

TOWARD AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN L2 READING COMPREHENSION AND GRAMMATICAL COMPETENCE

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Abstract

L2 strategy research has shown that poor readers tend to process language in a word-for-word fashion, directing attention to the words and structures of a passage, whereas more-skilled readers focus on meaningful relations to and within the material. Given these tendencies, a comparison of performance on form-focused grammar activities and meaning-driven reading comprehension activities among beginning students of French was conducted. A negative correlation between success on either activity was expected. Conflicting findings of varying significance are discussed.

Introduction

Since the 1980s, reading skills have received increased attention in terms of both research and their applications to the second language (L2) classroom. Much of the study of L2 reading has concluded that readers rely upon different sets of competencies while reading (Barnett, 1990; Brantmeier, 2002; Carrell, 1988; Hosenfeld, 1984; Lee, 1997; Liontas, 2002; Omaggio Hadley, 2001; Saricoban, 2002; Singhal, 2001; Scarcella & Oxford, 1992; Shrum & Glisan, 2000; Swaffar, Arens & Byrnes, 1991). Commonly identified sets of competencies include:

1. grammatical competence: knowledge of morphology, syntax, vocabulary, and mechanics;
2. sociolinguistic competence: knowing what is expected socially and culturally by the composers of the target language (TL) text;
3. discourse competence: the ability to understand cohesive devices such as pronouns, conjunctions, and transitional phrases to link meaning within and across sentences, as well as the ability to recognize how coherence is used to maintain the message's unity; and
4. strategic competence: the ability to use a number of strategies to compensate for missing knowledge (Scarcella & Oxford, 1992).

These competencies assist readers in completing a multitude of different strategies and tasks (from determining tense from verb endings to anticipating outcomes based upon personal experience and world knowledge) in order to facilitate comprehension.

Study and explanation of the effects of reader competencies and strategies on reading comprehension can be aided by the development of theoretical models of the reading process, which can provide an informed yet hypothesized representation thereof. These models provoke new ideas about reading and provide a paradigm against which aspects of the reading process may be tested (Barnett, 1989, p. 10). Attempts to demystify the black box of the L2 reading process have relied primarily upon explanatory models

borrowed from first language (L1) research and theory that have evolved from those placing an emphasis on text-based variables (e.g., vocabulary, syntax, grammatical structure), to those stressing the importance the reader (e.g., background knowledge, strategy use, reading purpose, interest in the topic). These models can largely be placed into one of three main categories: bottom-up, top-down, and interactive.

Bottom-up Models

In bottom-up theories and models, the reading process is considered a text-driven decoding process wherein the sole role of the reader is to reconstruct meaning embedded in the smallest units of text (Gough, 1972; Carrell, 1988; McKoon & Radcliff, 1992). It views the text as a “chain of isolated words, each of which is to be deciphered individually” (Martinez-Lang, 1995, p. 70), and the reader as someone who “approaches the text by concentrating exclusively on the combination of letters and words in a purely linear manner” (p. 70). Meaning is understood through analysis of individual parts of the language and the reader processes language in a sequential manner, “combining sounds or letters to form words, then combining words to form phrases, clauses, and sentences of the text” (Shrum & Glisan, 2000, p. 123). Valued skills include discriminating between sounds and letters, recognizing word order and suprasegmental patterns or structures, and translating individual words (Shrum & Glisan, 2000). The bottom-up position was well suited to the audiolingual method of second language instruction in the 1960s and 1970s, which considered the decoding of sound-symbol relationships as an essential component of the language learning routine (Lally, 1998). In a strict bottom-up model, the graphemic, syntactic, lexical, semantic, and pragmatic codes were considered consonant with the meaning of the text.

Eskey (1988) emphasizes the importance of “holding in the bottom” (p. 97). For example, Eskey intimates a concern that the promotion of higher-order strategies, such as predicting from context and the activation of schemata, may be too strong and warns that we “must not lose sight of the fact that language is a major problem in second language reading, and that even educated guessing at meaning is no substitute for accurate decoding” (1988, p. 97). To demonstrate his point, Eskey offers the following sentence pair, employing the nonsensical invented term “stiggle”: *Take three stiggles. Stick them in your ear.* Given that nobody knows what a *stiggle* is, and that there is no context or extra-linguistic cues to suggest that *them* refers to *stiggles*, it must be the bottom-up textual structure of the language that allows readers to complete the anaphoric reference.

Top-down Models

While bottom-up models treat the reading process as a decoding activity with an emphasis placed on the structure of the text, top-down models take the opposite position and consider the reader and his/her interests, world knowledge, and reading skills as the driving force behind reading comprehension (Goodman, 1968; Graesser, Singer & Trabasso, 1994; Omaggio Hadley, 1979; Barnett, 1989). