to construct the main idea of a text when the main idea was not explicitly stated. He found that for expert readers in their L1, prior knowledge of the content domain facilitated automatic construction of the main idea statement. Chen and Graves (1995) conducted an L2 study using previewing to test the effect of activation of background knowledge on comprehension. Results showed that the group that received specific text-relevant background knowledge had significantly better comprehension than the control group and the group that received only general background knowledge. Studies investigating readers' comprehension of culturally familiar versus unfamiliar texts revealed that recall of culturally familiar materials yielded more idea units, more culturally appropriate elaboration, and fewer distortions (Johnson, 1981; Pritchard, 1990; Steffensen & Joag-Dev, 1984). Bernhardt (1984) found that learners of German as a FL relied heavily on prior knowledge. Lack of culture-specific knowledge, such as the format of a German business letter, and inappropriate prior knowledge impeded readers' comprehension and led them to misinterpret the text. Bensoussan (1986) examined evidence from different studies that indicated problem areas in reading comprehension. She found that the mistranslations from English to Hebrew were due to readers' lack of knowledge about the conventions of written text in the L1 and the L2. In addition, readers held preconceived notions about word meanings that led them to misinterpret

contextual clues such as illocutionary force, logical connectors, and modifiers. Bensoussan claims that clues can only be aids if the reader is sensitive to rhetorical traditions and cultural constraints (p. 400).

In a recent study on passage content and gender, Brantmeier (2003a) found that the comprehension problems intermediate-level learners of Spanish encountered when reading authentic text did not necessarily stem from a lack of L2 proficiency. She concluded that at this stage of L2 acquisition, "passage content clearly influences how well male and female readers process meaning (…)" (p. 13). Indeed, comprehension differences between skilled and less skilled readers are not necessarily due to their inability to decode a text (Gernsbacher et al., 1990; Oakhill, 1994) or working-memory capacity (Ericsson & Kintsch, 1995). There is some evidence that differences in comprehension reflect "the ability to make inferences and construct situation models" (Zwaan & Brown, 1996).

Schema Theory and Mental Model Construction

Though not "the smoking gun" (Bernhardt, 2005, p. 134), schema theory nonetheless represents an important step in understanding how knowledge is structured and stored in long-term memory and how L2 readers activate and use prior knowledge to make sense of a text (Carrell, 1984, 1987, 1988; Carrell & Eisterhold, 1983). According to schema theory, knowledge is stored in long-term memory as sets of interrelated abstract concepts that are networked to other concepts in hierarchical relationships and correspond to the individual's experience. Schema can be visualized as composed of nodes and associations and has been compared to the interconnectedness of hypertext (Kaplan, 1995). The construction of meaning depends on activating the appropriate pre-existing schemata. The reader tends to pay attention to elements in the text that are

important in light of her/his existing schema. If readers possess the schemata assumed by the writer, they can make the intended inferences. However, research shows that conflicts arise when readers are confronted with texts that present new information for which they lack essential foundational knowledge. If a reader cannot find information in the text that fills a particular slot in her/his activated schema, she/he will assign a "default value" (Anderson & Pearson, 1984, p. 269). In that case, the reader will develop a causal chain of events that suits her/his initial decision about what the text means and may completely misread the text without becoming aware of it. Benoussan (1986) draws the same conclusion. If readers cannot find a matching schema, they tend to formulate their own schemata using their own preconceived ideas about what a word means or about the gist of the story. They may create a whole new incorrect context.

Schema theory and theories of mental models of text comprehension are related concepts. Both are used to capture aspects of higher-level processing. Schema theory proposes that in order to make sense of a text, the reader has to make the connection between the information in the text and her/his pre-existing knowledge in long-term memory. A mental models theory addresses the various levels of the mental representation of a text based on the reader's ability to infer meaning. It is believed that a reader has a need to understand why something occurs in order to construct a coherent mental representation of the text (Singer et al., 1994; Trabasso & Magliano, 1996; Trabasso & Suh, 1993). An explanation-based theory of comprehension proposes that comprehension depends on the generation of causal inferences. Causal inferences connect events in a text at the local and global level. According to this view, "comprehension involves explaining incoming story events and actions by looking for causal antecedents of these events in either a) working memory, or b) the prior text (in

long-term memory), or c) world knowledge" (Zwaan & Brown, 1996, p. 291). While bridging inferences are text-based and establish coherence between the focal event and prior information in the text, elaborative inferences are drawn from the individual's background knowledge (Keenan et al., 1990; Van den Broek, 1990). Coupled with the notion of causal inferencing in comprehension are theories addressing the various levels of mental representation of a text (Van Dijk & Kintsch, 1983): the surface level (linguistic processes), the textbase level (the propositional meaning of textual constituents), and the situation model (the integration of the textbase with background knowledge). If the reader fails to find an explanation in the text itself, she/he may draw an inference using her/his prior knowledge and experiences, in the form of existing cognitive schemata. Similarly, schema theory describes inferencing as the "assignment of default values for filling a particular slot in the active schema" (Anderson & Pearson, 1984, p. 269).

Consistent with the bottom-up metaphor of reading, in a mental model theory, comprehension processes begin in working memory with low-level word recognition. Words are integrated into propositions (what a sentence means). In higher-level processing, a network of propositions that closely reflects the information in the text (the text model or textbase) begins to take shape. As the reader adds new propositions to the textbase and evaluates the incoming information, she/he draws on prior world knowledge that is available in long-term memory. Thus, a second model, the situation model, evolves at the same time. The situation model is defined as the reader's interpretation of the situation described in the text, based on her/his already existing world knowledge.

It is generally believed that skilled comprehenders are able to generate more explanatory inferences and construct stronger situation models than less skilled

comprehenders. L1 reading research has shown that while less skilled readers may draw more inferences than skilled comprehenders, they do so because they are not editing out irrelevant information (Gernsbacher et al., Trabasso & Magliano, 1996; Witney et al., 1991). Some researchers (i.e., Zwaan & Brown, 1996) concluded that L2 readers generally spend all their mental efforts on decoding a text and do not go beyond the textbase level.

The Role of Glossing in L2 Reading Instruction

The subject of glossing has received renewed attention in L2 reading research because of its potential for computer-assisted reading comprehension. For the purpose of this research, glosses are defined as "many kinds of attempts to supply what is perceived to be deficient in the reader's procedural (skill) knowledge and declarative (factual) knowledge" (Roby, 1999, p. 95). For example, vocabulary glosses are categorized as declarative/linguistic knowledge and can be further subdivided into generic dictionary definitions (signification glosses) and glosses that give the meaning of a word in a specific context (value glosses). On the other hand, any statements and/or questions that are meant to aid the reader in top-down processing fall under procedural knowledge and metacognitive glossing. Metacognitive glosses may be presented as priming (advance organizer) or prompting glosses (interspersed statement/question) and they take different forms depending on the medium (Roby, 1995, p. 95).

Since lower-level processes play a principle role in L2 reading, research on glossing has focused primarily on vocabulary acquisition and retention. However, while vocabulary glosses are meant to aid lower-level processes, the ultimate goal is or should be to help the L2 reader understand the text as a whole. A review of glossing studies reveals that the researcher's belief about what constitutes comprehension and the

comprehension measure she/he uses affect the outcome. The problem is compounded when increased vocabulary look-ups and vocabulary gain are wrongly equated with overall comprehension of a text.

Despite the conflicting evidence, glossing continues to be an accepted aid in foreign language textbooks (Davis, 1989). Traditionally, glosses offer a short definition or an explanatory note for unfamiliar words or grammatical concepts either in the side or bottom margins of the printed page. Johnson's (1982) study of readers of English as a Second Language (ESL) provides evidence that glossing may impede global comprehension by focusing readers' attention on individual words. Jacobs et al. (1994) report that glossing affects neither recall nor vocabulary acquisition. In contrast, Davis (1989) Jacobs (1991, 1994), and Hulstijn et al. (1996) found that L2 readers with access to glossing recalled more of the text than students without access to glosses. Furthermore, incidental vocabulary learning for L2 readers was higher in the glossing condition.

Some of the more recent research has focused on vocabulary activities that require greater mental efforts from the reader (de la Fuente, 2002; Rott & Williams, 2003; Swain, 1998). Laufer and Hulstijn (2001) claim that acquisition of new words depends on "involvement load," a construct that describes the level of motivation and cognitive engagement of the L2 reader. Accordingly, Rott and Williams, (2003) studied the effects of multiple-choice glosses on inferencing strategies and form-meaning mapping for intermediate-level learners of German. Think-aloud protocols revealed that access to multiple-choice glosses for target words led to increased engagement with the text, better comprehension of ideas, and more vocabulary learning for the readers (p. 66).

Glossing in the Hypermedia Environment

Early L1 literacy studies compared reading on paper and in the computer mode and found that either there was no difference in readers' performance (Fish & Feldman, 1987; Gambrell et al., 1987) or that reading from the computer screen was slower (Gould & Gischkowsky, 1983) and poorer (Heppner et al., 1985). Reinking (2001) argues that electronic texts differ conceptually from printed texts and calls for intra- rather than inter-media comparisons. He believes that it is more productive to ask how digital texts might be presented to "engage readers more actively in processing textual information" (p. 204), to provide "various types of assistance during reading," and to give "adaptive guidance and feedback" (p. 198).

Hypertext can be glossed with additional text, sounds, graphics, and video. Multimedia files can easily be stored by the computer and made available to the reader upon request. Computerized glossing differs from glossing on the page of a book in that it is "invisible and unobtrusive" (Davis, 1989, p. 42) and therefore less likely to interrupt the reading process. The gloss is invisible to the reader until she/he clicks on an unfamiliar word or expression. Indeed, while early studies compared the effect of electronic dictionary glossing with paper glossing, current research on computerized reading is increasingly guided by questions about how to engage readers on a deeper level.

Roby (1991) and Aust et al. (1993) compared two types of semantic support in the paper and the computer mode. The semantic supports were either dictionary definitions (signification glosses) or a meaning of a word in context (value glosses) or a combination of both. The four treatment groups had access to 1) paper dictionary; 2) paper dictionary and value gloss; 3) computer dictionary; 4) computer dictionary and value gloss.

Comparisons were made on four measures: frequency of consultation, reading time, efficiency, and comprehension. Findings in both studies show that L2 readers of Spanish who had access to both types of glossing (signification and value glosses) took less time to read than those with signification glosses only. Although readers in the computer mode looked up twice as many words as readers in the paper mode, proposition recall protocols showed no significant differences in comprehension between the groups. It appears that the number of glosses activated did not directly influence the amount of recall, as measured by a propositional analysis. Aust et al. (1993) conclude that the propositional recall measure they used "is not sensitive to incidental vocabulary acquisition because subjects' responses are written in English" (p. 71) and it is "premature to suggest that hyper-references do not benefit learning" (p. 70). The authors' conclusion leaves doubts as to whether they intended to test vocabulary acquisition or comprehension.

A new study (Yoshii, 2005) on internet-based reading, vocabulary learning, and look-up behavior support these earlier findings. Yoshii found that there is little or no correlation between frequency of look-ups and vocabulary gain. The difference between Yoshii's study and the earlier ones is that he did not claim to test comprehension, but rather vocabulary gain based on the number of look-ups. He concludes that future research on internet-based reading ought to focus less on vocabulary gain and more on how to provide guidance and how to encourage learners of a FL to read more.

Based on the hypothesis that depth of cognitive processing facilitates recall, Nagata (1999) investigated the effectiveness of two types of "marginal glossing" used in *Banzai Readings*, a Japanese courseware program. The term "marginal glossing" used by Nagata and others is reminiscent of the traditional glossing in the margin of the page of a

book. He describes the "single-gloss" format of marginal glossing as a single English translation for each target vocabulary item (value gloss) and/or target grammatical structure (syntactical gloss) in the text. Nagata states that the use of this type of glossing in the Bonzai reading program is based on the assumption that glosses are more convenient to use than dictionaries, they draw the reader's attention to the target words, and may be conducive to form-meaning mapping. In the "multiple-choice" format on the other hand, two alternative English translations of a Japanese word are provided. The reader has to infer the correct translation from the context. As soon as she/he chooses "A" or "B," the program tells the reader whether she/he selected the correct translation. Nagata reports that the vocabulary and grammar item post-tests show higher scores for the multiple-choice group. It appears that the students using the multiple-choice version paid more attention and exerted a greater mental effort (p. 474). In his conclusion, Nagata mentions two topics for future investigation. One would be to extend the course-ware to include multimedia glosses such as cultural background, grammar, and video and to compare the effectiveness and usefulness of these features with providing multiple-choice definitions only (p. 474). Another project could be the addition to the Bonzai Reading Program of a greater variety of "production practice," such as follow-up reading comprehension exercises for each text (p. 477).

"Text-Specific Approaches" to Online Reading Instruction

In the 1990s, researchers began to develop and use authoring tools to create the kind of hypermedia environments for L2 reading that Nagata referred to in his conclusion. Research interests shifted increasingly to questions regarding what kind of L2 learner/reader benefits from reading online and which built-in comprehension aids she/he tends to use. Researchers are recognizing that readers need guidance in how to

read online and training in how to take advantage of online glossing other than vocabulary glossing. Ultimately, the goal is to assist in higher-level processes such as inferencing and text model construction. As noted previously, L2 students' reading experiences are typically limited to dialogues and short cultural readings in beginning- and intermediate-level language textbooks. Therefore, there is a critical need to prepare learners for the rigorous reading of authentic, lengthy texts in advanced-level literature courses. (Brantmeier, 2003a; Martinez-Lage, 1997).

In a text-specific approach, the instructor/designer pre-selects the readings and tailors the content and tasks to the needs of a specific group of readers (Brandl, 2002). A number of researchers (Chun & Plass, 1996a, 1996b; Davis & Lyman-Hager, 1997; Lyman-Hager et al., 1993; Lyman-Hager & Davis, 1996) began to create hypermedia environments that take into account the compensatory interactive nature of L2 reading. What differentiates this multimedia approach from the CALL applications described above is a shift from bottom-up processing and expectations of vocabulary learning to a more integrated environment with a greater emphasis on overall understanding. Accordingly, these researchers/designers attempted to develop a rich cultural context for the text, offering readers many types of glosses besides dictionary definitions. Martinez-Lage (1997) claims that the "immediate access to textual, sound, and visual annotations" facilitates active reading and a more global understanding of the text (p. 149). Lyman-Hager et al. (1993) and Chun and Plass (1996a, 1996b) conducted research on vocabulary acquisition within such multimedia environments. The researchers were interested in readers' choice of glosses and in the effectiveness of visual glosses accompanying individual words. In both studies, students took a post-reading vocabulary test and wrote recall protocols. In the first study, the computer group scored higher than the paper

group (Lyman-Hager et al., 1993). Chun and Plass (1996a, 1996b) further showed that visual glosses, namely words annotated with pictures and/or video, produced higher recall for intermediate L2 readers of German than word and text only.

Chun (2001) studied how 23 second-year German students used multimedia resources to read and summarize two texts about studying abroad. Texts 1 and Text 2 were comparable in length and difficulty level (106 and 115 words respectively). Text 1 was read in netLearn, a hypermedia program created by the author with an internal dictionary, a bilingual dictionary, and links to an audio-narration of the text. If the readers didn't know a word, they could click on the word, and the translation would come up in a separate window. If a word they did not know was not in the internal dictionary (value gloss), they could look it up in the external bilingual dictionary (significance gloss). Text 2 was a Website of a German university with a link to an external bilingual dictionary only. Chun used a built-in action tracker to record readers' look-up behavior. All students wrote recall protocols, four were selected for think-alouds, and seven for exit-interviews. She reported that students preferred the internal to the external dictionary and looked up significantly more words when all they had to do was click on the word. Chun also found that the readers who had access to both dictionaries while reading a text recalled more of the seven "main propositions" or "main idea units" identified beforehand by the researcher for each text. However, Chun found no significant correlations between the number of words readers looked up in each one of the glossing conditions and the number of propositions recalled. She speculated that access to audio glossing of the text may have contributed to increased recall in the netLearn condition. Thus, her results support Roby (1991) and Aust et al. (1993) who also found no differences in comprehension based on increased look-up of words in the

hypermedia environment. Chun's findings underscore the idea that the knowledge of words does not ensure to comprehension of any given text. Also, Chun agrees with Dillon and Gabbard (1998) that multimedia does not necessarily increase learner comprehension in general. However, based on her research results, she disagrees with them that higher-ability learners will perform better than lower-ability learners regardless of the medium of instructions.

Davis and Lyman-Hager (1997) used GALT (Glossing Authentic Language Texts), a hypermedia authoring software software inspired by Bernhardt's six-factor model of L2 reading (1991, p. 122) for their research project. The readers could click on words to get definitions in English or French, hear the words pronounced by a native speaker (NS) of French, and access grammar explanations and cultural information. Davis and Lyman-Hager examined the ways intermediate-level undergraduates of French used these multimedia glosses within this integrated online reading environment from three perspectives: 1) the relationship between the readers' choice of available glosses and quantity and accuracy of their comprehension of a Franco-African literary text; 2) individual user style; 3) users' perceptions of the program (p. 58). Despite all the other glosses available to them, 85% of the readers' look-ups were vocabulary items. The researchers reported that readers decoded word-for-word in a completely linear fashion and found no clear evidence that the computer program had enhanced overall comprehension. Many of their readers appeared to be "false comprehenders" (p. 68). In other words, readers thought they understood the gist of the story because they had instant access to word definitions. Recall protocols proved otherwise. These findings provide more evidence that while vocabulary knowledge is a key facilitator in L2 reading, it is no guarantee for understanding.

Davis and Lyman-Hager's (1997) study demonstrates that well-designed hypermedia environments and ease of access to informational support do not necessarily increase the reader's use of these options. Furthermore, the authors noted that for some of their subjects "(the) need to reconstruct logically consistent mental representations of the story apparently superseded contradictory information on word meanings that was instantly available from the computerized gloss" (p. 67). Their analysis of the data provides strong evidence for "the psychological necessity of representing events in memory in a manner that conforms with one's view of reality, in combination with the interpretation of a text one is reading" (p. 67). Indeed, when prior knowledge is activated that contradicts information in the text, readers may allow prior knowledge to override the text (Alverman et al., 1985). Based on schema theory and mental model construction, if the activated cultural schemata is specific to the reader's own culture and does not match that of the text, she/he will construct an inappropriate situation model of the text (Anderson & Pearson, 1984; Bernhardt, 1991; Carrell, 1988b; Hammadou, 1991; Johnston, 1983; Kang, 1993; Wolff, 1987). The reader naturally draws inferences from her/his prior knowledge to construct a situation model of the text without being aware of it.

Lomicka (1998) corroborates and expands on Davis and Lyman-Hager's (1997) findings. What distinguishes her study from Davis and Lyman-Hager's is the use of the think-aloud protocol. Lomicka argues that think-aloud is a more accurate measure of comprehension because it accounts for comprehension processes as they occur online. In her study, twelve second semester students of French as a FL read an excerpt from a poem that had been annotated with GALT (Glossing Authentic Language Texts). Lomicka designed three different conditions to determine the level of comprehension

based on causal inferences. Subjects in condition 'A' read an introduction (metacognitive/priming gloss) and the text without access to any other kinds of glosses. Lomicka referred to condition 'A' as the "no gloss" condition. Subjects in 'B' read the introduction and the text with access to definitions in French (value glosses) and translations in English (signification glosses). Those in the full glossing condition, 'C', read the introduction and the text with access to these and other glosses such as images, pronunciation, cultural references, and interspersed questions (metacognitive/prompting glosses). The question glosses were designed to prompt readers to think about ideas in the text, or extra-textual cultural/historical information that would be helpful for understanding the poem in its appropriate context (personal communication, Dec. 12, 2002). The analysis of her data from the think-aloud protocols and a tracker built into GALT support Davis and Lyman-Hager's (1997) claim that low proficiency readers primarily access glosses to find out the meaning of a word and do not explore other available resources. However, in Lomicka's study, tracker data also revealed that the question glosses were accessed by each reader at least once and generated one or more causal inferences for each reader. Although raw numbers of inferences were much higher in the full glossing condition, C, no statistically significant difference in the percentage of inferences was found between condition A *(*priming gloss only*)*, condition B (value and signification gloss) and condition C (all glosses) due to the small number of subjects. Also, while cultural reference glosses were consulted less frequently than question glosses, Lomicka found that they too helped the reader gain a deeper understanding of the text (1998, pp. 48, 49).

As noted earlier, the initial focus of electronic comprehension aids was on vocabulary glossing. Vocabulary glosses in hypermedia may be presented in text format

accompanied by audio and/or video files. Nevertheless, their function is to provide factual knowledge at the textbase level. In general, research of electronic glossing even in text-specific integrated hypermedia environments has shown that although readers look up more words than ever, they do not necessarily acquire more vocabulary knowledge, score higher on the recall protocol, generate more causal inferences, or construct an appropriate situation model of the text. The idea that "fast and easy access to the meanings of unknown words makes up for insufficiently automatic bottom-up processes and deficiencies in processing capacity, and thus allows the reader to attend to top-down processes" (Gettys et al., 2001, p. 93) is simplistic and unsubstantiated. Gettys et al. (2001) propose that since "the main benefit of reading in a FL is indirect vocabulary learning" (p. 98) and readers rely primarily on dictionary glosses and ignore others, "software should follow the principle of economy of means" (p. 93). They further argue that rather than providing readers "with as much information related to meaning as possible" information should be reduced to a "degree of minimum proficiency" (p. 93). Indeed, if the goal of reading is to acquire L2 vocabulary, Gettys et al. may have a point. However, the new national standards for foreign language learning require that researchers and practitioners find ways to help learners make the connection between the language and the target culture. According to the new standards, truly comprehending a foreign text "implies the ability to read between the lines." Thus, rather than reducing information related to meaning to a minimum, future research must find ways to aid top-down processing to help readers avoid misreading the text and to train them to become independent and critical readers.

Metacognitive Glossing

Davis and Lyman-Hager's (1997) and Lomicka's (1998) findings imply that multimedia environments are not as effective as they could be because they lack cues for conceptual orientation. Intermediate FL readers need guidance and practice in inferencing. Davis and Lyman-Hager (1997) suggest "a more interactive program with multiple interventions (such as interspersed questions) may well be useful for students at this instructional level, who misjudged how much and how well they had understood" (p. 68). Lomicka (1998) also recommends that "an increased number of interspersed questions could be incorporated in the software in order to aid the development of a situation model" (p. 50).

Interspersed questions are defined as metacognitive prompting glosses (Roby, 1999). Metacognitive glosses push readers to "take an active stance" leading to "comprehension monitoring, a metacognitive behavior" (Stewart & Cross, 1991, p. 5). Stewart and Cross (1991), who studied L1 reading and glossing in the paper medium, note that glosses that prompt readers to stop and think add a third voice, the teacher's voice, to the inner voice of the reader and the author's voice. Beck and McKeown (1986) and Beck et al. (1996) conducted research that focused on the social context of teacher-led discussion for L1 reading comprehension instruction. 'Questioning the Author,' developed by Beck and McKeown (1986), is an approach that draws students into a "kind of shared thinking-out-loud" (p. 25), where the author is viewed as someone who is trying to convey a message. Teachers ask questions like "What's the author's message here?" to elicit summaries or explanations of main ideas from students. Other questions are meant to encourage students to elaborate or clarify ideas, i.e., "Why do you think the author wants us to know about this?" (p. 287).

The creation of question glosses for the current study is based on the underlying assumption that conscious understanding is explanation based. Explanations appear to be causally chained (Trabasso & Magliano, 1996, p. 267), and readers may misread the entire text without becoming aware of it. Trabasso and Magliano (1996) found that asking 'why' questions during one story increased the number of explanations that occurred during thinking aloud (p. 285). A 'why' question may help the reader repair breaks in coherence by alerting her/him to possible explanations.

Design Issues

Since both Davis and Lyman-Hager (1997) and Lomicka (1998) used GALT (Glossing Authentic Language Text) for their experiments, it is possible that the template itself contributed to the reluctance of the readers to look up anything but vocabulary. Therefore, in the current study, texts were presented in a format that every participant was already accustomed to and that did not require additional training. With the help of a technical assistant, I created a template using Microsoft Word and applied it to each individual text. A major concern in the interface design was how to present the additional information, i.e., the question glosses, vocabulary, and cultural information along with the core text. How visible should the link indicators be and how much information should be presented? L1 research on "elaborations on core information" (Duffy & Knuth, 1989), shows that readers tend to use few and well-defined nodes (Knuth, 1992; McKnight et al., 1990). There is strong evidence that the use of submenus decreases learner exploration in the hypermedia environment (Welsh et al., 1994). Thus, a link should clearly indicate which information is made available, to avoid wasting time and effort on the reader's part. Also, glosses or annotations that are made available in the

core text are most beneficial if the visual disruption of the core text is held to a minimum (Jonassen, 1988; Kearsley, 1988).

According to Roby's (1999) taxonomy of glosses, a question gloss is defined as a prompting gloss because it is consulted during the course of reading. Consistent with activity theory, question glosses are viewed as a "form of mediation helping students to gain control over language and task procedures" (Donato, 2000, p. 44). They are meant to encourage readers to continually question, reassess, and revise their interpretation of the text. The goal is not teaching what to think, but how to think (Meichenbaum, 1985, p. 410).

Research Focus

The studies in this literature review represent exploratory steps toward a clearer understanding of multimedia glossing for L2 reading comprehension. While there is some evidence that that multiple modes of presentation enhance the acquisition and retention of vocabulary and enhance comprehension, we still know very little about how to guide readers to take advantage of available background information in order to increase global comprehension and avoid misreading a text. This study looks to a "particular practice of a use of CALL in a specific social context" (Warschauer & Kern, 2000, p. 2) to answer the question, i.e., of how the computer, as a technological tool, can improve reading. Building on what we know so far about text-based hypermedia reading environments, this study further investigates the effects of question glosses on comprehension processes for intermediate-level learners of German as a FL in a university setting. In doing so, it addresses the following research questions:

1. To what extent and how do question glosses in a hypermedia environment enable intermediate-level readers to go beyond the linguistic and textbase level of a text to construct a situation model of a text based on appropriate background knowledge?
2. To what extent and how do question glosses prompt readers to monitor their comprehension processes and produce causal inferences?
3. How do question glosses affect readers' look-up behavior over a period of time? Will readers take advantage of glosses other than dictionary glosses in response to question prompts and will they continue to do so even without question glosses?

CHAPTER 3
METHODOLOGY

Within the framework of activity theory, the participants of the study and their particular circumstances will be discussed followed by a detailed description of the kind of texts that were used in the study and how they were selected. An explanation and description of the construction of the hypermedia environment and the question glosses that guide the online reading task then follows. A rationale for using both written recall and think-aloud protocols will be presented. A step-by-step account of the data-collection procedure follows. The last section shows how processes and products of the reading task are analyzed, not in isolation, but as interdependent factors, to discover how the participants used the assistance that was provided.

Participants

This study of computerized FL reading was conducted as a component of an already existing third year web-based German course at the University of Florida. "Introduction to Reading German Text" was designed with WebCT (Web Course Tools for authoring, delivery, and management of materials) to help students make the transition from beginning- and intermediate-level language courses to advanced-level literature courses. More specifically, the primary goal of this course is to teach students how to cope with lengthy authentic German texts. The designer/instructor, a professor of German literature, taught the course the semester this study was conducted.

Recruiting the participants from a single web-based reading course ensured that all received the same instruction and were familiar with reading German text in an online

environment before the study began. As a regular part of the course, students read two texts per week, ranging from youth literature to works of classical and contemporary writers and newspaper articles. For each text, the following support was provided: the English/German dictionary LEO (Link Everything Online); a widely used multimedia source for contemporary history of Germany in German, LeMO (Lebendiges Virtuelles Museum Online); as well as links to encyclopedias and to author biographies. Students read at home at their personal computers and answered multiple-choice, true/false, and open-ended questions about the readings and about text-specific contextual information. During the first half of the semester, the emphasis was on developing an understanding of the relationship between syntax and semantics (i.e., verb case government; meaning and function of prepositions; how to deconstruct long German sentences). As an integral part of this WebCT course, grammar pages, exercises, and homework assignments were tailored to the specific needs of these learners of German to prepare them for upper-level course work, in particular reading lengthy authentic texts.

During the second half of the semester, all students read the eight texts that had been pre-selected for this study. These texts were then discussed in class. The 19 students enrolled in "Introduction to Reading German Text" were informed that they had an opportunity to participate in various online reading assignments that had the potential to enhance their reading skills and prepare them for the ensuing classroom discussion. The students who volunteered to participate in the study read these texts in the multimedia lab, while the rest of the class read at home in WebCT format as before. All students knew that participation in this study would not directly affect their final grade in the course. Participants received monetary compensation for each completed reading task. Also, after the analysis of the data for Group I and Group II was completed, one

outlier was discovered and removed from the data set. It became evident that this reader did not have the necessary language proficiency to cope with these lengthy texts. His extremely low comprehension scores skewed the outcome for the other participants in his group. Thus, the results for eight participants will be reported and discussed.

Materials

Selection of Texts

In the pilot phase of this study, 14 authentic German texts were selected based primarily on their content. The instructor/designer of the course, one additional faculty member who had experience in teaching German language and culture courses at the undergraduate level, and I chose the texts. It was assumed that students already had some basic knowledge and understanding of topics such as the Holocaust, the Fall of the Berlin Wall, and the reunification of Germany and its political and economical aftermath, in particular the problems related to the massive influx of immigrants from Eastern European countries.

Learners of German who were transitioning from intermediate- to advanced-level course work were then asked to pre-read these texts. The purpose for pre-reading was twofold. First, think-aloud protocols of pilot readers revealed how much vocabulary they had to look up to understand the text at the sentence level. Also, potential breaks in coherence became evident. Breaks in coherence, or gaps, are defined as those places in the text where readers lack the appropriate background knowledge and have to ‘read between the lines.’ Thus, based on apparent gaps, it was later determined where a question gloss could be placed in the text and what kind of additional information would be helpful to the readers in the main study.

Ten different students each pre-read two to four different texts from among the 14, and were paid a flat rate for each task. No one in this group could be enrolled in the course the following semester when the main study was conducted. Seven of the 10 had completed "Introduction to Reading German Text" the previous semester. Each of the pilot-readers was instructed individually on how to think out loud and how to use the Divace recording system in the multimedia lab. Each text had a link to LEO, the online English/German dictionary everyone already knew and liked. As a rule, pilot-readers did not look up anything but words, although all of them had previous experience in online language learning. It must be noted that payment was not the primary motivation of these readers, but rather an expressed desire to 'practice their German.'

Over half of the texts were eliminated from the original list for a combination of reasons. The longest text had 2,807 words, the shortest 588 words. Both were cut, but for different reasons. For example, if two of three pilot readers had difficulty 'sitting through' the reading task because it became too tedious and frustrating to look up words, the text was eliminated. If very specific knowledge was required and readers had too many gaps, the text was also cut. In the shortest text, the male sex organ was depicted as the decisive force in the Fall of the Berlin Wall. A female reader failed to see the humor and irony the author had intended and stopped thinking out loud. It was decided not to use this text in the main study. In all, six of the 14 texts were chosen for use in the study. In consultation with colleagues, I then selected Text 1 (*Amerika*) and Text 8 (*Good Bye Lenin!,* Kaupp, 2002), and these were not pre-read due to time constraints. In the main study, all subjects read Text 1 and Text 8 in the dictionary-only condition and therefore it was not necessary to pre-determine knowledge gaps. However, at least two readers pre-read each of the other six texts that received question glossing in the main study.

Description of Texts

The average length of the eight texts on the final list was 795 words. The longest text had 1267 words, the shortest 488. (See Appendix B). Using Gunning's (2004) taxonomy, three texts were categorized as narratives and five as expository. While narratives are comprehended in terms of how the main character resolves a problem or conflict (p. 234), the purpose of the expository text is to convey information (p. 238). In general, narratives are thought to be easier to read than expository text because of their story grammar. Text 1, *Amerika* (Schnitzler, 2003) is a consciousness-oriented narrative, combining "a level of action and a level of thought and emotion" (Gunning, 2004, p. 235). As the narrator stands on the shore of the New World, he begins to reminisce about his former lover. With Anna, he had discovered another kind of America. Whenever he kissed her behind the ear, she cried out "America." As he walks toward the city, he realizes that Anna and the "old" America are lost to him forever, and he is not sure whether he likes the new America. Text 2, *Kannitverstan* (Hebel, 2003) is an action-oriented narrative with a main character and plot. A German journeyman from a small southern town arrives in Amsterdam. He is in awe of this rich merchant city and he asks someone who the lucky owner of the great house he sees before him might be. The Dutchmen answers, "Kannitverstan" (*I cannot understand*). The journeyman assumes that this is the name of the man who owns this marvelous house. As he stands at the harbor, a ship is unloaded and he asks again who the owner of the ship is. The answer is "Kannitverstan." Now the journeyman begins to feel unhappy because he realizes how poor he is in comparison to Mr. Kannitverstan. As he turns the corner, he sees a funeral procession and asks who died. Predictably, the answer is "Kannitverstan." The journeyman joins the procession and is very moved by the sermon, of which he does not understand a word. And from

now on, every time the journeyman thinks about what a poor devil he is, he only has to think of Mr. Kannitverstan in his cold narrow grave to be happy again. Text 6, *Die Fragenden,* (*The Questioners,* Härtling, 1979) is a story of three young men who question the citizens of their hometown about a former concentration camp nearby. No one wants to talk about the past. Nevertheless, the young men search the archives, find the site of the sub-camp near their hometown, and the graves of the Jewish-Hungarian women who were murdered at the camp. Because of these three young men, a memorial will be erected to honor these victims of the Holocaust. At first glance, this is a straightforward narrative with main characters, a setting, a problem, and a resolution. However, with the exception of the concentration camp *Buchenwald*, where the young men first find the map with the sub-camps, characters and places do not have proper names. This text is part of the body of literature written in the 1970s as the people of Germany began to face their Nazi past. Without proper names, the reader has to draw her/his own conclusions based on background knowledge.

Text 3, *Rauher Kapitalismus* (*Rough Capitalism*, Huhnke, 1999), was defined as a time sequence-oriented expository text. Its purpose is to convey information about the transition from a socialist to a capitalist society by telling the story of one woman and her family. People who never had to worry about housing, childcare, and employment before are learning difficult lessons about fending for themselves. For the first time, a saleswoman and mother of five children, is afraid of losing her job. Text 4, *Wer ist ein Türke? (Who is a Turk?* Dikman, 1995) is an autobiographical expository text about the identity of Turkish guest workers in Germany. Dikman treats the prejudices of both Turks and Germans living together with humor and irony. Text 5, *Die erste eigene Wohnung, (My First Apartment,* Kaminer, 2000), is also an autobiographical expository

text telling about the chaotic life in East Berlin after the Fall of the Wall and the special status of Jewish refugees from the former Soviet Union. Text 7, *Der Zweite Teil des Skandals: Ein Offener Brief an Friedman*, (*The Second Part of the Scandal: An Open Letter to Friedman*) (Stolle, 2003), is a letter to the editor by the representative of a women's initiative group. The purpose of this letter was to draw attention to the second part of a scandal surrounding Michel Friedman, a prominent German Jew. Michel Friedman had not only used cocaine, but also solicited the services of illegal prostitutes from Eastern European countries. Text 8, a critique of the popular film *Good Bye Lenin!* (Kinofenster, 2002), was also defined as an expository text with a plot summary. The plot summary part of the text was a narrative. The film shows how an East German family experienced the fall of the Berlin Wall and how they coped with the confusing time immediately following the reunification of Germany.

Creating a Template for the Reading Activity

The design of this online reading environment was guided by the principle of the reader as a "knowledge constructor who actively selects and connects pieces of visual and verbal knowledge" (Mayer, 1997, p. 4). Within the sociocultural paradigm, the construction of knowledge is not "private," but rather "mediated by cultural tools" (Gee, 2000, p. 196), i.e., the computer, the texts, the question glosses, and the language itself.

Based on evidence from previous research about the use of submenus (Welsh et al., 1994) and adding extra-textual information in the hypermedia environment (Duffy & Knuth, 1989; Jonassen, 1998; Kearsley, 1988; McKnight et al., 1990), a technical assistant and I used Microsoft Word software to create a template. The main webpage for each text consisted of multiple frames. The largest frame contained the core text in the center of the webpage, with the surrounding frames accommodating the cultural/

background information (additional text, audio, video), the internal dictionary (value glosses), and the question prompts (metacognitive glosses). (See Appendix C).

The cultural/background information items on the left were given titles that clearly indicated what could be explored. The internal dictionary was on the right. The type and number of links and vocabulary items were based on the analysis of pilot readers' think-aloud protocols. Readers could easily scroll up and down to keep the internal dictionary parallel to their place in the text. A link to LEO was also provided. In an effort to avoid drawing readers' attention to words and to curtail clicker-happy behavior, the internal dictionary format was selected over 'mouse-over' and over highlighting words in the text.[1] Clicking on a small red dot in the core text would bring up the frame with the question gloss at the top of the page. Thus, the question gloss was invisible until the reader decided to click on the red dot. Each text was self-contained and included an instruction page for the think aloud and the written recall protocol. (See Appendix C).

Question Glosses

Question glosses were written with the help of the instructor of the course, based on the concepts and models provided by Beck et al. (1996). We determined what kind and how many links containing additional information were to be made available in the left-hand column and where a question gloss was to be placed in the core text. Each question was formulated to prompt the reader to look for an answer or explanation in the text itself, or to access background/cultural information, and to make a causal inference. For example, for *Kannitverstan*, 5 of 10 questions begin with "Why": "Why do you think

[1] Mouse-over is a feature that makes a link visible as soon as the cursor is placed on it. Thus, any word in the text can be linked to a gloss that remains invisible until the reader clicks on it. If a word or sentence is highlighted, it is immediately visible to the reader.

the author says, … ?"; or "Why does the author …?" or "Did you notice …?" In this story, geography played an important role. Pilot-readers had difficulty in determining whether capitalized nouns were the names of people or places. Therefore, in order to answer the questions "Why does the author name Emmendingen and Gundelfingen along with Amsterdam?" and "Did you notice that the journeyman comes from Tuttlingen? How may that affect his perception of Amsterdam?" the reader in the main study had to first find out that these are the names of small towns in Southern Germany by clicking on the links. The links provided in the background information column were carefully selected and tested before use in the study. With few exceptions, the information in the culture links was in English, not in German. Participants could click on "Niederlande" to see where the Netherlands and Amsterdam were located in relation to Emmendingen, Gundelfingen, and Tuttlingen. Clicking on the Amsterdam link would bring up pictures of the kind of stately houses the journeyman admired so much. Based on this information, readers could infer that the journeyman is a long way from home and in awe of the wealth and beauty of this large trade city. The question "Why do you think the author says 'our good Tuttlinger'?" required that readers make the inference that people coming from small towns may be naïve. "Do you know which segment of the 18th century German-speaking population enjoyed reading 'calendar stories'?" was meant to activate prior knowledge of the characteristics of a "calendar story" or prompt a look-up (genre link). If readers knew that the 18th century working class read calendar stories, they might infer the moral of the story. Ironically, although the good Tuttlinger did not understand a word of Dutch, he came to know the "truth."

In order to ensure that participants did not have to deal with more unknown vocabulary than necessary and that they understood the questions, the glosses were

written in English rather than the target language (Shohamy, 1984). Shohamy also speculated that writing the questions in the L1 may be more "authentic," because readers ask themselves questions in their L1 during the reading process. Indeed, it has been shown (Roebuck, 2000) that in an effort to maintain or gain control of the cognitively demanding task of reading a foreign text, readers tend to re-externalize their inner voice. Participants' think-aloud protocols provide a window into how they talked themselves through difficult situations.

Data Collection

In this section, I will discuss different methods for testing reading comprehension and their theoretical bases and develop a rationale for using both immediate recall and think aloud protocols in this study. A number of studies have shown that reading assessment tasks will influence and possibly determine how readers perform on a reading test (Lee, 1986; Riley & Lee, 1996; Shohamy, 1984; Wolf, 1993). Immediate recall is considered "the most straightforward assessment of the result of text-reader interaction" (Johnston, 1983, p. 54) and is the most commonly used measure in reading studies. Bernhardt (1991) also points out that immediate recall reveals the integrated comprehension product of the student and avoids validity problems found in multiple choice and true/false tests. It is also believed that having L2 learners write recall protocols in their L1 will eliminate any difficulties they may have in expressing their thoughts in the L2 (Bernhardt, 1987; Lee, 1986).

However, Myers (1990) argues that immediate recall and other post-reading tests, i.e., multiple choice, summaries, true/false, and open-ended questions, assess "off-line" comprehension. It is possible that the reader can recall parts of the text or answer questions without understanding the text as a whole. On the other hand, "online"

measures such as thinking out loud while reading, have "the potential to reveal" (Kucan & Beck, 1997, p. 292) comprehension processes as they occur. The think-aloud task is used to gain insight into what readers are thinking, sentence by sentence, as problems arise. Long and Bourg (1996) argue that "verbal protocol analysis is ideal for identifying those inferences that involve access to world knowledge and those that involve access to prior text information" (p. 332). A number of researchers have used think-aloud protocols to investigate individual differences in readers' text representations and comprehension strategies (Cote & Goldman, 1995; Whitney et al., 1991; Zwaan & Brown, 1996). There is some evidence that asking readers to think out loud causes them to change their processing (Black et al., 1984), and that researchers must therefore use think-aloud data along with other evidence. The two are combined in this study because while recall protocols allow the researcher to study the 'product' of reading in the form of recalled propositions and idea units, think-aloud protocols are a means to gain insight into how individual readers mediate their thinking in private speech as they puzzle through difficult passages to make sense of the text as a whole.

Multimedia Lab Setting

Before the study began, all students who were enrolled in the reading course gathered in the multimedia lab to go through the entire procedure of reading a short text online, doing a think-aloud, recording and saving the think-aloud, writing a recall protocol online, and sending it via email to the researcher. Together with the staff, I helped familiarize all the students with the Divace recording system and the interface of the websites. All students were informed that if they participated in the study, they would have to come to the lab at times set aside by the lab director and by me. Each text had to be read in the lab before it would be discussed in class (See Table 3-1). Those

students who made a decision to participate returned the following week for the first reading. Since it was not possible for some participants to come during the scheduled times from 4:00 to 6:00 p.m. on Mondays and Tuesdays, they had to read when students from other languages courses were practicing speaking. Sometimes, they overheard others thinking out loud. Although the director of the lab, and/or a lab assistant, a research assistant, and I were at hand to help with any kind of technical questions and problems participants encountered, sound-files were not always saved properly. However, only one participant's think-aloud protocol for one text could not be retrieved and was lost completely.

Each reading task was carried out in a specific order. Before each reading, I reminded the participants to read the front-page with the instructions (See Appendix C), to test their recording system, to talk out loud, and to take advantage of any glossing aids as needed. They were told they could take as much time as they needed for the task. Participants alternated reading the texts in either the Q or NQ mode, thinking out loud as they read. Their thoughts were audio-recorded. After completing the think-aloud protocols, participants closed the window with the text and clicked on 'Recall.' A website came up with a submission area. Participants were instructed to write everything they remembered about the text, in their L1, without looking back to the text. Immediately after each reading task, I conducted videotaped exit interviews to probe individual readers' perspectives on their experience. Questions on topic familiarity were included in these interviews.

Data Collection Procedure

Stage I: According to the results of Part II of the AATG Test (American Association of Teachers of German), an equal number of participants scoring above and

Table 3-1. Schedule for Reading in the Multimedia Lab

Monday	Tuesday	Wednesday	Thursday	Friday
				October 10 LAB PRACTICE
October 13 LAB 4:00-6:00 pm Amerika	Oct. 14, LAB 4:00-6:00 pm Amerika	Oct. 15 Amerika	Oct. 16 Amerika	Oct. 17 Discussion in Class
Oct. 20, LAB 4:00-6:00 pm Kannitverstan	Oct. 21, LAB 4:00-6:00 pm Kannitverstan	Oct. 22 Kannitverstan	Oct. 23 Kannitverstan	Oct. 24 Discussion in Class
Oct. 27 LAB 4:00-6:00 pm Rauher Kapitalismus	Oct. 28, LAB 4:00-6:00 pm Rauher Kapitalismus	Oct. 29 Rauher Kapitalismus	Oct. 30 Rauher Kapitalismus	Oct. 31 Discussion in Class
Monday	Tuesday	Wednesday	Thursday	Friday
November 3, LAB 4:00-6:00 pm Wer ist ein Türke?	Nov. 4 LAB 4:00-6:00 pm Wer ist ein Türke?	Nov. 5 Wer ist ein Türke?	Nov. 6 Wer ist ein Türke?	Nov. 7 Discussion in Class
Nov. 10 LAB 4:00-6:00 pm Die erste eigene Wohnung	Nov. 11 Veteran's Day Holiday	Nov. 12 Die erste eigene Wohnung	Nov. 13 LAB 5:00-7:00 pm Die erste eigene Wohnung	Nov. 14 Discussion in Class
Nov. 17 LAB 4:00-6:00 pm Die Fragenden	Nov. 18 LAB 4:00-6:00 pm Die Fragenden	Nov. 19 Die Fragenden	Nov. 20 Die Fragenden	Nov. 21 Discussion in Class
Nov. 24 LAB 4:00-6:00 pm Der zweite Teil des Skandals	Nov. 25 LAB 4:00-6:00 pm Der zweite Teil des Skandals	Nov. 26 Discussion in Class	Thanksgiving	Thanksgiving
December 1 LAB 4:00-6:00 pm Good Bye Lenin	Dec. 2 LAB 4:00-6:00 pm Good Bye Lenin	Dec. 3 Good Bye Lenin	Dec. 5 Good Bye Lenin	Dec. 6 Discussion in Class

below the mean were placed in one of two treatment groups. Group I and Group II read Text 1 with the external dictionary (LEO) and internal dictionary glossing-only (D1). Thus, using both think-aloud and recall protocol as comprehension measures, a baseline of how each individual and each group read a text online before the treatment (without any question glosses) was established.

Stage II: Group I and Group II alternated between reading texts with question glosses (Q), and texts without question glosses (NQ) to control for the effect of the question gloss. Only one group received the treatment Q or NQ for any one text, while

all other variables were held constant: external dictionary (LEO), internal dictionary, and multimedia glossing (geographical, historical, cultural information). (See Table 3-2).

Table 3-2. Group I and II Alternating Conditions Q and NQ

Group I (S 1-4)	Group II (S 5-8)
D1	D1
NQ	Q
Q	NQ
Q	NQ
NQ	Q
NQ	Q
Q	NQ
D2	D2

Stage III: Group I and Group II read one final text with dictionary glossing only (D2). Comparing the comprehension results of reading in D1 (before the treatment) and D2 (after the treatment) shows if and to what extent question glossing affected participants' look-up behavior over the period of eight weeks.

According to activity theory, the sociohistorical setting and the sociocultural history of the participants determine the properties of any given activity. A pre-reading questionnaire (qualitative data) established student demographics including the extent of their German experience, courses enrolled at the present, field of study/interest, experience in reading and discussing texts in the L1; comfort level in working with computers, and prior experience in reading texts in a FL online. (See Appendix A). A second Lykert-scale questionnaire after completion of the readings gauged participants' attitudes and perceptions of the computer-based reading environment in general and the question glosses in particular. (See Appendix D).

Four months after the study was completed, a brief informal questionnaire was sent via email to all readers, asking if participating in the study had had any effect on how they were reading at that point.

Analysis of Recall Protocols

Experts agree that the type of comprehension assessment task that is used to test reading comprehension may affect the outcome. Riley and Lee (1996) argued that there is a qualitative difference in recalls depending on the instructions of the researcher. They found that the recalls provided by subjects who were told to summarize the main ideas of a text were found to contain significantly more main idea units than the recalls of subjects who were told to write down what they could remember. Although the participants of the present study were not instructed to summarize main ideas, they nevertheless wrote summaries of the texts in their recalls. Since the texts averaged between 800 and 1200 words, and it took some readers over two hours to complete the reading and think-aloud task, therefore it is entirely possible that they could not remember details and/or they were too tired to write much and not willing to devote more time to the task. (See Appendix B). Working within activity theory, Roebuck (1998) studied written recalls of intermediate students of Spanish at the university level. Her data reveal that the researcher's agenda or orientation is not necessarily the subjects' orientation. She found that when some of her subjects felt the task became too difficult and they were in danger of losing face, they responded by "repositioning themselves in relation to the task and the perceived threat" (Roebuck, 2000, p. 91). In a similar way, the participants in the present study, after first talking themselves through a long and difficult text, and then being asked to remember what they had read, may have reinterpreted the meaning of the assigned task and wrote summaries.

Because it was realized that students had in fact written summaries, recall protocols are analyzed in two ways: first, by counting the total number of propositions each participant recalled, without weighing the propositions as originally planned; second, by counting and weighing the number of main and supporting idea units in each recall protocol.

Detailed Propositional Analysis

The German texts were first translated into English because the readers' recalls were written in English. By using the translations of advanced students of German and the translations that one of the participants produced during her think-alouds, the final product was a nearly literal and correct English version of each text. With the help of a reading specialist, guidelines were developed for what would constitute a proposition in this study and a proposition template for each text was created. (See Appendix E). Using the proposition templates, two independent raters examined each of the eight recall protocols of each participant and identified the propositions recalled. Both raters were experienced in language teaching and learning. They were instructed to mark and count every proposition that appeared in the recalls, adhering closely to the wording in the templates. One of the raters was a native speaker of English (R1), the other a native speaker of Turkish (R2), a doctoral student at an American university with a strong command of English. The difference in their scoring was directly related to how narrowly they defined any given proposition. Although we had addressed the issue of paraphrasing beforehand, R2 was stricter in her scoring than R1. For example, R1 counted */ wealth /* as one proposition in place of */ to this great / and rich / commercial city /*, whereas R2 did not count it at all. Also, in place of the propositions / *with its windows / full of tulips / daisies /,* R1 accepted the reader's proposition / *with wonderful*

flowers /, while R 2 did not accept it as a substitute. The same reader recalled that the stranger whom the journeyman addressed was / *somewhat annoyed /*. The exact propositions in the text template were /*said shortly and brusquely / and buzzed past /*. R1 admitted this substitution, while R2 did not. This explains why the overall scores of R1 were higher than those of R2. Nevertheless, inter-rater reliability is high. Using Spearman's rho, correlation coefficients for the detailed propositional analysis ranked from a low of 0.883 for Text 1 to a high of 0.983 for Texts 7 and Text 8. The raters received a small stipend for this task.

Idea Unit Analysis

For the weighted idea unit anlaysis, I created templates for each text based on main and supporting ideas. (See Appendix F). Identifying the character, the setting, the problem, and the resolution in a narrative was worth five points each. One additional point was given per essential detail related to the story grammar. For example, in the narrative *Kannitverstan*, the readers who recalled the two main characters, the German journeyman received five points and five more points for recalling the imaginary Herr Kannitverstan. Recognizing that the journeyman thought "*Kannitverstan*" was the name of a very rich man was counted as a main idea as well. In addition, if readers remembered that the journeyman came from the small town of Tuttlingen and had never experienced a rich city like Amsterdam before, two more points were added for two essential aspects of the main character.

For expository texts, main ideas received five points each and supporting details one point each. Text 7, *(Friedman)* is clearly meant to impart information and was published in a prominent German newspaper. Readers who wrote in their recall protocols that Terre des Femmes was a women's rights organization received five points. They

also were given five points each for recounting that while Terre des Femmes respected and accepted Friedman's apology for taking drugs they were very unhappy about the fact that the second part of the scandal was swept under the rug, namely that he used illegal prostitutes from Eastern Europe. Another piece of information, the fact that 50% of all prostitutes in Germany are of non-German origin, also counted as a main idea unit. Supporting details are that 80% of these women are from Eastern European countries (one point) and many of them are smuggled in illegally (one point) and forced into prostitution (one point).

Based on these main and supporting idea unit templates, each participant's recall protocol was scored by two independent raters (R1 and R2). The raters and I met once to discuss those scores that were more than five points apart. The raters found that discrepancies between the scores occurred as a result of misinterpreting or overlooking a main idea unit, and/or counting a supporting detail as a main idea unit, while the other one did the opposite. For example, R1 counted /the second part of the scandal was that he was sleeping with foreign call girls/ as a main idea unit, while R2 completely overlooked this statement in the reader's recall. The difference between the two scores for this one reader's recall was initially 12 points. The problem was resolved because R2 added five points upon seeing that he had overlooked the main idea, bringing his score from 21 to 26. R1 took off five points, because she had counted one main idea unit twice. The agreed-upon score was only two points apart (28 and 26). Thus, after some discussion and re-counting, the raters reached a consensus on some items in question. An inter-rater reliability check was performed. Using Spearman's rho, correlation coefficients for the idea unit analysis range from 0.881 for Text 5 to 0.992 for Text 1.

Analysis of Think Aloud Protocols: Causal Inferences and Look-Ups (Quantitative)

I transcribed the 72 think-aloud protocols (nine participants reading eight texts) myself. One research assistant and I examined all think-aloud protocols for causal inferences and look-ups. Since the participants had been told that they could use English and/ German freely in order to communicate their thoughts and could speak a translation if it was helpful to them, think-aloud protocols were done in both German and English. Therefore, both raters needed to have a high-level proficiency in these two languages. My assistant was a graduate student of French and Linguistics and was fluent in German. We discussed and practiced how to distinguish paraphrases (including speaking a translation) and evaluative comments from causal inferences with guidelines from Zwaan and Brown (1996) as well as how to identify bridging and elaborative inferences and their sources. Misreadings that resulted from gaps in background knowledge were also identified and recorded. A misreading of a text is defined as an instance when the reader constructs a mental model that contradicts explicitly stated information as well as what is implied in a text. Mistakes readers made due to language problems, such as the lack of vocabulary and difficult syntax, were not counted. It was not always possible to determine if a reader drew a conclusion based on what she/he had read in the text (bridging) one or two sentences back (bridging) or on what she/he had retrieved from long-term memory. If the reader did not feel the need to look up anything, or if the prompt triggered the reader to think, but she/he did not look up additional information, then one could assume that she/he called on prior knowledge (elaborative inference). For example, the comment, “I know that Jews are not supposed to eat pork. But I am not sure where we're going with this. Who cares if they are false Jews?” provides an example of a reader making the connection between his prior knowledge and the information in the

text and then looking for an explanation. The same reader then infers, using the text and his prior knowledge that these Russian Jews enjoyed special housing privileges tried to get rid of their neighbors by saying that they were not 'real' Jews. (See Appendix G). This causal inference is clearly not based on information in the text only. For Text 2, if the reader clicked on the map and concluded that Emmendingen and Gundelfingen are the names of cities rather than names of people, then the rater could be reasonably sure that this was indeed an elaborative inference based on a look-up. While reading the text about how the reunification of Germany affected one particular family in the former East, one reader said, "Ok. Helmstedt. That is a picture. Masses of people descended on the town when the border was opened." (See Appendix G). This was identified as a look-up followed by a causal inference. The same reader further reasons, "I assume this is talking about … given the date … of the Wall falling and everybody running to hug each other, possibly." Because there was no tracking device in the program, look-ups were only counted if the reader announced in the think-aloud protocol that she/he was looking up something and/or commented on what she/he found or did not find. Causal inferences were often prefaced with "I think…," "I assume … ," "So they are talking about," or "So this is probably…," "So he thinks that …," "Oh! It's …!" "I guess the idea is …," "I know that …," "So apparently …." Also recorded in the transcripts of the think-aloud protocols were chuckles and incidents of albeit rare laughter, as well as sighing, moaning, and cursing. For example, "Haha! That is funny! That is freaking hilarious!" signaled that a particular reader felt she/he had understood something, while the latter indicated frustration and/or anger. Using Spearman's rho, an inter-rater reliability check was performed on the number of causal inferences identified by the researcher and her assistant. Correlation coefficients range from .767 for Text 7 to .983 for Text 8.

CHAPTER 4
RESULTS

Comprehension processes are complex and invisible, and can only be observed indirectly. Comparing the results of the propositional analysis of the recall protocols with the idea unit test results and the raw number of inferences made reveals that each measured a different aspect or level of the reading comprehension process, and only a combination of both product (recall) and process (think-aloud) measures provided a complete picture of how a reader reconstructed the meaning of a text.

Research Question 1

Research question 1 addressed to what extent and how question glosses in a hypermedia environment enable intermediate level readers to go beyond the surface and the textbase level of a text to construct a situation model of the text based on appropriate background knowledge. The quantitative analyses of the recall and think-aloud protocols provide the "big picture" as well as "group shots" of the eight students reading the six texts with or without question prompts and answer the question to what extent and how the prompts were useful to the participants in this study. The results of two kinds of comprehension measures, as well as the number of look-ups (LUP), causal inferences (CI), and misreadings (MR) for all students are presented. This "big picture" also shows how each individual treatment text (Texts 2-7) was comprehended according to the treatment condition based on the proposition and idea unit scores, and the number of LUPs and CIs. Non-parametric test results, based on the various comprehension scores, are reported. Narrowing the lens, certain patterns and similarities between individual

readers, as reflected by measures of comprehension and number of LUPs and CIs, come into focus.

Results of Propositional Analysis of Recall Protocols

Table 4-1. Percentages of Propositions Recalled

Student	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
1	9.48%	9.23%	6.46%	9.00%	6.17%	13.32%	6.76%	4.39%
2	10.95%	12.36%	15.95%	16.11%	27.02%	17.93%	17.39%	13.39%
3	3.59%	4.06%	6.96%	8.65%	8.51%	9.24%	11.35%	9.01%
4	12.09%	13.65%	20.00%	18.48%	10.85%	13.32%	14.01%	10.05%
5	12.25%	13.84%	28.61%	25.95%	18.09%	19.29%	18.36%	18.48%
6	7.03%	7.93%	6.46%	8.65%	6.60%	9.51%	7.25%	8.66%
7	6.70%	7.56%	14.30%	17.18%	15.53%	20.92%	20.05%	6.12%
8	2.61%	2.95%	3.16%	4.27%	5.96%	8.42%	4.83%	1.27%
NQ Average		9.826%	13.133%	14.011%	13.138%	13.451%	12.621%	
Q Average		8.072%	12.342%	13.063%	11.543%	14.538%	12.379%	

The traditional detailed propositional analysis focused on the number of propositions recalled by the reader. The percentage values in Table 4-1 represent the ratio of propositions recalled by each student for each text in relation to the total number of propositions for each text. The average percentages for reading in the Q treatment were lower than in the NQ treatment, but only by extremely small margins. Propositional scores ranged from 2.95% for Student 8 on Text 2 reading in the Q treatment to 28.61% for Student 5 on Text 3 reading in the NQ treatment.

Figure 4-1 shows how each individual student performed on the propositional comprehension test when reading texts in the Q treatment vs. reading in the NQ treatment. Four students had higher scores reading in the Q treatment (S3, S4, S6, S8) and four students scored higher in the NQ treatment (S1, S2, S5, S7). S5 averaged 24.30%, the highest score for reading in NQ, and S4 averaged 17.50%, the highest score for reading in Q. Overall, students reading in NQ achieved the highest proposition

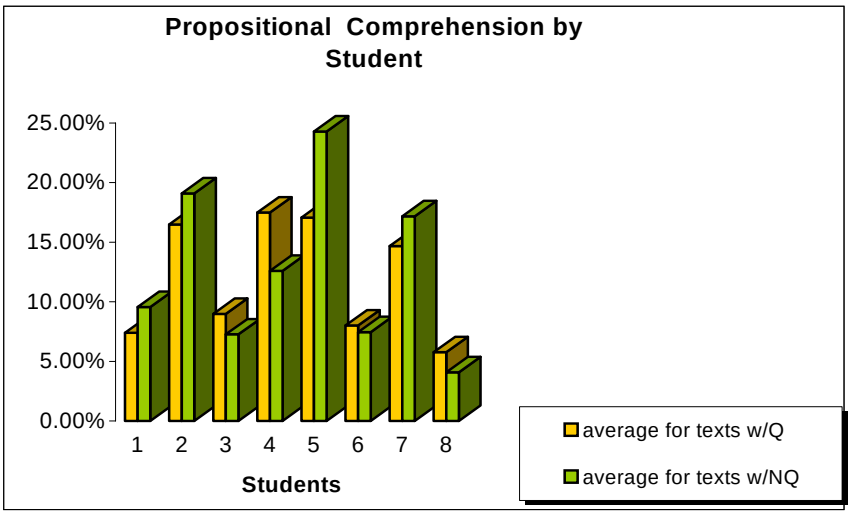


Figure 4-1. Individual Student Propositional Comprehension in Q and NQ

scores. S2, S5, and S7 scored 19.11%, 24.30%, and 17.18% respectively. In comparison, the best scores for S3, S6, and S8 were considerably lower in both Q and NQ.

Of the four students who achieved higher scores in Q than in NQ, only the scores of S4 ranged at the same level with the four students who had higher scores in NQ. S2, S4, S5, and S7 had the highest propositional scores and spent the least amount of effort and time on decoding the texts. On the other hand, S3, S6, and S8 were less proficient in lower-level processing and labored over each text.

Results of Idea Unit Analysis of Recall Protocols

The weighted idea unit analysis assessed how well readers connected the propositions in the text and remembered main and supporting ideas. Table 4-2 (below) shows the percentages of idea units recalled by each student reading a text in the Q or in the NQ treatment. Overall, values in Q are higher than in NQ. The values range from 4.44% for Student 8 reading Text 7 in NQ to 77.14% for Student 2 reading Text 3 in Q. Figure 4-2 shows that when looking at the comprehension of main ideas, five of eight participants scored higher in Q than in NQ. The highest average for reading in Q was 69.52% by S2. The highest average in NQ was 52.65% by S5. The lowest average score

for reading in Q was 35.44% by S7, while that in NQ was 21.01% for S8. While S7 had the lowest average score for reading in Q, he achieved 51.53% in NQ, the second highest score after S5. Note that the gap between the more fluent readers (S1, S2, S4, S5, S7) and less fluent readers (S3, S6, S8) reading the texts in the Q treatment appears to narrow. However, in the NQ treatment, the average idea unit scores for less fluent readers remain below the scores of the more fluent readers.

Table 4-2. Percentages of Idea Units Recalled

Student	Text 1 (D1)	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8 (D2)
1	25.47%	41.30%	64.29%	61.43%	13.73%	32.03%	12.22%	19.54%
2	58.49%	46.74%	77.14%	71.43%	50.00%	50.00%	60.00%	41.95%
3	15.09%	38.04%	41.43%	42.86%	17.65%	20.31%	26.67%	30.46%
4	38.68%	48.91%	30.00%	70.00%	26.47%	17.97%	50.00%	29.31%
5	42.45%	55.43%	60.00%	75.71%	47.06%	28.91%	22.22%	39.66%
6	33.02%	63.04%	42.86%	64.29%	21.57%	24.22%	26.67%	28.16%
7	41.51%	31.52%	55.71%	60.00%	45.10%	29.69%	38.89%	16.09%
8	4.72%	40.22%	21.43%	37.14%	37.25%	33.59%	4.44%	2.30%
NQ Average		43.750%	45.000%	59.286%	26.961%	30.078%	23.056%	
Q Average		47.554%	53.214%	61.429%	37.745%	29.102%	37.222%	

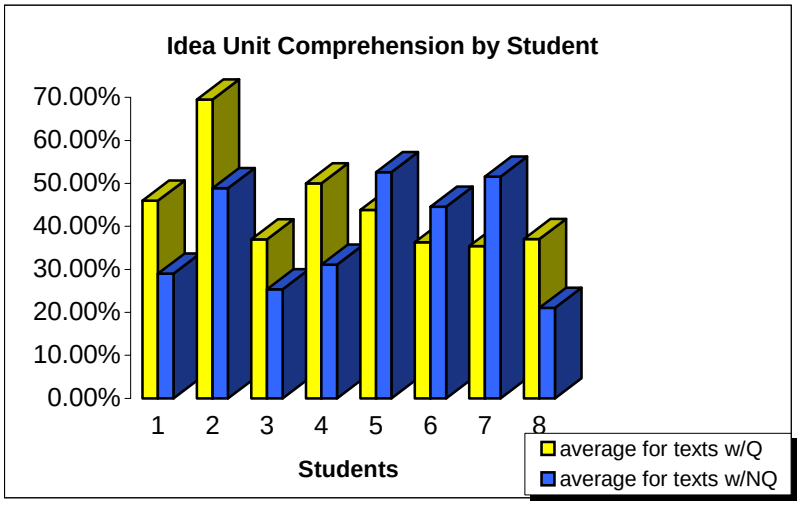


Figure 4-2. Individual Student Idea Unit Comprehension in Q and NQ

The four bars in Figure 4-3 (below) represent four comprehension scores for each student reading Texts 2 through 7 in Q and in NQ. The first two scores are based on the

detailed propositional analysis of recall protocols, the second set on the idea unit analysis of the recall protocols of eight students reading Text 2 through Text 7 in Q and in NQ. As Figure 4-3 shows, results are very mixed. S3, S4, and S8 consistently achieved higher scores in both comprehension measures when reading in Q. In contrast, S5 and S7 scored higher in NQ than in Q for both measures. S1 and S2 scored higher in Q for idea units, but not for propositions. S6 scored higher in Q for propositions but not for idea units.

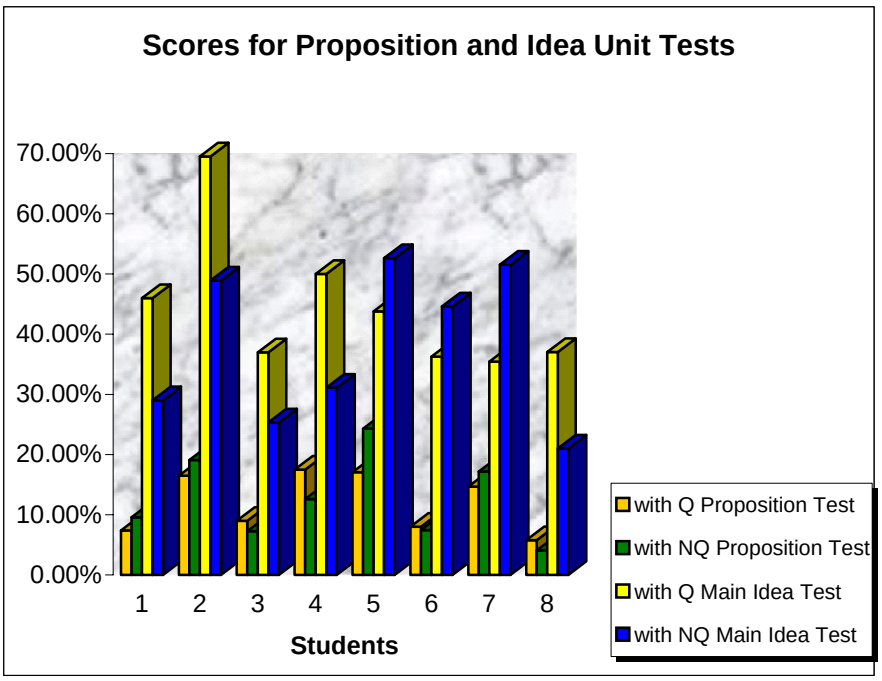
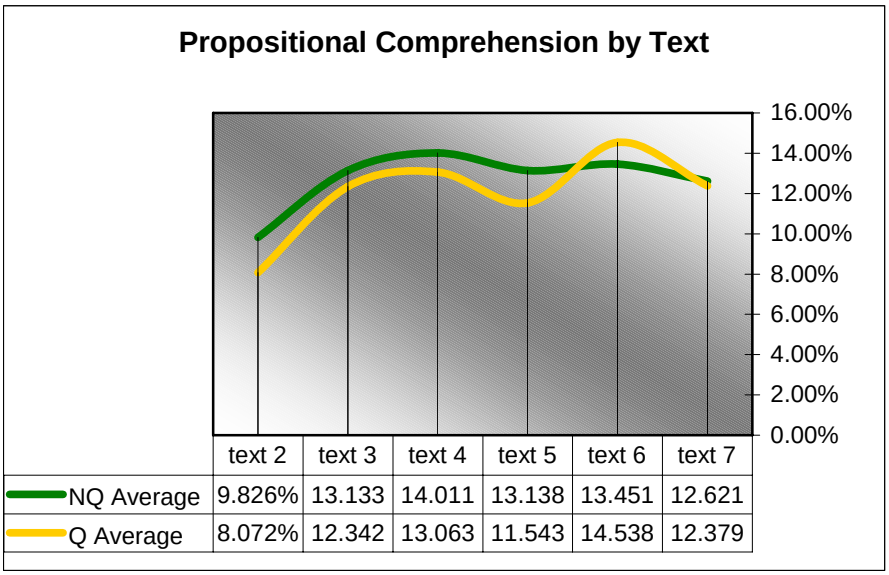


Figure 4-3. Individual Student Proposition and Idea Unit Scores in Q and NQ

Results of Proposition and Idea Unit Analyses for Texts 2-7

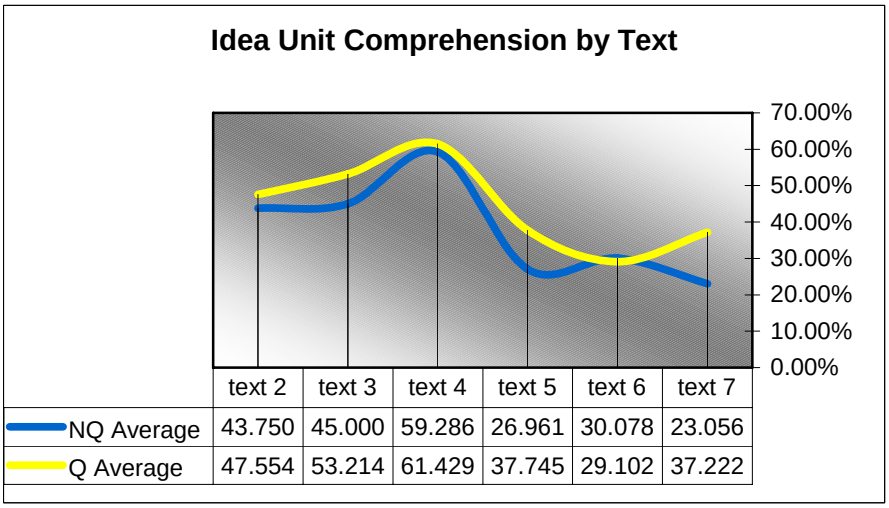
Figure 4-4 shows the average of the proposition scores for the treatment texts (Texts 2-7) read in Q and in NQ by the eight participants. The scores in NQ represent a flat line from Text 3 (*Kapitalismus*) to Text 7 (*Friedman*) and are consistently above the scores in Q, with the exception of Text 6 (*Die Fragenden*). The values for reading in Q are lowest for Text 2 (*Kannitverstan*) and Text 5 (*Die erste eigene Wohnung*) and highest

for Text 6. For Text 6, the Q value climbs to 14.54%, compared with the NQ value of 13.45%.



	text 2	text 3	text 4	text 5	text 6	text 7
NQ Average	9.826%	13.133	14.011	13.138	13.451	12.621
Q Average	8.072%	12.342	13.063	11.543	14.538	12.379

Figure 4-4. Percentages of Propositions for Texts 2-7 in Q and NQ



	text 2	text 3	text 4	text 5	text 6	text 7
NQ Average	43.750	45.000	59.286	26.961	30.078	23.056
Q Average	47.554	53.214	61.429	37.745	29.102	37.222

Figure 4-5. Idea Unit Comprehension Scores for Texts 2-7 in Q and NQ

Figure 4-5 shows the comprehension scores for the treatment texts (Texts 2-7) based on the percentages of idea units in Q and in NQ as recalled by the eight participants. Note that the margins between Q and NQ are larger than in the propositional analysis and consistently in favor of Q with the exception of Text 6 (*Die Fragenden*). For Text 6, the curve for Q falls below NQ by 0.97% and then rises again

well above NQ for Text 7 (*Friedman*). However, S2 read Text 6 in NQ and had by far the highest score overall. If his score of 50% were taken out, the average score for the Group reading in Q would have remained higher even for Text 6. Thus, while reading the treatment texts with question prompts did not increase propositional scores, the idea unit comprehension scores were consistently higher for reading in Q than in NQ for all treatment texts.

Statistical Test Results for Recall Protocols

Table 4-3. Raw Scores and P-Values for Proposition and Idea Unit Scores (Q and NQ)

Texts	Prop. Score in Q	Prop. Score in NQ	Prop. P-Values	IU Score in Q	IU Score in NQ	Idea Units P-Values
Text 2	8.072%	9.826%	.564	47.554%	43.750%	.773
Text 3	12.342%	13.133%	.663	53.214%	45.000%	.564
Text 4	13.063%	14.011%	.885	61.429%	59.286%	.773
Text 5	11.543%	13.138%	.773	37.745%	26.961%	.386
Text 6	14.538%	13.451%	.772	29.102%	30.078%	.773
Text 7	12.379%	12.621%	.773	37.222%	23.056%	.309

Due to the small number of participants (n=8) and the fact that these data are not normally distributed, nonparametric statistical tests were performed. First, for a basic test of group difference, the Wilcoxon rank sum test was used to test all proposition scores of Group I for Text 1 (D1) and for Text 8 (D2) against the scores of Group II. The same test was then repeated using the idea unit scores. Both tests showed that there was no significant difference between Group I and Group II reading Texts 1 and 8 ($p>0.05$). These results suggest that Groups I and II were comparable.

To assess the effect of question glossing, the same test was performed on each of the six treatment texts (Text 2 through Text 7). Recall that Group I and Group II alternated reading in Q and NQ. Thus, both the proposition scores as well as the idea unit scores of readers who had the glossed version of a text were tested against the scores of

readers who read the unglossed version. Table 4-3 shows the raw scores and the p-values for the detailed propositional and the weighted idea unit analysis. No significant statistical difference was found between Group I vs. Group II reading in Q or in NQ on any of these texts (Texts 2-7).

Results of Quantitative Analysis of Think-Aloud Protocols

Table 4-4 (below) lists the number of LUPs and CIs for each participant reading Texts 2-7 in Q or in NQ and Text 1 and Text 8 in the dictionary-only condition. The number of LUPs and CIs for each student is totaled in the bottom row. The number of CIs in Table 4-4 includes both bridging and elaborative inferences. Recall that CIs connect events in a text at the local and global level. While bridging inferences are text-based and establish coherence between the focal event and prior information in the text, elaborative inferences are drawn from the individual reader's background knowledge.

Table 4-4. Look-ups (L) and Causal Inferences (CI) in Q* and NQ

Text	S1		S2		S3		S4		S5		S6		S7		S8	
	L	CI	L	CI	L	CI	L	CI	L	CI	L	CI	L	CI	L	CI
1	2	8	0	15	0	9	0	0	0	13	0	25	0	8	0	3
2	0	6	4	9	0	12	0	6	2	17	3	13	0	16	4	7
3	0	19	2	22	3	17	2	6	0	15	4	17	2	10	3	12
4	3	18	4	16	6	31	1	9	0	10	3	23	0	12	4	6
5	2	8	3	8	5	13	3	5	7	22	7	21	5	7	7	12
6	2	10	7	9	6	10	3	5	5	0	3	13	1	3	4	9
7	4	11	1	11	7	13	3	7	3	5	4	12	1	7	5	5
8	4	2	0	6	0	15	4	5	2	13	2	17	0	11	2	11
Total (S)	17	82	21	96	27	120	16	43	19	95	26	141	9	74	29	66

* Q is shaded.

Figure 4-6 (below) gives a graphic representation of the total number of LUPs and CIs for each text as read by Group I and Group II in Q or NQ. With the exception of Texts 6 (*Die Fragenden*) and Text 3 (*Rauher Kapitalismus*), the number of LUPs and CIs for every text read in Q were higher than for texts read in NQ. For Text 6, readers in NQ

had 18 LUPs and 34 CIs, in contrast to readers in Q who had only 13 LUPs and 25 CIs. However, the results for Text 6 and Text 3 can be explained by crosschecking the qualitative data for S2 and S1. As stated above, S2 read Text 6 without question glosses, but nevertheless clicked on all the information about concentration camps. Therefore, the number of LUPs in NQ is higher than in Q for Text 6. For Text 3, readers in NQ had a total of nine LUPs as opposed to seven LUPs for readers in Q. Although the group reading in Q had less LUPs, they still generated 64 CIs, as opposed to the 54 CIs of the group with more LUPs.

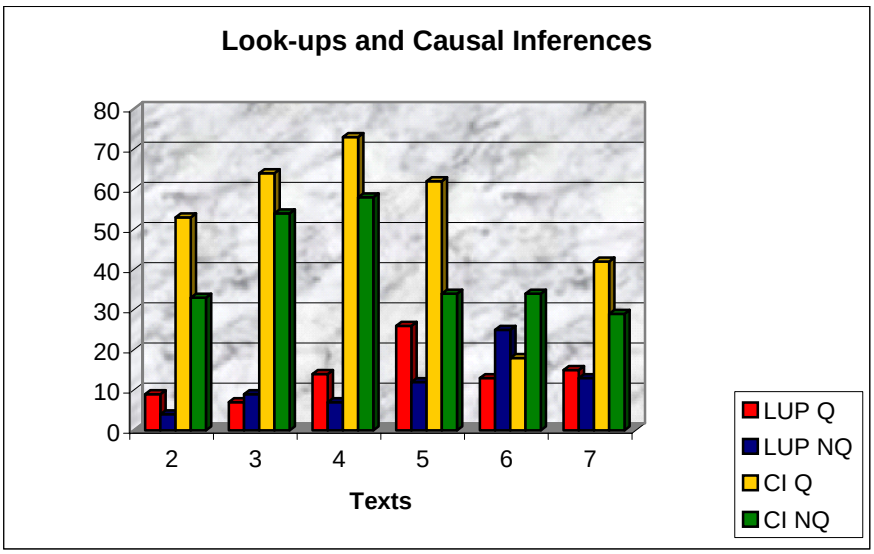


Figure 4-6. Total Number of Look-ups and Causal Inferences by Texts

S1 read Text 3 in Q, but did not look up anything and still generated 19 CIs, more than for any of the other texts. His qualitative data set revealed that he had extensive previous knowledge about the situation described in the text. These results show that question glosses consistently triggered more LUPs unless readers were already knowledgeable about the topic. In the case of S1, question glosses served to remind him of his own experiences in the former GDR and to draw appropriate elaborative inferences (See Table 4-7). The data in Table 4-4 (above) and Figure 4-6 (above) further show that

there is a connection between the number of LUPs and CIs and the average percentage of idea units recalled. For example, for Text 5, the number of LUPs in Q was 50% higher than in NQ, and the number of CIs followed the same trend. This difference is reflected in a sharp drop of idea unit scores in NQ (See Figure 4-5 above).

Table 4-5 (below) combines all the quantitative data from both the recalls and the think-aloud protocols and includes misreadings (MR) for each student reading Texts 2-7.

Table 4-5. Combined Quantitative Data for Recalls and Think-Aloud Protocols

S	Prop. % Q	Prop % NQ	Idea % Q	Idea % NQ	LUP Q	LUP NQ	CI Q	CI NQ	Total LUP	Total CI (2-7)	Total MR (2-7)
S1	7.41	9.57	45.98	29.02	7	4	48	24	11	72	15
S2	16.48	19.11	69.52	48.91	5	14	49	26	19	75	8
S3	8.99	7.27	36.98	25.33	16	11	61	35	27	96	16
S4	17.50	12.61	50.00	31.12	6	6	22	16	12	38	30
S5	17.07	24.30	43.80	52.65	14	3	39	30	17	69	5
S6	8.01	7.45	36.28	44.60	13	11	47	52	24	99	13
S7	14.67	17.18	35.44	51.53	6	3	26	29	9	55	22
S8	5.78	4.09	37.05	21.01	15	12	28	24	27	52	2

The shaded columns show the test results of the participants reading the three texts in Q. This table presents the averages of two comprehension measures as well as the raw number of LUPs and CIs for each student in Q and in NQ. Note that S2 was the only participant who looked up more in NQ than in Q. S2 had 5 LUPs in Q and 14 LUPs in NQ, but generated 49 CIs in Q and 14 in NQ. His idea unit scores were also higher in Q. On the other hand, S4 had six LUPs in Q and six in NQ and the lowest number of CIs overall. However, S4's average idea unit score in Q was the second highest overall. She constructed solid textbase models of the texts.

S3 and S6 looked up the most and had the highest number of CIs. As stated above, S6 scored higher in NQ for idea units. Accordingly, she had more CIs in NQ than in Q. In contrast, S1 and S7 looked up the least, but the low number of LUPs did not

seem to affect the number of CIs. Therefore, while the number of LUPs is not necessarily indicative of higher idea unit scores and a higher number of CIs in all cases, it can still be maintained that a higher idea unit score means that readers make more connections and draw more inferences on the local and global levels.

The last column in Table 4-5 lists the raw number of MRs for each student in Texts 2 through 7 combined. Recall that MRs were defined as instances when the reader constructed a mental model of the text that contradicted explicitly stated information in the text and/or the implicit cultural background knowledge that is required in order to appropriately interpret the situation described in the text. The number of MRs for individual participants ranged from two MRs for S8 to 30 MRs for S4 (Text 2-7). Note that besides S8 only S2 and S5 had fewer than 10 MRs.

Research Question 1 addressed to what extent and how question glosses enabled readers to go beyond the linguistic and textbase level of a text to construct a situation model. In sum, although no significant statistical difference was found between Group I vs. Group II reading the treatment texts in Q or in NQ, the quantitative analyses of the recall- and think-aloud protocols revealed that question glosses enabled those participants who struggled with bottom-up processing to improve their comprehension scores, generate more inferences, and construct more accurate situation models of the texts.

The propositional comprehension measure primarily established a baseline regarding readers' bottom-up processing skills. Propositional scores showed how efficiently readers recognized words and pieces of information at the surface level of the text, without necessarily connecting propositions in a meaningful way. Question glosses improved the recall of propositions for some readers who lacked lower-level processing skills, but did not make a difference for the readers who demonstrated a high degree of

automaticity in sentence level syntactic and semantic processing. Also, depending on the type of text, question glosses may actually have hindered rather than supported some individual readers' lower-level processing. For example, some readers may have recalled more propositions with the prompts for Text 6 without necessarily being able to create a network of propositions at the textbase level, much less reconstruct the overall meaning by linking the information in the text with the appropriate background information.

In contrast, the results of the weighted idea unit analysis (See Table 4-2 and Figure 4-2), along with the raw number of CIs, answered the question of to what extent the question glosses helped readers create coherent textbase models of the texts. The idea unit analysis showed that five readers (S1, S2, S3, S4, S8) recalled more main and supporting ideas when reading a text with question glosses than without. For example, S1 and S2 scored higher in Q for idea units, but not for propositions. Neither of these two readers had trouble decoding a text, and they both remembered detail. While question glosses did not make a difference in their mental model construction on the surface level, they enabled these readers to make more connections at the textbase and situation levels. The number of CIs and the idea unit scores are indicators that the readers connected events and causes at the local (textbase) and the global (situation) levels.

The results for idea unit comprehension by text (see Figure 4-5) provide some support for the positive effect of questions glosses on the readers' construction of a textbase model, regardless of the type of text that was read. By combining the results of the quantitative analyses of the recall and think-aloud protocols, a connection between the percentage of idea units and the number of LUPs and CIs emerged. Question glosses

usually triggered more LUPs, and more LUPs resulted in higher idea unit comprehension scores and a higher number of CIs.

The most dramatic and surprising finding was the very low number of MRs for S3, S6, and S8 in comparison to S4, and S7. S8 had the overall lowest number of MRs for Texts 2-7, placing him into the same category with S2 and S5 who achieved the highest comprehension scores in Q and NQ respectively.

Research Question 2

Research Question 2 asked to what extent and how question glosses prompt readers to monitor their comprehension processes and produce causal inferences. In order to answer this question, quantitative results as reported above are viewed in the context of individual readers' histories and the qualitative analyses of the think-aloud protocols, the exit-interviews, and the pre- and post-study questionnaires (See Appendix H). Table 4-6 (below) lists eight major factors that affected how a reader approached the task at hand.

S1, S4, S5 and S7 had studied German since High School and commanded a large vocabulary. S1 and S5 achieved very high AATG test scores, while S4 and S7 scored below 80%. S1's first course at the university level was the 3rd year level "Introduction to Reading German Text." All of them had spent time in Germany and felt confident about their language skills and their cultural knowledge. These readers relied heavily on their pre-existing cultural knowledge. Recall that S1 and S7 had the lowest number of LUPs, but nevertheless a high number of CIs (See Table 4-5). S1 had 15 MRs and S7 had 22 MRs. S4 had the highest number of MRs and the lowest number of CIs. These numbers can only be explained in light of these two readers' personal histories (Table 4-6 above) and their comments about how and why they found question glosses helpful.

Table 4-6. Individual Readers' Histories and Post-Study Questionnaire Results

Ss	AATG Scores	College German	High School German	Study/ Travel in Germany	Other Foreign Languages	Comfort Reading from Screen	Qs Help	Add. Text Helps
S1	100%	1st Course GER 3234	4 years	1 year	Russian	5	5	5
S2	95%	2 Years	None	None	Spanish Portuguese	4.5	4.5	5
S3	83%	2 Years	None	None	None	5	4	5
S4	78%	2 Years	3 Years	6 Weeks	Spanish	5	4	4
S5	96%	2 Years	3 Years	20 Days	None	5	3	5
S6	88%	2 Years	None	2 Weeks	Swahili Spanish	4	5	5
S7	76%	1st Course GER 3234	4 Years	2 Years	None	2	1	2
S8	83%	2 Years	None	6 Weeks	None	5	5	5

In contrast, S2, S3, S6, and S8 were third year students of German at the university level. Their AATG scores ranged from 95% for S2 to 83% for S3. Based on their AATG scores, S3, S6, and S8 appeared to have more formal knowledge about the language than S4 and S7, but not a larger vocabulary base. Only S8 had been to Germany and had participated in a six-week study abroad program. S2 had extensive experience in learning other foreign languages prior to this study. S6 was a linguistics major and had studied Swahili for two and a half years. All of them felt that they could not rely on previous knowledge and needed additional cultural/historical information for reading authentic German texts. Indeed, the quantitative results show that S2, S3, S6, and S8 had the highest number of LUPs.

Quantitative results identified S2 and S5 as exceptional, highly proficient readers. Therefore, their qualitative datasets will be explored apart from the others to gain insight into how and why question glosses aided higher-level processing for S2, but not for S5.

Table 4-7. Readers' View of Question Glosses

S1	I don't like the little red things because they distract me from reading. (S1, Text 3; Think-aloud (October 2003).The dots. I thought they were stimulating. They made you think, they made you recall things so in that case they were good. But I thought they were bad though, because they distracted from the text. Like I told you before, I sort of just read in a flow, and if that flow is interrupted, it sort of gets messed up for me. (S1, Text 3; Interview, October; 2003).
S2	They serve as a reminder - this is why it's happening. (S2, Text 3; Interview, October, 2003). The Qs helped me figure out what was going on and they did not distract me. (S2, Text 7; Interview, October 2003).
S3	I liked the dots and felt good that I could answer most of the questions (S3, Text 3; Interview) It always annoys me when I read with the Qs. Although sometimes the Qs help, (…) when I don't get one of these Qs or when I don't understand the question, it makes me, you know, feel bad, I guess. (S3, Text 7; Think-aloud; November, 2003).
S4	I don't really need them. For clarification, things like that, it may be helpful, yes. But I don't have too much problem with German. (S4, Text 3, Interview, October 2003). I think the questions definitely helped. It changes the way I think about the story. (S4, Text 7, Interview, November, 2003).
S5	I don't know that they helped me, but they were fun activities! (S5)
S6	Yes, some of those Qs were really helpful. I never would have thought about what they were like asking me to think about unless I had those questions. (S6, Text 5; Interview; November, 2003). They were interesting. They like make you take a step back from the text and think about it in another way. Like, oh, this is in 1970, so they are visiting old camps. So as I read, a light went on and said 'think about it this way!' this is what they are talking about. (S6, Text 6; Interview, November, 2003).
S7	The Qs are not really helpful. (S7, Text 2, Interview)
S8	They clued me in that there may be something missing. (S8, Text 6; Interview, November, 2003).

While Table 4-6 above shows readers' post-questionnaire responses rating the helpfulness of the question glosses and the additional textual information in the form of culture links, Tables 4-7 and 4-8 highlight readers' comments during the reading process. Think-aloud protocols revealed readers' strategies, their level of engagement with different texts, and why and how they thought question glosses helped or hindered their comprehension process. Also, it is important to note that depending on their personalities, some participants expressed their thoughts and emotions more readily than others. For example, while S8 did not give vent to his feelings as freely as S3 and S6, he constantly shared what he was thinking and what he looked up. Thus, the think-aloud protocols of S3, S6, and S8 provided valuable insights into how much energy and time

Table 4-8. Reader's View of Cultural Links

S1	I didn't look at the cultural side at all. I probably just felt that I didn't need to understand it, and I wasn't going to waste my time. (S1, Text 3, Interview, October 2003) I could read the whole thing about the Ford Granada, but I don't find it that important. (S1, Text 4, Think-aloud; November, 2003). I looked up the Russian Jew thing, but didn't see why it was important to identify them as Russian Jews. (S1, Text 5; Interview, November, 2003). Helpful? The dots yes, the links no. (S1, Text 4; Interview, November, 2003). The links definitely helped. I used pretty much every link this time. (S1, Text 7, December, 2003)
S2	This text maybe more than the other texts requires a lot of outside knowledge to really make sense of what's going on. It's kind of a historically based text. (S2, Interview; November, 2003).
S3	I liked the other stuff, but would prefer to get the task done quickly. It becomes so much like work and it's not fun when it's so hard. (S3, Text 3; Interview, October 2003). It is nice information, but too time consuming (S3, Think-aloud; October 2003).
S4	I clicked on the red buttons, but a lot of them I already knew. (S4, Text 4, Interview, November 2004). I saw that it was a car, but didn't have a clue what the significance was. (S4, Text 4; Interview, November, 2003).
S5	There is a whole education in your little links. (S5, Text 6; Interview, November, 2003)
S6	Whenever I got stuck on something is when I thought, ok, maybe I need to look something up, so I didn't do it before. I only did it when I thought I needed something, so I clicked on the links after those two names that I found. (S6, Text 4; Interview; November, 2003). I looked up a bunch of things on the links and so some things that I found, filled in, made me realize what was happening in the text. Some of the links were so long that I didn't even try. (S6, Text 3; Interview, October, 2003).
S7	I looked at some of the pictures on the links afterwards, but I did not actually use that to understand the text (Text 3, Interview, October 2003)
S8	I will always read the links because it may help me to understand the story" (S8, Text 6; Interview, November, 2003).

was spent on looking up words and trying to make the pieces fit together, and how question glosses helped them monitor their comprehension processes. Whenever these readers "got stuck" (See Table 4-8) in decoding a text, they looked for explanations outside the text. In contrast, the more fluent readers spoke a translation, stopped to look up vocabulary, and/or broke down and analyzed long sentences. Once they made connections at the textbase level they quickly moved on.

Comprehension Processes and Monitoring: S1, S4, and S7

S1 never took longer than 30 minutes to read a text and think out loud. S4 spent between 20 and 30 minutes, and S7 between 13 and 31 minutes for reading any given text and recording the think-aloud protocol. Unlike S4 and S7 who spoke a translation, S1

read out loud in German. S1 repeatedly made the point that he did not like for anything to interrupt the flow, not even the internal dictionary, "My technique is to read straight through and when I don't know something, a word, I just leave it behind and I eventually get it. The vocabulary on the right is helpful, but is allows me to cheat. It is sort of annoying to me in that way. I looked on the right instead of just trying to read it and understand it as a whole" (Text 2, Interview; October, 2003). Whenever this reader encountered a particularly difficult passage in a text, he said to himself that it didn't matter and kept reading. He spoke to himself in the German dialect that he had learned and internalized while living in a region of Saxony for a year. Once he had read through the text the first time, he would reread and summarize what he had understood in English. After S1 read the first time with the question glosses and found that they distracted him, we negotiated a compromise. To accommodate his reading strategy, he would click on the prompts after he had read the entire text. S4 stopped to look up some words, but rarely shared her thoughts about how she made sense of the text or how she felt during the think-aloud. Crosschecking the interviews with the think-aloud protocols revealed that S4 did not always mention when she was looking up cultural information. It is therefore possible that S4 had more LUPs and also more elaborative inferences than actually could be counted. That is the most likely explanation of why she could have such a high percentage of idea units, but the lowest number of CIs overall. Her idea unit scores show that S4 made the connections, but there is little evidence of how she made them. However, since S4 also had the highest number of MRs overall, one can assume that she often drew the wrong conclusions about what certain passages in a text meant.

S7 also translated the texts quickly and efficiently. He made it very clear from the beginning that he did not need question prompts. He clicked on "the little red dots" (Text

2, Interview; October 2003) to read Text 2, but said in the exit interview that they didn't help. He also believed very strongly that he needed no additional information to read a text (See Table 4-6).

While the other readers had great difficulty staying focused on Text 3 (*Rauher Kapitalismus*) and found it quite boring, S1 enjoyed reading this long text. He had lived for a year in the former GDR as an exchange student and had first-hand knowledge of the difficult transition from a socialist to a capitalist economy. As stated above, the idea unit score for Text 3 is the highest score S1 achieved. Despite 0 LUPs, S1 also had 19 CIs, his highest number of CIs in the course of the study. His idea unit score was over 60%, whereas his propositional score on the same text was one of the lowest. S1 did not recall detail, but summarized the main and supporting ideas in his own words. He stated that the prompts were stimulating and helped him recall specific cultural background information (See Table 4-7). In other instances, S1 clicked on the question glosses and the background information, but did not see why the information was important and was unable to make the connections (See Table 4-8). S4 had similar problems to S1 with Text 4 (*Wer ist ein Türke*) and Text 5 *(Die erste eigene Wohnung)*. They both read Text 4 in Q and Text 5 in NQ. Like S1, S4 stated in the exit interview that she "saw that it (the Ford Granada) was a car, but didn't have a clue what the significance was" (See Table 4-8). S7 said that his own experience with Turks in Germany influenced how he read Text 4. He had lived in a small German town with a large Turkish population. He clearly enjoyed reading this text and thought it was easy to read. Whenever S7 and other participants said a text was 'easy to read', they were referring to the linguistic/surface level. They meant that they did not have to look up many words and that the sentences

were not too long. However, S7's answers in the exit interview showed that he misread parts of Text 4 and completely missed out on the satire.

Reading Text 5 in NQ, S1 and S4 failed to make the connection between what the text said about 'real and false Jews' and the appropriate historical information. In order to understand why some immigrants from the former Soviet Union pretended to be Jews, it was crucial to know about the special privileges the German government granted Russian Jews in Post-Wall Berlin. S7 read Text 5 in Q and found it easy to ready. When asked during the interview why the Russian Jews came to East Berlin rather than going to Israel, he said grinning, "Because it's flat" (Text 5; Interview, November, 2003). S7's answer had no basis in the text itself. The manner in which he responded to this question showed his lack of interest in this particular topic and in continuing this conversation.

S1 and S4 read Text 6 (*Die Fragenden*) without and S7 read it with the question glosses. Text 6 is an example where S1 made the interpretation of the text fit what he already knew about *Buchenwald* from his stay in the GDR and the biography of Peter Härtling, the author. S1 said he understood that "they (the three young communists) are going back to the camp (*Buchenwald*) to look for someone, to find their grave, because I think it was their parents that were killed there as communists" (Text 6; Interview, November, 2003). S4 said about Text 6 that although she could translate the words, "It did not make any sense. There was something about *"schwarz auf weiß* (black letters on white paper) and I had no idea what that meant" (S4, Text 6, Interview, November, 2003). This reader became aware that although she knew each word, she still did not understand what the words meant in this particular context. S7 clicked on the Qs, but did not give them any thought. For example, he answered the question gloss "What does the

author mean when he says the young man replaced the silence of his fathers with his own?" by translating the lines in the text without looking for any underlying meaning.

S1 and S4 changed their look-up behavior for Text 7 (Der Zweite Teil des Skandals), but S7 did not. While reading Text 7, S1 did not wait until after he had read the text to click on the Qs and look up additional information. Like S4, he looked up most links and answered the questions as he proceeded through the text. It became evident in the interview that S4 understood the connection between Friedman the Jew and the illegal sex workers who are deported if caught. She said, "I think the questions definitely helped. Like the one about whether prostitution was legal in Germany. I didn't think so, but when I looked on the links, it appears that it is. So, uh, so, uh, that's something that I didn't realize that makes it, uh, changes the way I think about the story" (S4, Text 7; Interview, November, 2003). S7 also looked up background information on Work Permits for Sex Workers in Germany. He conceded during the interview that he probably should also have looked up Michel Friedman. S7 did not understand why a women's rights organization would ask Friedman to take up the cause of illegal prostitutes who were deported when caught without work permits. S7 said about Friedman, "I guess, he was some kind of news guy. Is he black?" (S7, Text 7; Interview; November, 2003). Like S4, S7 accumulated a very high number of MRs. Nevertheless, he also had the second highest average score on the idea unit tests in NQ and in Q and more CIs than S4 and S8.

Comprehension Processes and Monitoring: S3, S6, S8

Not at all confident of their knowledge of the German language and culture, S3, S6, and S8 looked up the most words and the most background information, generated the most CIs and the fewest MRs. S6 took from 30 to 80 minutes reading the texts and

doing the think-aloud task, had a grand total of 99 CIs, and 24 total LUPs (in Q and NQ), the second highest number. S3 spent between 42 and 75 minutes and S8 between 27 and 80 minutes for reading the texts and recording the think-alouds. S8 took the most time for reading and recording the think-alouds and wrote the shortest recalls overall. Both S3 and S8 had extensive experience with learning German online, but only S8 indicated that he enjoyed reading online. In the post-study questionnaire, S6 indicated that she would have rated reading from the computer screen very low in the beginning of the study, but became more comfortable with it over time (See Table 4-6). Throughout the study, S6 complained about not being able to take notes about what she had read and forgetting words that she had already looked up. Based on the results of the proposition and idea unit analysis alone, S6 does not fit into the group that consistently read better either in the Q or the NQ condition. She scored higher in NQ than in Q for idea units and had more CIs in NQ than in Q (See Table 4-5). The analysis of her think-aloud protocols revealed that she struggled with bottom-up processing. Therefore, it was expected that she would score higher for idea units when reading with question glosses. However, S6 made full use of the additional glossing surrounding each text whether she read in Q or NQ. Whenever she "got stuck" she would consult the cultural links (See Table 4-8). Although she became overwhelmed and frustrated at times with the amount of information available to her (See Table 4-8), her general attitude toward the prompts and the extra information remained very positive throughout the study. S6 provides an example of "talking herself through" difficult passages in the text. About her reading strategy, she said, "I've noticed from times before when I try to like scan over the whole paragraph, I get so lost that it doesn't really do me any good. So I'll try to read it sentence by sentence

and figure out what the words mean and then power through. So, bit by bit, not by paragraph." (Text 4; Think-aloud; November, 2003).

S3 and S8 followed the same type of bottom-up approach and used question prompts and culture links to fill in the gaps. Like S6, S3 commented repeatedly how difficult it was for him to read in German, and that looking up additional information did not make it easier for him (See Table 4-8). Despite laboring intensely at decoding the texts, S8 also made the extra effort to scan most of the links for most of the texts. These readers also noticed that Text 6 *(Die Fragenden*) was difficult to understand despite its short sentences. S3 read Text 6 without the question glosses. He commented in the exit interview that he was able to figure out that the three young communists were looking for a sub-camp only because he had looked at the links. S8 also came to realize that question prompts clued him in on what was missing (See Table 4-7). For example, he answered Q6 in Text 6 about what the author meant when he said that the young man in the story replaced his fathers' silence with his own. S8 was the only participant who made the obscure connection between the silence of the fathers who did not speak out against the crimes committed against Jews and the young man who fell silent when he heard the survivors' testimony. It became evident from the think-alouds and the interviews that S8 not only read the links, but also drew the appropriate inferences to construct a situation model of the text. However, S8's test scores dropped off drastically for Text 7 in NQ. Although he did not have fewer LUPs, he failed to look up pertinent information on Michel Friedman and therefore missed some of the main ideas. He only spent 26 minutes for the think-aloud task and wrote a 58-word recall for a text that had 488 words.

Exit interviews revealed that S3 and S6 enjoyed reading Text 5 *(Die erste eigene Wohnung)* because it was short and seemed easy to read. Interestingly, S3's idea unit

score dropped considerably for this text although he still had 5 LUPs, read for 51 minutes, and produced a 209-word recall for a 488-word text. He said in the exit-interview that it was either very easy or he misunderstood. Indeed, reading Text 5 without question glosses, S3 did misunderstand a couple of major points at the end of the story. S6 read with question glosses, had the highest number of LUPs for Text 5, but also a lower score than for the previous and much longer text. In fact, S6's idea unit scores dropped for Texts 5, 6 and 7. She spent much less time for the think-alouds and wrote shorter recalls. For Text 5 she had the highest number of LUPs and 21 CIs, but the lowest idea unit score overall. She spent only 36 minutes for the think-aloud and wrote a 143-word recall.

Comprehension Processes and Monitoring: S2 and S5

The quantitative results show that S5 and S2 were both excellent readers. However, while S2 used the prompts to monitor his comprehension, S5 did not. Their qualitative data bring to light the fact that they approached the online reading task with different mind-sets. While S2 looked forward to perhaps "making the leap to online reading," S5 was less optimistic. Once she encountered difficulties with the recording system in the lab and one of her think-alouds was lost, S5 became anxious about reading online. S2 spent between 20 and 30 minutes for the think-aloud activity before writing the recalls. S5 took more time, but usually finished in less than one hour.

During the think-alouds, S2 was very much aware of the researcher's presence. Usually, S2 introduced himself, greeted me, and told me how he would go about reading the text, "Let's say first I'm gonna read a little bit. So it'll be quiet. I'll chime in with interesting facts and what not" (S2, Text 2, Think-aloud; October, 2003). He apologized for feeling sick and not being as alert as usual, for not talking enough, for "jumping the

gun" when he made a prediction reading Text 2 *(Kannitverstan)*. At the end of the second think-aloud, S2 shared that he had been anxious and felt great relief that he had enjoyed and understood *Kannitverstan*. S2's strategy did not change throughout the study. He read quietly, announced when he looked up information, and then summarized in English what and how he had understood the text.

On the other hand, S5 spoke a nearly perfect translation of the texts into the microphone. Occasionally she expressed feelings of delight or dismay about vocabulary that was or was not glossed next to the text. Following the instructions very closely, she then wrote all she could remember in the recall protocol. She wrote more than any other student and achieved the highest scores in NQ for both the propositional and the idea unit test.

Likewise, S2 and S5 had different views on the usefulness of prompts and culture links. S5 assured the researcher that she had no trouble understanding the texts and therefore had no need for the links. She didn't take the question prompts seriously and refused to think about them. For example, S5 responded to Q3 in Text 5, "What does the author imply?" by stating "The author does not imply. The author says right out that the Vietnamese didn't know anything about cigarette trafficking" (S5, Think-aloud; November, 2003). However, she missed the irony in that remark. The author implied what is common knowledge in Germany, namely that the Vietnamese, once guest workers in the former GDR, had become a formidable problem because of organized crime. In contrast, S2 did not rely as much on his prior knowledge as did S5. Although S2 did not like to spend much time on reading links and thought some were unnecessary, he said that they helped remind him why something was happening (See Table 4-7). S2 enjoyed Text 4 because he had lived in Turkey for six years and had extensive knowledge

of that country, its history and its people. He said that although he had previously studied about the situation of the Turks in Germany, the question prompts still helped. For example, prompted by a question gloss, S2 concluded that the reason the Turks liked the Ford Granada was because Turks had big families. S2 also knew that Germans tend to have one or two children and drive small cars. S2 read Text 5 and Text 6 in NQ. While he perceived Text 5 as a simple story, he thought that Text 6 was the most difficult of all the texts. S2 commented that this text "required a lot of outside knowledge to really make sense of what's going on" (Text 6; Interview, November, 2003). He made use of the cultural links because he had no prior knowledge of Buchenwald, its sub-camps, or the existence of special camps for women. Genuine shock and disbelief about the long list of sub-camps were very apparent in S2's think-aloud protocol. For Text 7, S2 used both the Qs and the links. Again, he commented that the Qs helped him to figure out what was going on and they did not distract him (See Table 4-7). This is a clear case of a reader who monitored his comprehension processes, noticed cultural knowledge gaps, and looked for explanations. S2 used the prompts to keep on track, but did not necessarily need them.

S5 read Text 6 with the question glosses, but did not think about them. When she was unable to answer probing questions during the exit interview, S5 remarked, "There is a whole education in your little links" (Text 6; Interview, November, 2003). This particular interview revealed that while S5 was not uninformed about the issues surrounding this particular text, she did not understand its deeper meaning. The note S5 added to the post-study questionnaire summed up nicely what she thought of question prompts. She wrote, "I don't know that they helped me, but they were fun activities!" (See Table 4-7).

In sum, in order to answer Research Question 2 regarding to what extent and how question glosses were used to support higher-level processing, each reader's qualitative dataset was analyzed and compared with the datasets of the other readers within her/his group. Groups had been formed based on the comprehension scores, the number of LUPs, CIs and MRs, and individual readers' histories and responses to the post-study questionnaire. Indeed, while the analyses of the think-aloud protocols yielded a different profile for each individual reader, certain learner/reader characteristics emerged to explain why question glosses were useful or not and which kind of reader was likely to use question glosses to monitor her/his reading comprehension.

Readers who had great confidence in their linguistic skills and in their knowledge of the German culture were less likely to use the question prompts. S1, S4, and S7 belonged in this category. These readers perceived question glosses as unnecessary and even as an intrusion into their private interactions with the text. S1 used question glosses primarily to activate prior knowledge. S4's think-aloud protocols provide little evidence that the question glosses enabled her to go beyond the textbase level of a text. She was an efficient reader capable of making the connections at the textbase level, relying primarily on her large vocabulary base. In this first group, S7 was the least likely reader to benefit from question glosses. Like S1, he had lived and gone to school in Germany for an extended period of time and was very comfortable speaking the language. Whenever S7 answered the question prompts, he did so reluctantly and in a belligerent or condescending tone. He was satisfied to interpret a text based on what he thought he knew about the German people and their culture. It is understandable that a reader with his history and his kind of mind-set would fail to benefit from the question glosses.

In contrast, S3, S6, and S8 share some learner/reader characteristics that made them the most likely candidates to use the question glosses to improve their understanding of a text. They had far less confidence in their language ability and their prior knowledge of German culture and history. The think-aloud protocols show that these three readers had to look up many words and labored over difficult syntax. For most of the texts, they spent the extra effort and time it required to think about the prompts and scan the pre-selected websites for cultural information. They generated more CIs and fewer MRs than the first group.

S2 and S5 were different from the individuals in the other two groups because they consistently achieved the highest idea unit scores in Q and in NQ respectively. Both were skilled comprehenders who made connections at both the textbase and situation levels of a text and had few misreadings. They both read well with and without question glosses. However, while S5 gave them little or no thought, S2 used them to hone his metacognitive skills.

Research Question 3

Research Question 3 addressed whether question glosses affect readers' look-up behavior over a period of time. Will readers take advantage of glosses other than dictionary glosses in response to question prompts and will they continue to do so even without question glosses? In order to determine change over time, a Wilcoxon signed ranks test was performed for Text 1 (D1) vs. Text 8 (D2) within Group I and within Group II for propositions and for idea unit scores. For Group I, no significant difference was found for propositions and idea unit scores. For Group II, there was no significant difference for propositions. For idea units, however, a trend towards significance was

found (p=0.068). While this does not reach the value of p=0.05 necessary for statistical significance, it does indicate a trend toward change over time.

In the post-study questionnaire, the participants of this study unanimously agreed that the external and the internal dictionary were most helpful (See Appendix H). The question whether the readers in this study looked up more than dictionary glosses has already been answered. Indeed, quantitative results show that primarily those readers who struggled the most with bottom-up processing and had to look up more words than the more fluent readers also used the question and the cultural information glosses. The analysis of the qualitative datasets of these readers revealed that they looked for explanations outside the text when they became bogged down with words and syntax.

The question that remains to be answered is whether the question glosses affected readers' look-up behavior over the period of eight weeks and, if so, if they continued to look up information even without the question glosses. Table 4-9 below shows the combined quantitative results for all participants reading Text 1 (*Amerika*) and Text 8 (*Good Bye Lenin*) without question glosses before and after the treatment period. For both texts, readers could use the internal dictionary and were free to browse the internet for additional information. Text 1 (*Amerika*) was a consciousness-oriented narrative and Text 8 (*Good Bye Lenin*) an expository text. They were comparable in length and difficulty of syntax. Text 8 was longer than Text 1, but contained familiar content about the demise of the GDR and the Fall of the Berlin Wall.

Half of the readers recalled a higher percentage of propositions for Text 8 (D2) than for Text 1 (D1). S2, S3, S5, and S6 recalled more and S1, S4, S7, and S8 recalled fewer propositions for Text 8 than for Text 1. A comparison of percentages of idea units recalled for Text 1 (D1) and Text 8 (D2) shows that only S3 scored higher on Text 8 than

on Text 1. Indeed, S3 improved his score by nearly 50%, while S7 showed the largest decline. S7 dropped from 41.51% for Text 1 to 16.09% (60%) for Text 8.

Table 4-9. Readers' Combined Quantitative Results for Text 1 (D1) and Text 8 (D2)

S	Text 1 P	Text 8 P	Text 1 IU	Text 8 IU	Text 1 LUPs	Text 8 LUPs	Text 1 CIs	Text 8 CIs	MR Text 1	MR Text 8
1	9.48%	4.39%	25.47%	19.54%	2	4	8	2	8	2
2	10.95%	13.39%	58.49%	41.95%	0	0	15	6	0	1
3	3.59%	9.01%	15.09%	30.46%	0	0	9	15	1	5
4	12.09%	10.05%	38.68%	29.31%	0	4	0	5	0	5
5	12.25%	18.48%	42.45%	39.66%	0	2	13	13	0	3
6	7.03%	8.66%	33.02%	28.16%	0	2	25	17	8	5
7	6.70%	6.12%	41.51%	16.09%	0	0	8	11	6	9
8	2.61%	1.27%	4.72%	2.30%	0	2	3	11	0	2

It has already been established in this study that the raw numbers of CIs tend to rise and fall with the idea unit comprehension scores and possibly, but not necessarily, with the number of LUPs. Each reader's number of LUPs and CIs for Text 1(D1) and Text 8 (D2) as well as a progression from Texts 2-7 are reported (See Table 4-4). The number of MRs for Text 1 and Text 8 are also included. The number of MRs are indicative of how well a reader managed to construct a situation model of the text based on appropriate background information without the prompts and without pre-selected cultural links. Table 4-9 above shows that S2, S3, and S7 had 0 LUPs for Text 1 and 0 LUPs for Text 8. Based on these numbers alone, no training effect took place for these three readers over a period of eight weeks. S2's idea unit score was lower for Text 8 than for Text 1 and the number of CIs dropped also from 15 to 3. Throughout the study, S2 looked up more in NQ than in Q and accumulated the highest number of LUPS for Text 6 in NQ. In the exit-interview, S2 commented that he used the internal dictionary for reading Text 8, but did not use the Internet to look up information about the movie Good Bye Lenin. Although he did not know the movie, he felt that he had gained enough

knowledge about the GDR from the other texts he had read in this study to understand Text 8. Thus, 0 LUPs for this reader may have meant that he felt he had no gaps and therefore did not need to look up more information. It does not mean that there was no training effect over time. S2's comments throughout the study indicate that prompts helped him develop his metacognitive skills.

For S3 there was a steady increase in the number of LUPS from the beginning to the end of the study. After reading Text 3 and 4 in Q, he continued to look up information reading Text 5 and Text 6 in NQ (See Table 4-4). Despite 0 LUPs for Text 1 and Text 8, S3 had 9 CIs for Text 1 and 15 for Text 8. Thus, the number of CIs increased along with his idea unit score for Text 8. S3's qualitative dataset revealed that he attempted to look up information, but experienced problems with the university server. It was shortly before the Christmas break, and since S3 had already rescheduled reading the last text once before, he decided to continue. The only support he had was the internal dictionary. S3 said in the exit-interview, "One time Google did work! And what's hard for me is, I guess, is being spoon fed the culture part kind of spoiled me. It's hard to look it up yourself. I tried to look up the person who critiqued the play. I tried to look her up and all I found was something on erotic cookery. And that didn't help. And that is pretty typical for what happens when I look up cultural stuff. I have to go through a big mess until I find what is useful." (Text 8; Interview; December, 2003). S3 also registered 1 MR for Text 1 vs. 5 MRs for Text 8.

Although S7's idea unit score was 60% lower for Text 8 than for Text 1, he had three more CIs for Text 8 than for Text 1. S7 did not know the movie and he did not look up any information about it. S7 had only 9 LUPs across all eight texts, the lowest number of all participants. He had 5 LUPs for Text 5 and then dropped off again to 0

LUPs for Text 8. His qualitative dataset indicates that S7 did not change his mind about question prompts and additional information. There was no apparent change in look-up behavior over time.

S1, S4, S5, S6, and S8 looked up more for Text 8 (D2) than for Text 1. S1 was the only reader who looked up any information for Text 1 (D1). In his think-aloud he reasoned that perhaps the Austrian author was writing about himself and his journey to America. S1 then inappropriately interpreted the story based on the author's biography. Although his overall number of LUPs remained one of the three lowest of all the participants, S1 had 2 LUPs for Text 1 and the most LUPs for the last two texts, Text 7 in Q and Text 8 in the dictionary-only condition. S1 had 4 LUPs for Text 8. He had heard about the movie before and googled the trailers. In the exit interview for Text 8, S1 demonstrated that he understood the narrative of the film and the critique. However, S1's idea unit scores for both Text 7 and Text 8 are very low in comparison to the scores of Text 2, Text 3, and Text 4. His change in look-up behavior for Text 7 did not lead to higher idea unit scores and more CIs.

Similarly, S4 had a low number of LUPs overall, but for Text 8 she accumulated more LUPs than anyone else. Although her idea unit score is lower for Text 8 than for Text 1, the number of CIs is slightly higher. S4's number of LUPs increased slightly over the period of eight weeks. She changed her look-up behavior in Text 7 and achieved a higher idea unit score for Text 7 than for the previous two texts. Since S4 spoke a translation and did not give the researcher a window into her comprehension processes, the number of CIs that could be counted was still very low. The number of MRs was up from 0 for Text 1 to 5 for Text 8.

S5 had the same number of CIs for Text 1 and Text 8, although she had 0 LUPs for Text 1 and 2 LUPs for Text 8. S5 always had more LUPs in Q than in NQ, but the third lowest number of LUPs of all the participants. However, when she saw that no links were provided for Text 8, S5 went to Google and looked up several items. There is no evidence that S5 changed her mind about the usefulness of prompts and/or extra-textual information.

S6 had 3 or 4 LUPs per text whether she read in Q or in NQ. She had the most LUPs and a high number of CIs for Text 5 in Q, but the lowest idea unit score. Although her number of LUPs and CIs remained fairly high throughout the study, her idea unit scores nevertheless continued to fall for the last four texts. S6's idea unit score, number of CIs, and number of MRs were higher for reading Text 1 than Text 8. The high number of LUPS and CIs and the low idea unit scores may be an indication that S6 was not always successful in editing out irrelevant information. Based on numbers alone, there is no reason to believe that S6 benefited from the prompts. However, the analysis of the qualitative data shows that S6 did make use of the question glosses. It is possible that the question glosses helped her develop a greater awareness of how she was processing the texts. She noticed gaps and looked up extra information in Q and in NQ. Therefore an indirect training effect over time can be claimed.

S8's idea unit scores were extremely low for Text 1, Text 7, and for Text 8. Although he had 5 LUPs for Text 7, the idea unit score dropped to 4.44%. S8 had 0 LUPs for Text 1 vs. 2 LUPs for Text 8 and his idea unit scores were 4.72% and 2.30% respectively. Despite the low comprehension score for Text 8, the number of CIs for Text 8 was higher than for Text 1, Text 2, Text 4, Text 6, and Text 7. He had 2 MRs for Text 8. S8 said in the exit-interview that since he was familiar with the film Good Bye

Lenin, he was not compelled to look up information. He seemed pleased with his progress and said, "I just found myself being able to read whole sentences without looking. That is good because my conversational German is really bad, so it's nice to have some improvements in some areas" (Text 8, Interview; December, 2003). Although his scores imply a different story, S8 felt he read better at the end of the study than at the beginning. Improvement meant for S8 that he did not have to look up so many words and that he grasped the meaning of sentences more quickly. The extremely low idea unit scores toward the end of the study appear to be a result of very short recall protocols. The last text was 918 words long and S8 wrote a 119-word recall protocol. Nevertheless, there was a definite training effect for question glosses. Four months after the study, S8, the only participant who truly liked reading online, was still reading German news articles online. He said that even when he read German from a book, he would open several windows on his computer. Not only did he continue to use LEO, but also made use of other online resources after the study. In his opinion, there are only two disadvantages to reading text online: you cannot write notes into the text itself, and you must sit at the computer.

In sum, the quantitative and qualitative findings for Research Question 3 suggest that over a period of eight weeks most participants' look-up behavior was affected by the question glosses. With the exception of S5 and S7, readers learned to take advantage of the prompts to varying degrees and based on their individual needs. Although the idea unit scores decreased for most readers toward the end of the study and were therefore lower for Text 8 than for Text 1, their number of LUPs and CIs generally increased. S3 was the exception because his idea unit score was higher for Text 8 than for Text 1. Due to technical difficulties, S3 could not use the internet to look up background

information when he read Text 8. Despite a higher number of MRs, S3 constructed a solid textbase and situation model of Text 8 with the help of the internal dictionary and his prior knowledge of the events surrounding the Fall of the Berlin Wall.

CHAPTER 5
DISCUSSION

The findings of the present study seem to contradict claims that L2 readers do not build coherent situation models of texts because their efforts are concentrated on the surface and textbase levels (i.e., Zwaan & Brown, 1996). The quantitative analyses of the recall- and think-aloud protocols of this study revealed that interspersed question glosses in a hypermedia environment enabled those participants who struggled with bottom-up processing to improve their comprehension scores, generate more inferences, and construct accurate situation models of the texts. These results are in line with an interactive compensatory process model of L2 reading (Stanovich, 1980) that states that the reader compensates for a deficiency at one level of processing by increased efforts at processing at another level. The results of the qualitative analysis of the think-aloud protocols illustrate how the individual reader constructed meaning as she/he engaged in both bottom-up and top-down processes. Those readers who lacked automaticity in sentence level syntactic and semantic processing used the question glosses to go beyond the surface and textbase level to construct situation models of the text based on appropriate cultural and historical background information. Furthermore, question glosses enabled these L2 readers to not only generate more causal inferences, but also avoid misreading the texts. The findings of the present study confirm Lomicka's (1998) conclusion that interspersed questions aid the development of a situation model of text comprehension.

The present findings are consistent with an explanation-based theory of comprehension (i.e., Trabasso & Magliano, 1996), which posits that a reader has to understand why something occurs in the text, in order to construct a coherent mental model of the text. Accordingly, question glosses helped the less proficient intermediate-level readers to repair breaks in coherence by alerting them to possible explanations for story events and actions and allowing them to make the connections at the local and global levels. On the other hand, those readers who relied primarily on their vocabulary knowledge and the activation of their existing schemata of German culture often misread a text without being aware of it.

Question glosses were designed to encourage readers to continually question, reassess, and revise their interpretation of the text. Thus, the use of question glosses required a greater mental effort by the L2 reader and led to an increased engagement with the text. The results of the qualitative analysis of the think-aloud protocols obtained in the present study concur with evidence from previous studies (Laufer & Hulstijn, 2001; Rott & Williams, 2004), which found that increased involvement of the L2 reader facilitates greater depth of cognitive processing. Generally, greater depth of cognitive processing resulted in the generation of more causal inferences and facilitated the recall of main and supporting ideas. Thus, question glosses provided assistance and training with regard to L2 readers' higher-level processing skills.

Based on previous research *(*i.e., Carpenter & Just, 1987; Koda, 1992)*,* it was predicted that those readers who did not have to pay so much attention to the decoding of a text would engage in more top-down processing such as inference and analysis. That was not necessarily the case in this study. Indeed, current findings revealed that readers who had a high degree of automaticity in lower-level processing often did not make the

effort to become engaged with the texts at a deeper level and, as a result, generated fewer inferences and more misreadings than those readers who labored over decoding each text.

Previous research has also found that low proficiency readers primarily access glosses to determine the meaning of a word and do not explore other available resources (Davis & Lyman-Hager, 1997). While this may be true for hypermedia environments without built-in guidance, it did not hold true for reading with question prompts. Quantitative and qualitative results provided evidence that those readers who had to look up more words than the more fluent readers also used the question glosses.

This study also found that most readers' look-up behavior in response to question glosses changed over time. Some of the more fluent readers began to increase their look-ups toward the end of the study after experiencing how question glosses had helped them notice and consequently fill the gaps in their existing schemata. Less fluent readers continued to look up cultural and historical information when they were reading a text without the question glosses, and they looked up more for Text 8 than for Text 1.

In spite of an increase in look-ups for some readers toward the end of the study, more look-ups and more causal inferences did not necessarily produce higher idea unit comprehension scores. Previous L1 reading research (i.e., Trabasso & Magliano, 1996) had concluded that less skilled comprehenders might draw more elaborative inferences than more skilled comprehenders because they do not edit out irrelevant information. This principle also applied in the present study in the case of the less proficient L2 readers who read without the question glosses. Toward the end of the study it became evident that those less proficient readers who had come to depend on the question glosses and the pre-selected links for guidance experienced great difficulty filtering out what was relevant to the text itself and drawing appropriate conclusions when the question glosses

and links were not provided. This may explain why these readers continued to generate a high number of look-ups and causal inferences without glosses, but failed to achieve higher idea unit comprehension scores.

Despite the fact that each reader in this study received the same instructions and question glosses potentially enabling all intermediate level readers to construct accurate situation models of the texts, results were very mixed. According to activity theory (Leontiev, 1978), outcomes or activities were different for each of the eight participants of this study because outcomes are determined by the individual reader's response to the assigned task based on personal history, learner characteristics, and her/his level of motivation and engagement. Results indicated that if and how readers made use of the question prompts was largely affected by the individual's perception of her/his language skills and prior knowledge of the German history and culture. The think-aloud protocols provided a glimpse into how each participant interpreted and engaged with the reading task in similar, but nevertheless distinct ways.

The analysis of the think-aloud protocols of the present study supports the notion of the re-externalization of inner speech (i.e., Smith, 1996) and corroborates previous evidence (Roebuck, 1998) that individuals often re-interpret the meaning or intent of a difficult cognitive task. Concurrent with the readers' interaction with the text, a type of social interaction took place in which individual readers asserted their agency within the experimental setting. Think-aloud protocols revealed how participants "repositioned the self" (Roebuck, 2000) when they felt overwhelmed with making sense of a particularly difficult passage. They literally "talked themselves through," attempting to gain control and to complete the task at hand. While they had initially agreed to the conditions of the experiment, these individuals nevertheless began to question the fairness of those

conditions when they became a threat to self. By stating that their expectations about the assigned task had not been met (e.g., a text was too long; key vocabulary was not included; cultural links were too long; question glosses were confusing rather than helpful; the noise level in the language lab was unacceptable), these individuals shifted the blame for possible failure away from themselves. Another form of "repositioning" took place as one of the readers renegotiated the task with the researcher based on his goals and needs. This reader would click only on the question prompts after first reading the entire text. By reframing the task, he repositioned himself from that of the compliant "experimental subject" to the "active co-participant" who decided for himself how to best use the tools made available to him in the hypermedia environment. Therefore, his activity was unique and different from the activities of the other readers.

In the current study, the reading task as planned by the researcher was for the subjects to write all they remembered after they had read a text and recorded their think-aloud protocols. However, the activity that was actually produced when most participants performed the task was a summary. A summary is qualitatively different from remembering isolated details. In this study, the same recall protocols were analyzed two different ways and yielded two different types of comprehension scores. The propositional measure seemed to reflect how much of the surface information (individual facts and details) the reader was able to recall. On the other hand, writing a summary required that the reader recalled how main and supporting ideas were connected. For example, the same reader who performed poorly on the propositional measure scored fairly high on the idea unit count because she/he did not recall much detail, but rather summarized the main ideas. Likewise, a reader's high score on the proposition count did not mean that she/he actually got the gist of the story.

The way researchers define and assess comprehension is crucial to the field of L2 reading. It is common knowledge that the task a researcher assigns will influence how a reader interacts with the text and how she/he will reconstruct meaning. With respect to reading comprehension assessments, while the results of the present study demonstrate that using a combination of product and process measures provides the most accurate picture of how well a reader comprehends, these results must be understood holistically and interdependently as situated activity, as with any learning task.

CHAPTER 6
CONCLUSIONS

The purpose of this research has been to investigate the effects of question glosses on the comprehension processes of intermediate-level learners of German reading authentic text in the hypermedia environment. Recall that Bernhardt (2000) argues that half of any given reading comprehension score is unaccounted for and lies in the individual differences of the L2 reader. These individual differences include the reader's comprehension strategies, level of engagement and motivation, and her/his background knowledge. Simply asking whether question prompts are helpful or not means ignoring much of the variance in reading comprehension scores. Therefore, the quantitative results of this study were interpreted in the context of each participant's profile, asking for whom, and for what type of text question prompts were helpful. Individual participant's profiles developed through think-aloud protocols, pre- and post-study questionnaires, and interviews revealed what each brought to the process and provided a window to understanding why question prompts seemed helpful to some individuals but were perceived as a hindrance by others.

Number of Subjects

One of the limitations of this study was the small number of subjects (n=8). Recruiting the subjects from a single introductory reading course for learners of German limited access to a larger student population, but simultaneously limited the effect of instructor variability. Due to the small number of participants, and the fact that the comprehension data were not normally distributed, nonparametric statistical tests were

performed. No statistically significant difference was found between Group I and Group II reading the glossed or un-glossed version of the treatment texts (Text 2 through 7). With a larger number of subjects, the difference may well have reached statistical significance. For future research, it would be advantageous to replicate this study by collaborating with foreign language departments at other universities or within other foreign language programs in order to recruit a larger number of subjects. However, a larger number of subjects would limit the degree to which the data could be looked at qualitatively.

Technology Improvements

The multiple-frame template for this study was created in 2003 and is now outdated. After completing the data collection and analysis, it became evident to the researcher that although this template served its basic purpose for presenting the core text along with the glosses, it lacked three important features. First, it lacked a built-in tracker to record each look-up for each reader; second, it lacked a mouse-over feature for unknown vocabulary; and third, it lacked an online writing tool for readers. Since the data collection had to be conducted in the multimedia lab of the university rather than in a research lab, trackers could not be installed. It was feared that they might interfere with other software, i.e., the the recording system. Several readers complained about losing their place in the text when they were scrolling up and down to find words in the internal dictionary. The mouse-over feature would have been more convenient for readers who look up many words. Also, several readers missed writing down words or comments as they normally do when reading from a hard copy. A more technologically sophisticated reading program would have avoided this problem by incorporating a note-pad for the readers as well as the other features noted above.

Implications for Pedagogy

As stated in the introduction, reading is at the heart of language and culture learning. The hypermedia environment allows foreign language teachers to provide an authentic cultural context for learning the language. However, it has been established that in order for learning to take place, we must create hypermedia environments that provide guidance and prevent readers from getting lost in cyberspace. Hypermedia environments for reading authentic text must incorporate aids for higher-level processing that help learners of a foreign language become more critical and independent readers.

This study has shown that some intermediate-level learners of German who struggled most with decoding a text compensated for a lack of automaticity in lower-level processing by using question glosses. With the help of question glosses they generated more causal inferences and constructed situation models of the texts based on appropriate background information. Perhaps, most importantly, they avoided misreading the texts.

It is extremely important, particularly at the university level, to train students to become active participants in the construction of meaning. A number of studies have shown that strategy training improved reading comprehension (Anderson, 1991; Barnett, 1989; Cohen, 1990; Swaffar et al., 1991). Readers can learn to use metacognitive strategies such as question prompts. In the course of this study, some readers pushed themselves to think about the prompts and to click on the links for extra information. Over time, some readers monitored their understanding of the text and looked up information even without the prompts. The fact that I conducted the exit interviews myself may have had some training effect for some students. After finishing the recording and the recall, I asked each reader to answer questions about her/his experience with the text and the glosses: did they like the text, what helped them to understand it,

and, if the reader said she/he did not need to look up anything, I asked more probing questions about the content. The goal was to help the readers see for themselves that clicking on the prompts and scanning the extra information may be worthwhile. It could not be determined statistically whether these conversations with the researcher had any effect on these readers' look-up behavior over time. However, it did become evident that by 'talking themselves through,' some of these participants felt they were becoming better readers.

In the present study, the think-aloud procedure was used as a method of inquiry into the comprehension process. Thinking out loud can also be used as a means to teach readers to become more aware of their thinking processes and meaning construction (Kucan & Beck, 1997). L2 teachers at all levels can model how to verbalize thought and engage learners in conversations about how they understand something. Readers could be paired up to read a text and collaboratively reconstruct its meaning. By articulating to a peer how the reader comes to understand some passage in the text, the reader might become aware of certain strategies that work. The goal is to help the individual become an independent critical reader and a skilled comprehender.

Future Research

Several subjects in this study were reluctant to use the question prompts because they interrupted their private interaction with the text and interfered with their own schema. In order to address this issue, future research should examine the combined use of an advance organizer (priming gloss) and interspersed questions (prompting glosses) in the hypermedia environment to better accommodate the individual reader. Advance organizers can present background information in the native language of the reader and create the appropriate cultural context for the text reading. If the relevant schema can be

activated before the reader begins to read the text, she/he will be better prepared to make the connections between the questions, the information in the text, and the background information in the advance organizer. This approach may also allow the reader to be a more active participant in the process, and, as a result, to feel less manipulated by the researcher/teacher.

The responses of the subjects in the present study suggest that background information must be chosen carefully and used sparingly. Less is apparently more. In this study, too much information overwhelmed readers. After spending 5-10 minutes of scanning extra information, readers tended to forget what they had read in the core text and/or the meaning of the words they had looked up. In addition, with an advance organizer there is the danger that a reader will decide what the text means based solely on information in the advance organizer and misread the text. Therefore, combining the priming and the prompting gloss to aid higher-level processes may be more helpful than using only one or the other.

In conclusion, the present study has contributed to our understanding of how to guide and support higher-level processing for intermediate-level readers of a foreign language in the hypermedia environment. This study has shown that linguistic competence is not sufficient to truly understand a foreign text. Text comprehension requires both topic knowledge and culturally bound knowledge. By using question prompts, struggling readers who lacked foreign language reading ability learned to monitor their understanding of a text and to look up the information they needed. With the help of the question prompts and the additional background information, these readers constructed appropriate textbase and situation models of the texts and learned to read between the lines.

APPENDIX A
PRE-STUDY QUESTIONNAIRE

Please take a few moments to answer some questions about yourself and your foreign language learning experience. **This information will be held in strict confidence and is for my research purposes only.** It will not be shared with your instructor or any other member of the Department of Germanic and Slavic Studies at the University of Florida. It will not be published in any form that would make it possible to identify this information with you individually.

Name: _____

Age: _____ Male _____ Female_____

Major field of study:_____

Minor_____

What is your native language (first language)?

English_____ Spanish_____ German_____ Other_____

Have you learned and/or are you learning now another foreign language besides German?

____Yes _____No

If yes, which language? _____ For how long? _____

Total years of German instruction: _____

Years of High School German: _____

Courses taken at UF:

_____

Courses enrolled in at the present:

_____

What is your GPA in German ____A ____B____C

Study Abroad Experience: _____Yes _____No

If yes, please elaborate:

_____

Have you ever lived or traveled in a German–speaking country? ____Yes _____No

If yes, where and for how long?

_____

Do you enjoy reading in your native language? _____Yes _____No

If yes, what kinds of texts to do like to read?

_____

Do you have experience in reading and discussing literary texts (novels, short stories, poems etc.) in your native language? _____Yes _____No _____Some

How much time do you spend reading in English for pleasure each week?

_____

How much time do you spend reading in German for pleasure each week?

_____

Do you have experience in reading and discussing literary texts in German?
_____Yes _____No _____ Some

Do you feel comfortable using a computer? _____Yes _____No _____Somewhat

How much time do you spend daily on the computer? Internet _____ email _____ Games _____ Chatting _____ Course work _____

Have you ever used a computer for foreign language study? _____Yes _____No
If yes, was this a positive experience? _____Yes _____ No

Please elaborate on your positive/negative experience:

_____

_____

Briefly describe what types of technology/software you have used for which languages and what you liked or did not like about them:

_____

_____

Do you like reading a text online? _____Yes _____No

You are now enrolled in an online reading course. How do you expect this course to be different from the traditional introductory course in reading German literature?
What is it about the online environment that may prove helpful/problematic to you in coping with authentic German text? What do you think?

_____

_____

_____

_____

_____

_____

_____

Thank you very much for answering these questions.
CHRIS OVERSTREET

APPENDIX B
DESCRIPTION OF TEXTS

Texts	Genre	Number of Words	Number of Propositions	Idea Units Points
Text 1 Amerika	Narrative	806	306	53
Text 2 Kannitverstan	Narrative	850	271	46
Text 3 Rauher Kapitalismus	Expository	1004	395	35
Text 4 Wer ist ein Türke	Expository	1267	422	35
Text 5 Die erste eigene Wohnung	Expository	558	235	51
Text 6 Die Fragenden	Narrative	472	184	64
Text 7 Der Zweite Teil des Skandals	Expository	488	207	45
Text 8 Good Bye Lenin	Expository	918	433	87

APPENDIX C
SAMPLE TEXT SCREENS

READING RESEARCH C. OVERSTREET

Before you begin, please read the following instructions on how to proceed. Read the text, verbalize your thoughts and record them as you read. Then write everything you remember about the text. Here are detailed instructions for each task.

INSTRUCTIONS FOR THINK ALOUD PROTOCOL
1. Verbalize what you are thinking during reading. Use English and German freely. Don't try to explain, just report your thoughts as you are making sense of the text. 2. You do not have to read the text itself out loud, but you may do so, or speak a translation if you feel the need to translate to make sense of it. 3. As you proceed through the text, imagine you could communicate with the author. You could ask her/him questions or simply make comments. For example: "I have no idea what you mean here." "How does this fit in with…?" "What is the connection between this and what I read before?" "Is there a clue somewhere for…?" "Why does Fritz say this…?" Or: "Aha, I see where this is going…!" "I don't see where this is going…!" "Aha, I see what you mean now. I guess, this event relates to…" 4. You can say when you have to stop to look up a word. When you use LEO, or any other available information, go ahead and pretend the author is listening. Sorry, you won't get a response from the author! However, this technique may be helpful in verbalizing your interaction with the text. Viel Spaß!
IMMEDIATE RECALL PROTOCOL
Immediately after you saved your think aloud protocols, you go to the Immediate Recall Page. Once you start writing the recall, you cannot return to the text. Write everything you can remember about the text in English. You may comment on what you think the story is about.
"Die Fragenden" von Peter Härtling Q
"Die Fragenden" NQ
Immediate Recall Page

SCREEN 1

C:\DissProject\Kannitverstan\MainScreenNoQG.htm - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address C:\DissProject\Kannitverstan\MainScreenNoQG.htm

LEO

GEOGRAPHY

Emmendingen
Gundelfingen
Tuttlingen
Niederlande

CULTURAL INFO

Johann Peter Hebel

Genre

Amsterdam

Handwerks-burschen

Das Märchen vom Schlaraffenland

"Kannitverstan"
Johann Peter Hebel

Der Mensch hat wohl täglich Gelegenheit, in Emmendingen und Gundelfingen so gut als in Amsterdam Betrachtungen über den Unbestand aller irdischen Dinge anzustellen, wenn er will, und zufrieden zu werden mit seinem Schicksal, wenn auch nicht viel gebratene Tauben für ihn in der Luft herumfliegen. Aber auf dem seltsamsten Umweg kam ein deutscher Handwerksbursche in Amsterdam durch den Irrtum zur Wahrheit und zu ihrer Erkenntnis.

Denn als er in diese große und reiche Handelsstadt voll prächtiger Häuser, wogender Schiffe und geschäftiger Menschen gekommen war, fiel ihm sogleich ein großes und schönes Haus in die Augen, wie er auf seiner ganzen Wanderschaft von Tuttlingen bis nach Amsterdam noch keines erlebt hatte. Lange betrachtete er mit Verwunderung dies kostbare Gebäude, die sechs Kamine auf dem Dach, die schönen Gesimse und die hohen Fenster, größer als an des Vaters Haus daheim die Tür. Endlich konnte er sich nicht entbrechen, einen Vorübergehenden anzureden. "Guter Freund", redete er ihn an, "könnt Ihr mir nicht sagen, wie der Herr heißt, dem dieses wunderschöne Haus gehört mit den Fenstern voll Tulipanen , Sternenblumen und Levkojen?" - Der Mann aber, der vermutlich etwas Wichtigeres zu tun hatte und zum Unglück geradeso viel von der deutschen Sprache verstand als der Fragende von der holländischen, nämlich nichts, sagte kurz und schnauzig: "Kannitverstan", und schnurrte vorüber.

Dies war nur ein holländisches Wort oder drei, wenn man's recht betrachtet, und heißt auf deutsch soviel als: Ich kann Euch nicht verstehn. Aber der gute Fremdling glaubte, es sei der Name des Mannes, nach dem er gefragt hatte. Das muß ein grundreicher Mann sein, der Herr Kannitverstan, dachte er und ging weiter.

Gaß aus Gaß ein kam er endlich an den Meerbusen. der da heißt: Het Ei.

Vocabulary: Kannitverstan

der Mensch – human being, mankind
die Gelegenheit – opportunity
eine Betrachtung anstellen – to reflect on
der Unbestand – transience
irdisch – earthly
zufrieden - satisfied
das Schicksal - fate
gebratene Tauben – roasted pigeons (a delicatessen)
der Handwerksbursche – journeyman
der Irrtum – error, misunderstanding
die Wahrheit – truth
die Erkenntnis – realization

wogend – surging, billowing
geschäftig – busy
in die Augen fallen – to come to one's attention
die Wanderschaft - wanderings
die Verwunderung - amazement
das Gesims – cornice, windowsills
sich nicht entbrechen können – unable to hold back
der Vorübergehende - passerby
Tulipanen, Sternenblumen– types of flowers
Levkojen – exotic flowers
schnauzig – unfriendly
vorüberschnurren – hurry on

der Fremdling – foreigner
grundreich – extremely rich

My Computer

SCREEN 2

C:\DissProject\Kannitverstan\MainScreenQG.htm - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

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Google Search New! 761 blocked Check AutoLink AutoFill Options

LEO

GEOGRAPHY

Emmendingen
Gundelfingen
Tuttlingen
Niederlande

CULTURAL INFO

Johann Peter Hebel

Genre

Amsterdam

Handwerks-burschen

Das Märchen vom Schlaraffenland

Did you notice that the Handwerksbursche comes from **Tuttlingen?** How may that affect his perception of **Amsterdam**?

"Kannitverstan"
von
Johann Peter Hebel

Der Mensch ■ hat wohl täglich Gelegenheit, in Emmendingen und Gundelfingen so gut als in Amsterdam ■ Betrachtungen über den Unbestand aller irdischen Dinge anzustellen, wenn er will, und zufrieden zu werden mit seinem Schicksal, wenn auch nicht viel gebratene Tauben für ihn in der Luft herumfliegen. ■ Aber auf dem seltsamsten Umweg kam ein deutscher Handwerksbursche in Amsterdam durch den Irrtum zur Wahrheit und zu ihrer Erkenntnis. ■

Denn als er in diese große und reiche Handelsstadt voll prächtiger Häuser, wogender Schiffe und geschäftiger Menschen gekommen war, fiel ihm sogleich ein großes und schönes Haus in die Augen, wie er auf seiner ganzen Wanderschaft von Tuttlingen bis nach Amsterdam ■ noch keines erlebt hatte. Lange betrachtete er mit Verwunderung dies kostbare Gebäude, die sechs Kamine auf dem Dach, die schönen Gesimse und die hohen Fenster, größer als an des Vaters Haus daheim die Tür. Endlich konnte er sich nicht entbrechen, einen Vorübergehenden anzureden. "Guter Freund", redete er ihn an, "könnt Ihr mir nicht sagen, wie der Herr heißt, dem dieses wunderschöne Haus gehört mit den Fenstern voll Tulipanen , Sternenblumen und Levkojen?" - Der Mann aber, der vermutlich etwas Wichtigeres zu tun hatte und zum Unglück geradeso viel von der deutschen Sprache verstand als der Fragende von der holländischen,

Vocabulary: Kannitverstan

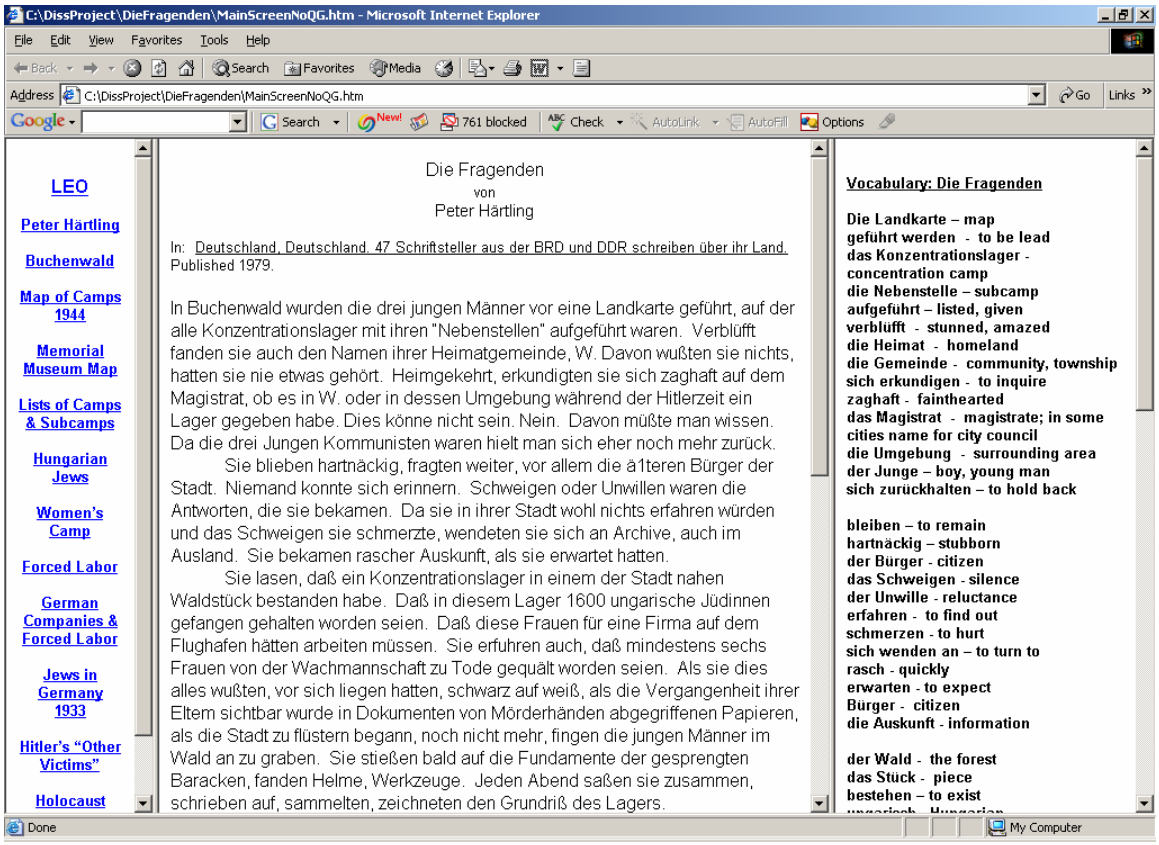
der Mensch – human being, mankind
die Gelegenheit – opportunity
eine Betrachtung anstellen – to reflect on
der Unbestand – transience
irdisch – earthly
zufrieden - satisfied
das Schicksal - fate
gebratene Tauben – roasted pigeons (a delicatessen)
der Handwerksbursche – journeyman
der Irrtum – error, misunderstanding
die Wahrheit – truth
die Erkenntnis – realization

wogend – surging, billowing
geschäftig – busy
in die Augen fallen – to come to one's attention
die Wanderschaft - wanderings
die Verwunderung - amazement
das Gesims – cornice, windowsills
sich nicht entbrechen können – unable to hold back
der Vorübergehende - passerby
Tulipanen, Sternenblumen– types of flowers
Levkojen – exotic flowers
schnauzig – unfriendly
vorüberschnurren – hurry on

der Fremdling – foreigner
grundreich – extremely rich

My Computer

SCREEN 3



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LEO

Peter Härtling

Buchenwald

Map of Camps 1944

Memorial Museum Map

Lists of Camps & Subcamps

Hungarian Jews

Women's Camp

Forced Labor

German Companies & Forced Labor

Jews in Germany 1933

Hitler's "Other Victims"

Holocaust

Die Fragenden
von
Peter Härtling

In: Deutschland, Deutschland. 47 Schriftsteller aus der BRD und DDR schreiben über ihr Land. Published 1979.

In Buchenwald wurden die drei jungen Männer vor eine Landkarte geführt, auf der alle Konzentrationslager mit ihren "Nebenstellen" aufgeführt waren. Verblüfft fanden sie auch den Namen ihrer Heimatgemeinde, W. Davon wußten sie nichts, hatten sie nie etwas gehört. Heimgekehrt, erkundigten sie sich zaghaft auf dem Magistrat, ob es in W. oder in dessen Umgebung während der Hitlerzeit ein Lager gegeben habe. Dies könne nicht sein. Nein. Davon müßte man wissen. Da die drei Jungen Kommunisten waren hielt man sich eher noch mehr zurück.

Sie blieben hartnäckig, fragten weiter, vor allem die ä1teren Bürger der Stadt. Niemand konnte sich erinnern. Schweigen oder Unwillen waren die Antworten, die sie bekamen. Da sie in ihrer Stadt wohl nichts erfahren würden und das Schweigen sie schmerzte, wendeten sie sich an Archive, auch im Ausland. Sie bekamen rascher Auskunft, als sie erwartet hatten.

Sie lasen, daß ein Konzentrationslager in einem der Stadt nahen Waldstück bestanden habe. Daß in diesem Lager 1600 ungarische Jüdinnen gefangen gehalten worden seien. Daß diese Frauen für eine Firma auf dem Flughafen hätten arbeiten müssen. Sie erfuhren auch, daß mindestens sechs Frauen von der Wachmannschaft zu Tode gequält worden seien. Als sie dies alles wußten, vor sich liegen hatten, schwarz auf weiß, als die Vergangenheit ihrer Eltern sichtbar wurde in Dokumenten von Mörderhänden abgegriffenen Papieren, als die Stadt zu flüstern begann, noch nicht mehr, fingen die jungen Männer im Wald an zu graben. Sie stießen bald auf die Fundamente der gesprengten Baracken, fanden Helme, Werkzeuge. Jeden Abend saßen sie zusammen, schrieben auf, sammelten, zeichneten den Grundriß des Lagers.

Vocabulary: Die Fragenden

Die Landkarte – map
geführt werden - to be lead
das Konzentrationslager - concentration camp
die Nebenstelle – subcamp
aufgeführt – listed, given
verblüfft - stunned, amazed
die Heimat - homeland
die Gemeinde - community, township
sich erkundigen - to inquire
zaghaft - fainthearted
das Magistrat - magistrate; in some cities name for city council
die Umgebung - surrounding area
der Junge – boy, young man
sich zurückhalten – to hold back

bleiben – to remain
hartnäckig – stubborn
der Bürger - citizen
das Schweigen - silence
der Unwille - reluctance
erfahren - to find out
schmerzen - to hurt
sich wenden an – to turn to
rasch - quickly
erwarten - to expect
Bürger - citizen
die Auskunft - information

der Wald - the forest
das Stück - piece
bestehen – to exist

Done

My Computer

APPENDIX D
POST-STUDY QUESTIONNAIRE

Thank you for completing all online reading tasks. Please take a few moments now to reflect on your online reading experience. Read the following statements carefully and respond by circling one of the answers on the scale from "strongly disagree" to "agree." This information will be held in strict confidence and is for my research purposes only. Thank you for your thoughtful answers.

Name:_____

1. I was comfortable with reading the text on the computer screen.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

2. The layout of the text was clear.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

3. It was easy to scroll through the text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

4. LEO was useful.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

5. The internal dictionary was useful.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

6. Additional textual background information was helpful for understanding the text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

7. Additional information in the form of pictures was helpful for understanding the text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

8. My prior knowledge of the topic helped me understand the text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

9. The question glosses helped me figure out the meaning of a word/sentence or paragraph/section of a text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

10. The question glosses were helpful in figuring out the overall meaning of a text.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

_____1_____ 2_____3_____4_____5_____

APPENDIX E
PROPOSITIONAL ANALYSIS GUIDELINES AND TEXT SAMPLES

Comprehension begins with low-level word recognition. Words are integrated into propositions. Propositions are defined as the building blocks, the smallest units of meaning. A network of propositions reflects the information in the text (textbase). The reader adds new propositions to the textbase and makes the causal connections between the propositions.

1. Noun subject and verb are separated: Turks … were also once small; survivors …wrote; the ship … lands; my fingers … play
2. Subject pronoun and verb are together: I learned; we memorized
3. Subordinate clauses are together: when I was small …, where Paris was located; … who has a black mustache; …that not all Turkish guest workers are Turks;
4. Prepositions and their objects are together: in the flesh; to her mouth; of these peoples
5. Proper names are separated out unless referred to earlier: in Germany, Turks, Germany, Turkey; Americans, Russians; this Herr Kannitverstan; in W. ; the GDR; Kerstin Bernhardt; I came to Germany (referred to earlier)
6. A noun phrase will be kept together. It may include any or all of the following: article, modifying adverb, adjective, a noun used as a modifying adjective, and a final noun. For example: an evil Russian; autumn morning; the increasing bitterness; an increasingly bitter argument; an amazingly good grasp

7. Phrasal verbs with prepositions are divided between the main verb and the preposition. The preposition will become part of the prepositional phrase following the verb. (to look to) she looked …to her husband
8. Pronoun, adverb and verb are not separated: we conversed pleasantly; he said shortly; and innocently begged (his pardon); they faintheartedly enquired
9. Compound adverbs are separated: he said shortly … and brusquely; as they could precisely … and grimly relate
10. Compound verbs are separated
11. I stand … close my eyes
12. Verb and direct and indirect object pronoun are together: asked me; we drew him; followed me
13. Verb/thought image stays together (infinitive clause): it begins to rain; we came to know …; how he would manage to see
14. Verb and direct object are separated: he asked … a fellow; he ate … a piece of Limburger; You will receive … the following answer; I learned … French; If you drive … a Ford Granada; I ate … my travel provisions;
15. All gerund phrases are together from gerund to noun: walking with her family; remembering the old times; coming from communal production; pointing the finger; lacking hope
16. Impersonal subject and verbs stay together: it is; and these are; there is; there are; isn't there; wasn't there
17. Compound nouns are separated (more than one noun)
18. … parents … siblings … relatives … neighbors … and all others …; IKEA … Western cars … Burger King … satellite dishes … Sex-Shops … and Coca Cola;

19. Numbers in a noun phrase are a separate entity: 1,600 … Jewish-Hungarian women;
20. A unit of measure, such as marks, km, square meter, and percentage is not separated from the number: DM 800.00; 40 km, 75 square meters; 22years old; 90% of her salary; and 80% of these
21. The predicate subject is not separated out: What is a consulate official? Am I possibly a fake Turk?
22. Subordinated limiting (transitional) conjunctions are not separated from the rest of the clause.
23. However there are many Turks;
24. However but not just with a laughing eye;
25. Even though there aren't any roast pigeons…
26. But through an error…
27. Whenever he was again threatened by …
28. Nevertheless this department …
29. Dates and numbers: October 7, 1989; 40th anniversary; back in November 1989
30. Adverbs of time and frequency adverbs are separated from main clause
31. Finally … he could not refrain from…
32. Always, sometimes, rarely, never, forever; shortly; now; still

Proposition Samples

Text 1 Amerika – 306 Propositions

/ The ship / lands / I set / my foot / onto the new part / of the world / The grey autumn morning / overshadows / land / and sea / everything is still swaying / under me / I feel / the uneasy movement / of the waves / Out of the fog / rises the city / next to me / with

open eyes / lively / the crowd scurries / They do not sense / the strange / only the new / I hear / how this one / or that one / whispers to himself / America / as if he wanted to memorize it / only just now / that he is actually here / so far /

Text 2 Kannitverstan – 271 Propositions

/ Man indeed has / the opportunity / every day / in Emmendingen / or Gundelfingen / as well as in Amsterdam / to speculate / if he wants to / on the inconsistency / of all earthly things / and to be come satisfied / with his fate / even though there aren't / many roast pigeons / flying about / in the air / for him / But through an error / a German artisan / in Amsterdam arrived / at the truth / and its recognition / by the strangest roundabout way /

Text 3 Rauher Kapitalismus – 395 Propositions

/ As if in a state of delirium / Kerstin Bernhardt / from Magdeburg / remembers / walking / with her family / back in November 1989 / through the unfamiliar glitter world / of the West German border town Helmstedt / They gazed / with disbelief / at the displays / in the shop windows / The children / glared / until their eyes were sore / she says / It was then that we first saw / says / this 31-year-old mother / of five / with subdued anger / remembering the old times / everything / they had held back / from us /

Text 4 Wer ist ein Türke? – 422 Propositions

/ Who is a Turk / How does one recognize him / how does one know / if someone is a Turk / These questions / have bothered me since I came / to Germany / In Turkey / everyone / that I knew / and with whom I spoke Turkish / was a Turk / When I was small / grown-up Turks / were also once small / I believed / there was only one language / in the world / namely Turkish / and that all people / on earth / were therefore Turks / One spoke / of Americans / Russians / the French / but we had / no concrete conception / of these peoples /

Text 5 Die erste eignene Wohnung – 235 Propositions

/ Forever / I had dreamed / of my own apartment / but my dream / only was realized / after the dissolution / of the GDR / After my friend Mischa / and I were recognized / as members / of a minority / of Jewish refugees / from the USSR / in the summer / of 1990 / we landed / in a roundabout way / in the huge halfway house / for foreigners / that developed / in Marzahn / Initially / hundreds / of Vietnamese / Africans / and Jews / from Russia were accommodated / here / The two of us / as well as / a buddy / from Murmansk / Andrej / were able to conquer / a furnished one-room apartment / on the first floor /

Text 6 Die Fragenden – 184 Propositions

/ In Buchenwald / the three young men / were led / before a map / on which all the concentration camps as well as their subsidiaries / were listed / Amazed / they found / the name / of their hometown / W. / They knew / nothing about it / had never heard anything / after coming back home / they faintheartedly inquired / at the magistrate /whether there really was a camp / in W. / or in its vicinity / during the Hitler years / This couldn't be / no / someone would have to know /about that / Because the three young men / were communists / people held back /even more /

Text 7 Friedman - 207

/ Dear Mr. Friedman / We would like / to inform you / with this open letter / that we welcome / your public apology / and confession / that you took drugs / It is certainly uncomfortable / for someone / who himself / for years / has been pointing the finger / at the misdeeds / of others / to be grilled / by the media / in such a way / We give you / credit / for applying the same moral standards / to yourself / and accepting the consequences / of you misconduct /

Text 8 – Good Bye Lenin – 433 Propositions

/ The time / of the Fall / of the Wall / and the confusing complexity / of German reunification / repeatedly offered / already / material / for comedies / like Sonnenallee / and Helden wie wir / Wolfgang Becker's film / also schematizes / the recent past / however not just with a laughing eye / he reflects / the political events / by means / of the fictional story / of the East Berliner family Kerner / shows / the quick demise / of the GDR everyday culture / and poses / the questions / what would have been / if history /had taken / a different course /

APPENDIX F
IDEA UNIT ANALYSIS AND TEXT TEMPLATES

Guidelines for Weighting Idea Units in Narratives

Identify Character(s) - 5 points

Give one additional point per essential aspect of character or characters

Identify Setting(s) – 5 points for each setting

Give one additional point per essential detail of setting(s)

Identify Problem(s) – 5 points for each

Give one additional point per essential detail of problem(s)

Identify Resolution(s) – 5 points

Give one additional point per essential detail of resolution(s)

Guidelines for Weighting Idea Units in Expository Texts

Identify main ideas and essential details either globally or by paragraph

Identify main ideas – 5 points

Give one additional point per essential detail

Text 1 Amerika – Consciousness-Oriented Narrative (53 points)

The narrator (main character) describes his landing on the shores of the new world (5)

- He arrives alone on a gray autumn morning (1)
- The city, possibly New York, rises out of the fog (1)

He is not thinking about the new America, but another America. He reminisces. (5)
He is with Anna. (5)

- He remembers many things in great detail as if he had left yesterday (1)
- He left many years ago (1)

Anna is his lover. (5)

- When he kisses her behind the ear, they discover something new that makes them very happy (5)

- Anna cries out ‘Amerika’(1)
- Whenever he kisses her behind the ear, Anna cries out ‘America’! (1)
- The lovers’ sexual adventures/discovery of sexual pleasure is likened to the discovery of new territory, namely America. (1)
- He also remembers her curls and her fragrance. (1)
- He remembers how they saw an advertisement for ship-lines to America. (1)
- He remembers Anna saying loudly in public that they would travel to America today. (1)
- Only he and Anna knew what that meant (they shared a secret) (1)

He remembers seeing a play about Columbus with Anna. (5)

- They made fun of Columbus (1)
- Poor guy. He did not discover the real America – at least not the America they had discovered. (1)
- The real America is likened to kissing the patch of white skin behind Anna’s ear. (1)
- At the shore of the ‘wrong’ America, he dreams of the sweet America over there long ago. (1)

The narrator realizes that Anna is lost to him forever. (5)

- He has not seen her in many years and does not know where she is. (1)
- That realization is insanely painfully to him. (1)
- The real America is not nearly as enticing as the old. (1)

Text 2 Kannitverstan – Narrative (46 points)

Main characters:

German Journeyman (traveler) (5)

- comes from the small German town of Tuttlingen (1)
- He never experienced a rich city like Amsterdam before (1)
- ‘Our good Tuttlinger’ is naïve (1)

The imaginary Herr Kannitverstan (5)

Settings:

Amsterdam is a rich trade center (5)

- A beautiful luxurious house (1)
- The harbor with a great ship that is unloaded before the journeyman’s eyes (1)
- The funeral procession that the journeyman follows to the graveside of the alleged Herrn Kannitverstan (1)
- The inn/pub that the journeyman goes to after the funeral to enjoy good company and Limburger (1)

Problems:

The journeyman thought “Kannitverstan” was the name of a very rich man. (5)

- Language problem (1)

The journeyman realized how poor he was and became unhappy with his lot in life. (5)

Resolution(s)
Witnessing Herrn Kannitverstan's funeral, makes the German journeyman a little sad, but then 'light hearted' again. (5)

- He is happy again with his lot life (1)

And whenever he became dissatisfied again with being so poor, he only had to think of Mr. Kannitverstan (5)

- In the end, rich or poor, you cannot take anything with you. (1)
- You might as well be satisfied with your fate in life – although no roast pigeons fly about the air for you (1)

Text 3 Rauher Kapitalismus – Expository Text (35 points)

Kerstin Bernhardt and her family come from the town of Magdeburg in the former GDR (5)

- Immediately after the Fall of the Wall, Kerstin and her family walked through the glitter world of a West German border town (Helmstedt). (1)
- She realized then what the GDR government had kept from them in terms of material prosperity (1)
- For Kerstin, merchandize had been determined by the 5year plan, not demand and supply. (1)
- Kerstin had worked in a socialist system as sales clerk for 16 years (1)
- She is the daughter of a saleswoman and a metal worker. (1)
- Kerstin always wanted to be a sales clerk like her mother (1)
- She could have earned a degree in economics because of her family background. (1)
- But she had chosen to stay out of political life and was a member of the FDJ (Free German Youth) out of duty. (1)
- She had noticed things about the SED Party that did not seem right to her. (1)

Kerstin and her husband are raising 5 children together (5)

- Her husband was a trained mason and roofer (1)
- He gave up his job and carried coal so he could help out more at home (1)
- Kerstin had state-paid day care (1)
- She was able to stay home for 12 months after the birth of her second, third, fourth, and fifth child and resume her work after her pregnancy leaves. (1)
- Her family also received housing benefits. (1)

Although she is happy about the new era, Kerstin is worried about the harsh climate of capitalism (5)

- Kerstin is afraid to lose her job (1)
- Personnel are downsized (1)
- Kerstin and her large family are less able to make ends meet than before (1)
- Child support is cut (1)
- Kerstin cannot afford those things that are available in the stores (1)
- She cannot get a bank loan because she has five children (1)

Text 4 Wer ist ein Tuerke? - Autobiographical Expository Text (34 points)

The narrator/author is of Turkish origin (5)
Only when he comes to Germany, he begins to wonder if he himself really is a Turk and what it is that identifies one as a Turk in Germany. (5)

- A Turk is one who speaks Turkish (1)
- One who looks Turkish - short, stout, black mustache (1)
- One who has a Turkish passport (1)
- One who if affiliated with the Turkish consulate (1)
- A Turk in Germany is a guest worker (1)
- A Turk in Germany is one who drives a Ford Granada/Turk Wagon, a big car (1)
- A Turk carries plastic bags (1)
- A Turk is hospitable and generous – like Elizabeth, a German woman who was married to a Turk at one time(1)
- Narrator/author attended a reading in Hameln (1)
- Narrator spent the night at Elisabeth's house (1)

The narrator/author travels on a train and shares a compartment with an elderly German couple (5)
The elderly German woman turns down a Turk who asks for a seat. (5)

- That Turk looks like a Turk (short, stout, Turk-green hand-knit vest, plastic bags in both hands, Turk-gaze) 1
- According to the narrator/author, a German is as loyal as a German shepherd (1)
- Germans keep their distance (1)
- Those who read "Die Zeit" are Germans (1)
- The Germans who do not read "Die Zeit" must be Turks (1)

Text 5 Die erste eigene Wohnung- Autobiographical Expository Text (51 points)

The narrator and his friend Mischa are members of a minority of Jewish refugees from the USSR. (5)
They ended up in a Halfway house for foreigners in Marzahn (5)
They arrived in the summer of 1990 in Marzahn, East Berlin – after the dissolution of the GDR (5)

- The Narrator, Mischa, and Andrej shared an apartment at the Halfway house (1)
- These were the infamous 'Plattenbau' apartments formerly occupied by members of the STASI (1)
- Vietnamese, Africans, and other Russian Jews lived there and life was booming(1)
- At that time, the Vietnamese had no idea that their future would be in cigarette trade (1)

There was not enough room in the home – several families had to share an apartment. (5)
Refugees claimed to be Jews to get the assigned STASI apartments to themselves (5)

- 'False Jews' jogged around the block on Sunday and ate pork (1)

The narrator and his friends each found a place to live on Prenzlauer Berg, another area of East Berlin (5)

- On Prenzlauer Berg anything is possible! The 'Magic of the Wende' is still alive! (1)
- Apartments were left vacant by East Germans going to the West (1)
- The East Germans, the natives, had left in a big hurry, leaving many things behind (1)
- A counter wave of weirdoes came from the West (1)
- The governmental housing authorities temporarily lost control of the housing situation (1)

After two months, the housing authority (KWV) gave them leases/legal contracts (5)

- The narrator had to pay a minimal amount for his apartment (1)

The narrator's dream of his own living space came true (5)

Text 6 Die Fragenden - Narrative (64 points)

Characters

The 'questioners' are three young men (5)

- They are from W. (1)
- They are communists. (1)
- While visiting the concentration camp Buchenwald, they saw a map of all its subsidiary camps. (1)
- They were surprised to find out that near their hometown W. had been a subsidiary camp (1)
- They are determined to get answers (1)
- One of the young men 'replaced the silence of his fathers with his own' – a different kind of silence … (1)

The townspeople of W. (5)

- Reluctant to speak about the past (1)
- They don't want to be reminded of the past (1)

Jewish-Hungarian women (5)

- 1600 had been held prisoner and forced to work (1)
- Six women were tortured to death by the SS guard (1)

Survivors from Israel (5)

- These women allowed the young men to interview them (1)

Settings:

Buchenwald was the place the young men saw the map with all the subsidiary camps (5)
Hometown W. is where they began their search for the truth (5)
A wooded area near town is where they discovered the foundations of the camp and artifacts (helmets, tools) (5)
Israel – the young men traveled there to interview survivors (5)

Problem:

The townspeople did not want to answer the young men's questions. (5)

- The townspeople were more reluctant to speak because the 3 young men were communists (1)
- They did not want the young men to dig up these 'old stories' and soil the reputation of the town (1)
- Opposition: One should not build a memorial just for Jewish victims. Shouldn't the communist who died in the camps also be memorialized? (1)

Resolution (steps):

- Turning to archives even in other countries, they found out that indeed there had been a camp (1)
- The young men found evidence of the camp (1)
- As their search became public, they received letters from survivors. (1)
- The young men traveled to Israel to interview some of these women. (1)
- They discovered the graves of the murdered women. (1)
- Although there was resistance to a memorial, the young men prevailed. (1)

Text 7 Der Zweite Teil des Skandals: Ein Offener Brief an Friedman – Expository text (45 points)

Terres des Femmes is a women's right organization/women's initiative. (5)

Terres des Femmes accepts the moderator's public confession and apology that Friedman took drugs (5)

- They give him credit for applying the same moral standards that he had used on others to himself. (1)

However, in an open letter, Terre des Femmes criticizes the tabooing of the second part of the scandal surrounding Friedman (5)

The second part of the scandal is the use of East European prostitutes (5)

- Prominent people employ the services of East European prostitutes (1)
- They make use of the trafficking of human beings by organized crime (1)

50% of all prostitutes in Germany are of non-German origin (5)

- 80% come from Eastern European countries (1)
- Many of them are smuggled in illegally (1)
- Many of them are forced into prostitution (1)

The real scandal is that sex with illegal prostitutes in not punishable by law. (5)

Women's initiative appeals to Friedman to use the media hype to become a supporter/spokesperson for the victims (5)

- To join others (Maenner setzen Zeichen Campaign) in the fight against the trafficking of women (1)
- Demand the right for victims to stay in the country (1)
- His commitment to this cause would be rewarding and satisfying to Friedman. (1)
- Surely, Friedman desires that girls and women live self-determined and free lives everywhere. (1)

Text 8 Good Bye Lenin (Filmcritique) - Expository text (87 points)

This critique includes a retelling of the story of the film. The idea unit analysis will proceed according to the paragraphs of the text.

Introduction:

Wolfgang Becker's film schematizes the confusing time of the Fall of the Wall and German reunification (5)

- Becker uses a fictional Berliner family to show the quick demise of GDR everyday culture (1)

Compensated past:

Protagonist Alex Kerner's childhood in the GDR was carefree until the father does not return from a business trip to West Berlin (5)

- For Alex, he betrayed family, country, and ideology. (1)
- The mother, Christiane Kerner, finds fulfillment in political commitment. (1)

Split points of view:

On the 40th anniversary of the GDR, the film (critique)

- Original shots of the military parade (1)
- With montage of hopeful mood of civil right's activists (1)
- And out of touch behavior of politicians (1)

22 year old Alex demonstrates for freedom of travel and reforms (5)
Christiane Kerner, exemplary party member, is one of the invited guests (5)

Heart attack: societal and private

Mother sees Alex arrested, suffers a heart attack, and falls into a coma. (5)

- She will sleep through 8 months of world politics (1)
- Becker uses news reports from the East and West Review - critique (1)
- Becker uses Alex as the chronicler- critique (1)
- In short scenes, Becker contrasts how the old and the young cope with the changes – critique (1)

People searching amidst conspicuous consumption

Alex is critical of the sell-out and consumerism of his countrymen (5)
Unrestrained consumerism is reduced to popular clichés - critique (1)

- IKEA, Western cars, Burger King, satellite dishes, sex-shops (1 point for any one or any number of these examples of clichés rather than 1 point for each) (1)

GDR design fades away

- Particle board furniture piles up on Berlin's sidewalks (1)
- Ossis are recognized by their clothing (they are outed) (1)

The return of the old

Because Alex is afraid the new reality would cost his beloved mother her life, he decides to keep the changes away from her (5)

- The westernized Plattenbau apartment is made to look like it did before (1)
- Alex tracks down East products like pickles and Tempo Linsen (1)

Alex begins to work for a Westberliner firm (1)

- Becker uses fast motion in the film to show that the clock seems to tick faster – critique (1)

Alex falls in love with the Russian student nurse Lara (1)

- Before he confesses his love to her, he uses a party slogan "We solve problems by marching forward" to get up his courage (1)

Distortions of reality

It gets increasingly difficult to stop the new reality at the apartment door (1)

- Coca Cola advertisement on the wall outside Christiane's window (1)
- Coca Cola is a socialist invention (1)

History and stories

Alex and Denis become directors of an invented reality using "Aktuelle Kamera" (5)

- BRD citizens seek refuge in the GDR embassies of Prague and Budapest (1)
- Honecker allows BRD citizens to immigrate (1)
- Christiane Kerner believes it and decides to entrust the family weekend cottage to the new citizens (1)
- Alex realizes that the game must end (1)

Bittersweet Comedy

- Film drags on at the end – critique (1)
- Film comes across as indecisive and superficial whenever balancing act between comedy and tragedy does not work – critique (1)
- Few key scenes break up classic narrative structure of the film - critique(1)
- One key scene is the removal of the Lenin statue by helicopter – critique (1)
- Christiane Kerner waves good-bye as Lenin flies by (1)

Looking to what's ahead

Film attempts to show too many facets of reunification - critique(5)

- Focus is too much on events in East Berlin – critique (1)
- Football world championship is the only German/German link -critique (1)
- No real comparison between characteristics of East and West - critique (1)

Alex is a loveable tour guide to the past (5)

- He represents the new generation that can adjust (1)
- The GDR will remain in his memory as something not quite real, but connected to his mother. (1)

APPENDIX G
READING SAMPLE

Sample: Text 2, Student 8 Reading with Question Prompts

Text 2 Excerpt and Question Glosses

Der Mensch hat wohl täglich Gelegenheit, in Emmendingen und Gundelfingen so gut als in Amsterdam Betrachtungen über den Unbestand aller irdischen Dinge anzustellen, wenn er will, und zufrieden zu werden mit seinem Schicksal, wenn auch nicht viel gebratene Tauben für ihn in der Luft herumfliegen. Aber auf dem seltsamsten Umweg kam ein deutscher Handwerksbursche in Amsterdam durch den Irrtum zur Wahrheit und zu ihrer Erkenntnis.

Denn als er in diese große und reiche Handelsstadt voll prächtiger Häuser, wogender Schiffe und geschäftiger Menschen gekommen war, fiel ihm sogleich ein großes und schönes Haus in die Augen, wie er auf seiner ganzen Wanderschaft von Tuttlingen bis nach Amsterdam noch keines erlebt hatte. Lange betrachtete er mit Verwunderung dies kostbare Gebäude, die sechs Kamine auf dem Dach, die schönen Gesimse und die hohen Fenster, größer als an des Vaters Haus daheim die Tür. Endlich konnte er sich nicht entbrechen, einen Vorübergehenden anzureden. "Guter Freund," redete er ihn an, "könnt Ihr mir nicht sagen, wie der Herr heißt, dem dieses wunderschöne Haus gehört mit den Fenstern voll Tulipanen , Sternenblumen und Levkojen?" – Der Mann aber, der vermutlich etwas Wichtigeres zu tun hatte und zum Unglück geradeso viel von der deutschen Sprache verstand als der Fragende von der holländischen, nämlicnichts, sagte kurz und schnauzig: "Kannitverstan." und schnurrte vorüber.

Question Glosses:

1. Why does the narrator begin his story about a *Handwerksbursche* with der Mensch?
2. Why does the author name Emmendingen and Gundelfingen along with Amsterdam?
3. What image is conjured up here? (*gebratene Tauben)*
4. Do you know which segment of the 18th century German speaking population enjoyed reading "calendar stories"?
5. Did you notice that the Handwerksbursche comes from **Tuttlingen**? How may that affect his perception of **Amsterdam**?
6. Why does the author use the subjunctive form 'sei'?
7. What does the *Handwerksbursche* accociate with material riches?
8. How does the *Handwerksbursche* see himself?
9. Why do you think the author says "our good Tuttlinger"?
10. Why was the Handwerksbursche "leichten Herzens"? Why the "happy end"?

Proposition Template Sample for Text 2

/ Man indeed has / the opportunity / every day / in Emmendingen / or Gundelfingen / as well as in Amsterdam / to speculate / if he wants to / on the inconsistency / of all earthly things / and to be come satisfied / with his fate / even though there aren't / many roast pigeons / flying about / in the air / for him / But through an error / a German artisan / in Amsterdam arrived / at the truth / and its recognition / by the strangest roundabout way /

Idea Unit Template for Text 2

Text 2 Kannitverstan – Narrative (46 points)

Main characters:

German Journeyman (traveler) (5)

- comes from the small German town of Tuttlingen (1)
- He never experienced a rich city like Amsterdam before (1)
- 'Our good Tuttlinger' is naïve (1)

The imaginary Herr Kannitverstan (5)

Settings:

Amsterdam is a rich trade center (5)

- A beautiful luxurious house (1)
- The harbor with a great ship that is unloaded before the journeyman's eyes (1)
- The funeral procession that the journeyman follows to the graveside of the alleged Herrn Kannitverstan (1)
- The inn/pub that the journeyman goes to after the funeral to enjoy good company and Limburger (1)

Problems:

The journeyman thought "Kannitverstan" was the name of a very rich man. (5)

- Language problem (1)

The journeyman realized how poor he was and became unhappy with his lot in life. (5)

Resolution(s)

Witnessing Herrn Kannitverstan's funeral, makes the German journeyman a little sad, but then 'light hearted' again. (5)

- He is happy again with his lot life (1)

And whenever he became dissatisfied again with being so poor, he only had to think of Mr. Kannitverstan (5)

- In the end, rich or poor, you cannot take anything with you. (1)
- You might as well be satisfied with your fate in life – although no roast pigeons fly about the air for you (1)

Student 8, Text 2 Recall Protocol

This story was about a journeyman that traveled to Amsterdam and didn't know exactly how to interpret the wealth he found when he got their. Whenever he would inquire about certain things he would get the response "Kannitverstan," which he ends up believing is this rich man who owns the house, and the ships with all their exotic goods. He finds a funeral procession, which he again attributes to the death of this "Kannitverstan," and his inability to accept his own poverty, which was all he knew before traveling from home, was to equate the good all this richness was to a dead person.

Student 8, Sample Think-Aloud Protocol (Time: 78 minutes)

Transcriber's comments and question prompts are in italics.

Ellipses indicate pauses. Time periods are marked in parentheses.

S8 reads from Der Mensch to anzustellen . . . wohl? LEO. Arguably ok. A person has arguably daily opportunity . . .

Q1 Why does the narrator begin the story with 'der Mensch'?

Handwerksbursche? *S8 uses LEO.* Journeyman. *S8 reads the question again and starts over with the first sentence.* Schwarzwald, Black Forest, Kaiserstuhl, West

Germany. *He is looking on the links.* Don't need all of this . . . just need to know where the city is. Ok. Alps? *Apparently that link does not work very well (must be the flash!).* Ok . . . The person has (3:18) arguably daily opportunities in Emmendingen and Gundelfingen as good as in Amsterdam to reflect on the transience of all irdischen? *LEO* . . . earthly, mundane . . . *repeats sentence* . . . to reflect on earthly things if he wants and is satisfied with his fate . . . *S8 reads on roasted pigeons* . . . für ihn in der . . . roasted pigeons fly over him in the air. Aber auf dem seltsamsten kam ein . . . *S8 reads to the end of the paragraph.* Seltsamsten Umweg? *LEO. Deep sighing*. Detour, seltsam? On the oddest detour came a German journeyman in Amsterdam through the Irrtum? *LEO*. Falsity mistake misapprehension. Through a mistake . . . misunderstanding of the truth? *R8 read the last sentences again.* Through misapprehension to the truth und zu ihrer Erkenntis. (7:16). Erkenntinis? *LEO*. Awareness cognition realization. But through . . . und zu ihrer? What does that belong to? Handwerksbursche? Definite Artikel? Der. What does ihrer refer to? Oh it would go with Wahrheit, I think. On the oddest detour came . . . through Irrtum? Error misapprehension to the truth and to ihrer don't know what to do with that. *S8 reads the sentence again.* I move on.

Denn . . . hatte. Oh! Should be clicking on these red dots. Q3: What image is conjured up here? Q2: Why does the author name E and G with A? I don't know.

No clue. I don't know why he mentions either of these two cities with Amsterdam. (11:23). I don't know why he mentions those things. *Q3: Do you know . . .?* No! Genre? Those look like Japanese characters. Ok. Kafka, Brecht, Anekdote, heitere, merkwürdige Begebenheiten . . . *S8 scans over this information.* Travelling journeyman

read about it . . . young tradesmen, experience outside their hometowns . . . skills competition . . . ok.

Ha! Ok. You have chosen to download the file . . . no. I have read the links. No I don't know which segment of the population . . . I'll go back to the story. (15:15)

. . . diese große und reiche Handelsstadt?. . . wogende Schiffe . . . *S8 starts reading the first sentence again* . . . prächtige? Practical? *LEO* splendid . . . when he in this large and rich city full of splendid houses and surging ships and busy people came (16:38) fiel ihm sogleich in die Augen . . . einfallen? Sogleich instantly . . . get the idea . . . occurred to him on the spot a large and beautiful house as he on his many wanderings from Tuttlingen to Amsterdam had seen had experienced. Noch keines erlebt hatte .

Red dot: Did you notice that the H comes from Tuttlingen? I've never been in either place. The link takes quite long . . . Geschichte dieser Landschaft . . . *S8 scans over a link*. Ok. We don't want the whole history. We want the 18th . . . ok. Lange betrachtete? Why can't words be there? *LEO.* He considered long with amazement the costly buildings with the 6 Kamine? *LEO* . . . auf dem Dach. Kamin . . . fireplace. Die sechs Kamine auf dem Dach? 6 fireplaces on the rooftop. Die schoenen Gesimse und die hohen Fenster . . . daheim die Tuer. Daheim? *LEO* . . . at home. I figured that. So he is noticing the differences in the houses, the architecture, (22:00) much nicer homes in that area than in his father's home. Finally he could not hold back ok . . . where was I . . . could not hold back to say to a passerby 'Good friend, koennt ihr mir nicht sagen . . . good friend, he spoke to him as a good friend . . . could you not tell me how the . . . wie der heißt . . . the name of that man that owns to whom belongs that wonderful house with

the windows full of tulips . . . Types of flowers. ok. (23:14) Tulips, Sternenblumen . . . ok. *S8 reads to verstanden.* Der Mann aber . . . verstand. Ok. I don't know the end of the relative clause. But the man . . . *S8 reads through the sentence.* Kannitverstan OH! Cannot understand! Is that what it mans? (24:21) Kannitverstan. Shook he head, ok, said kurz und schnauzig . . . kurz? *LEO*. I want to say short, but that is probably not how it is used here. Short, brief, in short, quickly . . . Oh what I am doing now is looking at the sentence for the relative clause and taking out the second relative clause, the relative clause that starts with Der Mann aber . . . (25:01) der vermutlich etwas. . . . I am leaving out that and putting together just the main clause. Ok. So. The man said quickly and schnauzig. *LEO*. I am not getting a definition. Oh! There is one provided. Quickly and unfriendly the man said Kannitverstan. I am going to assume that 'Kannitverstan' is Dutch. I don't know. I'll check it in the German dictionary. But I think it's Dutch. *LEO.* Copy. Paste (25:52). There is nothing there.

So he shook his head and said real quickly Kannitverstan. Der Mann, der vermutlich? *LEO*. Supposedly. Now I am dealing with the relative after I have dealt with with main clause. The man who supposedly had s.th. important to do (26:57) zum Unglück gerade soviel . . . ok I've seen that now I just got to figure out what it means. *LEO*. Finds a definition enough to get by? Not helping me. Let's go back. Gerade is exactly, precisely, directly. Gerade straight? Not what I am looking for. So viel von der . . . *S8 reads over it again* . . . zum Unglueck? LEO. What does that expression mean? Unfortunately. What that be it . . . ill-fated could not understand . . . the questioning of the hollaendischen . . . man had s.th. important to do and understood nfortunately . . . geradeso? Ill-fated? Looking for a good definition. Where am I on this side here? Zum

Unglück is not there. Unfortunately? Not understanding German as the questioning or in Dutch . . . I don't know . . . I'll move on.

Dies war nur . . . this only one or three Dutch words, wenn man's recht betrachtet? *LEO.* ok considered, contemplated . . . recht accurately ok. If one considered it right and soviel? The same? Far as, as much as . . . Ich kann Euch nicht verstehn. I cannot understand all of you (33:40). Aber der gute Fremdling glaubte . . .

Q Why does the author use the subjunctive *sei?* (33:52) *S8 reads the question again*. The good stranger believed it is es sei . . . why does he use it? Das muss ein grundreicher? Must be a very rich man . . . hmm. *S8 laughs. LEO.* Looking at the side. Extremely rich. Given. Muss ein grundreicher Mann sein, der Herr Kannitverstan and went farther. Why does he use subjunctive? Hmm. (35:22) The stranger thought it is or was the name of the man . . . he asked about. After that he asked. Hmm. Why does he use subjunctive? I don't know. Subjunctive is used to distance yourself from information passed (36:06) or told by somebody else so that you claim no responsibility for it. I don't know. I don't know why he is using the subjunctive form sei. Ok.

Gass ein Gass aus . . . from one narrow road to another he finally came to the Meerbusen came to the bay that was called Het Ei or in German das Ypsilon. There stood ship against ship and mastbaum on mastbaum and he thought . . . durchfechten . . . struggle to take it in (37:22) with his two own eyes like he will struggle to take it in with his two own eyes . . . all these noteworthy unusual these unusual . . . to consider, till finally a large ship seine Aufmerksamkeit . . . drew his attention, das vor kurzem . . . angelangt war? Ausgeladen wurde. It arrived and began to unload. Schon standen . . . auf und nebeneinander am Lande. Reihen? Ganze Reihen? *LEO*. Rows of Kisten und

Ballen? Boxes they started stacking them in rows next to each other on land (39:37). Noch immer . . . *R8 reads to end of paragraph to bringe*.

Red dot: What does the H associate with material riches? (40:12)

Ohhh! Hmm . . . das vor kurzem aus Ostindien oh, ok. From East Indian Ocean, I guess. Even now being unloaded . . . rows of boxes and Ballen and bails . . . all being unloaded from East India. . . . herausgewälzt? *LEO*. Nothing. To roll out on the side. Even more and more kept rolling out. Kegs full sugar and coffee, rice and pepper and pardon me, mousedroppings. (42:32). But when he lange zugesehen hatte, but when he had looked for long, he finally asked a person . . . eben eine Kiste . . . *LEO* exactly . . . one who was pulling out a box . . . Achsel? *LEO* . . . Pulling a box out of the ankel? Armpit? I don't think he is pulling it out of the armpit. Shoulder? (44:13). The happy man wie der glückliche Mann heiße . . . *S8 reads on to Scherben*. Golden flowerpots.

Q: What does the journeyman associate with material riches? (45:40).

Ok theses questions are . . . ok. They are for what is coming up not for what you just read. At this point he believes that it is all the same person. This Kannitverstan had the beautiful houses, and the exotic goods coming from the Eastern part of the world. Ok. Jetzt ging er wieder zurück . . . in der Welt. What type of devil? Now he went back and stellte? Ordered? Stellte? Anstellen? *LEO* . . . anstellen to appoint is to engage . . . he went back and appointed recht traurig? *LEO* . . . sorrowful Betrachtung? LEO examination meditation, reflection, view . . . all right . . . sorrowful view . . . what type of poor devil so is under so many rich people in the world. But even when he thought, if I . . . if I would receive it . . . auch einmal so good I . . . if I would have it once so good as this Herr Kannitverstan had it . . . kam er um eine Ecke he came around the corner and noticed a Leichenzug. A large hearse, coffin? *LEO*. Funeral . . . four black horses pulled

einen ebenfalls *LEO* . . . likewise black überzogenen? *LEO* . . . coated black hearse slowly sorrowfully as if they knew that a dead person seine Ruhe . . . they were carrying . . . einen Toten . . . a person at rest. Ok. Ein langer Zug . . . a long train of friends and acquaintances of the dead person followed pair and pair, verhüllt? *LEO*. Where was I? Verhüllt. Ok. Cloaked. Cloaked in black jackets and stumm? *LEO* silence. Ok. It's a funeral procession. In der Ferne (53:17) . . . Glöcklein? *LEO* Ferne? In the distance läutete? *LEO*. I keep looking up these words! In the distance is ringing a single Glöcklein? *LEO* . . . Bell? No response for that. Hier on the side? No. Ergriffen? Where am I? This is why I hate looking up words in the dictionary because I lose my place reading. (55:12). I forget all the definitions that I looked up earlier. Ok. So. Procession of friends and relatives followed little by little dressed in black dressed all in black and silent. In the distance rang a single bell. Now overcome by grief . . . Where am I . . . overcome by grief our stranger . . . now our stranger was overcome by a feeling of melancholy (56:07) . . . a good person vorübergeht? *LEO*. I don't want to look it up. Vorübergehen? To walk passed, that not a good person walk passed if he saw if he sees eine Leiche, a funeral? Cadaver, corpse. Corpse car. If he sees a corpse, remains. And with his hat in his hands . . . andächtig. *LEO*. I don't want to look that up. Prayerfull devoutly . . . he stood . . . prayerfully till it was over with. Doch machte er sich . . . the last procession . . . in the quiet . . . and quietly . . . in aller Stille . . . who even quietly . . . Baumwolle? LEO. Gewinnen? Cotton wool? His cotton wool gewinnen? If der Zentner um 10 Gulden aufschlüge? Aufschlagen? LEO. Pockets . . . and requested him . . . excuse . . . that must be a good friend of ours, he said, that the bell rang, so betrübt, so sad, nachdenklich so deep in thought. Kannitverstan war die Antwort. Hah! I am really

lost there. (1:00). And then he made . . . doch machte er sich an den letzten vom Zug . . . he made himself the last in the procession, who even in the quietness ausrechnete? LEO. Ausrechnen to calculate, compute, figure out. Even in the quiet figured out overwhelmed him sachte am Mantel? Gently on the jacket . . . overwhelmed him gently on the jacket and asked him Excuse . . . I guess he asked someone . . . what he had won on his wool . . . Zentner? *LEO* fifty kilogramm around 10 Gulden. What the heck is he talking about? What the heck? Old gold coins . . . So it was a coin. 10 gold coins . . . I am completely lost. (1:03:47). I don't know . . . doch machte er sich an den letzten im Zug . . . he made himself the last of the procession but even in the quiet . . . and now I have forgotten what the words mean . . . I have to look them up all over again. What he was able to win on his cotton wool? Zentner? What is that again? If he gets 10 gold coins or an additional 10 per 100kg . . . ergriff ergriffen is to be overwhelmed by . . . right? But damn . . .! I don't know. All I know is that he goes up to him and talks to him and he says Kannitverstan. (1:06:32).

. . . Da fielen unsrem guten Tuttlinger

Q: Why do you think . . . says or good Tuttlinger. I don't know. Tear drops, a few tears from his eyes and it was . . . Poor Kannitverstan he rief aus, what do you have now of all your riches? What I einst? First? Von meiner Armut? LEO what I also receive from my poverty: death clothes, Leintuch . . . Raute. Small flowers to put on your jacket. With these memories? *LEO* these thoughts begleitete? *LEO* accompanied by accompanied him accompanied his body the corpse with these thoughts he accompanied the corpse as if belonged to it till the grave, saw den vermeinten . . . until he saw him lowered into his resting place and war from the Dutch Leichenpredigt? Dutch serman of which he did not

understand a year . . . to be more touched than many Germans . . . achtgeben? *LEO* Aufpassen to be careful to look out. Heavy sighing. Where was I? Lowered into the grave . . . didn't understand a word of the sermon given in Dutch. I forgot the definition of the word I looked up – to be careful . . . (1:11:36) von mancher deutschen . . . look out for many Germans . . . to be touched as from many Germans he did not notice? Finally he went heavy hearted with the others fort? *LEO* continued along, verzehrte in einer Herberge? Hostel, Jugendherberge. Ok. Where one . . . with a light heart . . . Limburger Käse . . . he was so poor, so he thought only of Herrn K . . . and his narrow grave. *S8 chuckles*. Consumed by the hostel, ate limburger cheese, and whenever it was hard to take that so many in the world were so rich and he was so poor, the thought of Herr Kannitverstan in Amsterdam, and his big house and his riches and his rich ships and his narrow grave. Ok. I think pretty much everything but the part about the end of the procession . . . money for his bails of wool. He just asked somone a questions. Her reads again that passage . . . I don't know. Baumwolle gewinnen koennte. One minute he is talking about the procession and the overwhelming . . . the journeyman becomes overwhelmed with this sorrowful feeling . . . vorübergeht?. . . not a person just stood by if they saw the body . . . he remained with hat in hand standing everybody basically that passed by had their hat in their hands. . . . until it passed. And all of a sudden we get this . . . da machte er sich . . . he made himself the last at the end of the procession . . . even in the quiet ausrechnete? LEO calculated computed . . . in the quiet he sat there and calculated what he could get for his wool. I guess, I think. What he would be able to get if he would get 10 additional coins per 100kg whatever der Zentner is.

Inference Identification Guidelines and Sample

The task of the rater is to separate the inferences from all other comments as listed above. Look carefully to identify the instances when the reader 'explains' something (infers, predicts, draws a conclusion). Look for instances when the readers connect what they know or what they look up with the information in the text.

1. Identify elaborative inferences and their sources. An inference it an explanation the reader makes based on information from a look-up or from previous knowledge.
2. Distinguish bridging from elaborative inferences.
3. Paraphrasing or speaking a translation from German to English is **not** inferencing.
4. An elaborative inference may be a **misreading**. In this study, misreading is defined as an instance when the reader constructs a mental model of the text that contradicts explicitly stated information as well as the 'unseen' in the text. Often misreadings occur due to language problems, such as the lack of vocabulary and difficult syntax. The reader may use the wrong definition/meaning of a specific word. She/he will make it 'fit' into her/his mental model of the text. We are looking for inferences based on background information.

Student 8 Inference Sample

Traveling journeyman . . . young tradesmen, experience outside their hometowns …skills competition. Ok. LUP

So he is noticing the differences in the houses, the architecture… much nicer homes in that area than in his father's home. B

Kannitverstan! Oh! Is that what it means?! E

I am going to assume that Kannitverstan is Dutch. I don't know. E

Q6 Why does he (author) use the subjunctive 'sei'? Subjunctive is used to distance yourself from information told by somebody else so that you claim no responsibility for it. I don't know. E

Ostindien. Ok.ok. From the East Indian Ocean, I guess. E

At this point he believes that it is all the same person. B

All I know is that he goes up to him and he says Kannitverstan. B

Student 8 Interview

S8: I read the version with the dot, the Q. I clicked on all of them. The one I could not figure out was the use of the Subjunctive.

I: Ahh!

S8: I never really learned a lot about it. All I know is that it is used in reporting as a function to distance the person who is writing from the person who has said or claimed this. Is that true.

I: Yes, that is true. It is also used, particularly in older writings, to indicate s.th. that is not real.

S8: Ok. It was in the journeyman's head. But not . . . Ok.

I: Yeah. That one . . . did you think it was a grammar question.

S8: No, I thought it was a literary technique, but I . . . don't have a lot of experience with it, so . . .

I: That's ok.

M: I knew you were asking s.th., but . . .

I: And the other links? I will hear you talk about them, right?

S8: Yeah. I looked through every link and every question. I didn't read each one completely, but . . .

I: Did you read out loud when you were reading them?

S8: Yeah, I think so. I said, I would go into that . . . I skimmed through it. Never found the answer.

I: You went to the link to find the answer. That was too troublesome to read this whole thing.

S8: Well, for me at least, it's a task to read German because I have to keep looking things up. And I even said that on the tape. And I am tired of looking things up and I am losing my place. It gets kind of frustrating. And then to get the cultural information, I have to do that to get that . . . That is a bit frustrating, I guess.

I: So, did you feel that you could make sense of the story?

S8: Pretty much. I think so. The guy coming from a small town where he was raised by a working class family, he saw this world in Amsterdam that he didn't realize existed. And then the language barrier made it even more difficult for him to comprehend what was going on. There was one line that I had trouble with that I mentioned when I went back . . . the bail of wool . . . does he just sit there in the procession and calculate what he could get if . . .

I: Who did that, do you know? Was it our guy?

S8: I don't know. I guess I attributed it to the journeyman even though it couldn't have been him. Probably. I guess he is thinking that is what the dead guy is thinking.

I: Well, the author is the one who knows everything. He knows even the thoughts of the people in the funeral procession. So . . . he had someone in the procession figuring out how much money he would get, while . . .

Why did the author say “our good Tuttlinger’?

S8: I figured he was painting the picture of the naïve, good hearted character.

I: Any idea where Tuttlingen is? Flash didn’t work.

S8: It is in Southwest Germany. It did come up. It come up with a map.

The other one, Gundelfingen, too much info!

I: Was that helpful?

S8: He was from a farming area.

I: Did you click on Amsterdam?

S8: Yes, I did not read it all. I just did Niederlande.

I: I encourage you to try things out. You look for something if you need it. Tell me what you did.

S8: Handwerksbursche, Journeyman link. They are young and naïve. That link did help.

APPENDIX H
RESULTS OF POST-STUDY QUESTIONNAIRE

Students were instructed to respond by circling one of the answers on the scale from “strongly disagree” to “strongly agree” (1 through 5).

Table H-1. Post-Study Questionnaire Results

S	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
S1	5	5	4	5	5	5	3	4	4	4
S2	4	4	4	5	5	5	4	4	4	4
S3	5	4	4	5	5	5	2	3	4	4
S4	5	5	4	5	5	4	3	5	4	4
S5	5	5	5	5	5	5	5	4	3	3
S6	4	5	5	5	5	4	3	2	5	5
S7	2	4	5	5	5	2	1	5	2	1
S8	5	5	5	5	5	5	4	5	5	5

1. I was comfortable with reading the text on the computer screen.

2. The layout of the text was clear.

3. It was easy to scroll through the text.

4. Leo was useful.

5. The internal dictionary was useful.

6. Additional textual background information was helpful for understanding the text.

7. Additional information in the form of pictures was helpful for understanding the text.

8. My prior knowledge of the topic helped me to understand the text.

9. The question glosses helped me figure out the meaning of a word/sentence or paragraph/section of a text.

10. The question glosses were helpful in figuring out the overall meaning of a text.

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BIOGRAPHICAL SKETCH

I was born in 1949, the same year Germany was officially divided into two distinct nations. I grew up in the ”free” West and graduated from the *Gymnasium* in 1968. Since I aspired to be a teacher, I enrolled at the *Pädagogische Hochschule* to study English and physical education. However, my life took an unexpected turn. In 1970, I met and married Herbert Overstreet and moved to Florida. For the next 15 years, I stayed at home and raised three children. When my youngest son was in middle school, I began taking basic courses at a junior college near my home. Majoring in German, I received a B.A. in 1987 from the University of Florida. We moved to Gainesville and two years later I finished my M.A. in German literature. On November 9, 1989, my 85-year old German grandfather and I watched the “Fall of the Wall” on television. Thus, at age 40, my family and I celebrated my degree of “higher learning” from an American university as well as the reunification of my native country. Indeed, it was a memorable year!

After graduation, I found temporary employment at the Baker County High School in Glen St. Mary, Florida. I taught 3 classes of 1st year German, 1 class of 2nd year German and 2 classes of 10th grade English. Since my experience had been limited to teaching German at the college level, I did not feel equipped to teach high school students and did not accept a permanent position there. Instead, I had an opportunity to establish and teach beginning level German courses at the Santa Fe Community College in Gainesville, Florida, from August 1990 to May 1992. During that time, I also began working as a lecturer in the Department of Germanic and Slavic Studies at the University

of Florida. Eventually, I received a full time position at the University of Florida. For the past 15 years, I taught beginning and intermediate levels of German language and culture courses. Since 2001, I have been involved in the development and implementation of "Discover German," a sequence of online courses.

In 1995, I entered a Ph.D. program in the College of Education at the University of Florida. My desire was to learn more about second language acquisition and foreign language pedagogy in order to do a better job in the classroom. The acting chair as well as my colleagues in the Department of Germanic and Slavic Studies supported my decision. The courses I completed for the Certificate in Teaching English as a Second Language proved to be very applicable and helpful for the German language classroom. My dissertation research grew out of an online reading course that was created to help intermediate students of German make the leap from language courses to the "Introduction to German Literature" course. The insights I am gaining from my dissertation study will undoubtedly inform how I develop and teach reading units for beginning- and intermediate-level learners of German.

One of the most rewarding experiences both on a personal and professional level has been those assignments that gave me the opportunity to take American students to Germany. Since the early 90s, I directed and co-directed the Study Abroad Program in Mannheim, Germany. I also taught a culture course that allowed me, along with my students, to explore who the Germans are today – after the reunification. I had grown up in a divided Germany and visited Berlin last with my graduation class in 1968. Now I was back in the mid 1990s with my American students. I tried to tell them what it was like back then with the Wall through the middle of Berlin, the watchtowers, the barbwire,

and the minefields. And I tried to relate to them how I felt as we walked together through the *Brandenburger Tor*.

Who I am as a person and as a teacher remains inextricably linked with the history and the people of my native Germany. That is perhaps what drives me to look for new ways to teach the German language and culture not as separate entities, but rather help my American students to learn the German language in the context of the culture and to develop a sensitivity and critical consciousness for ”the other.”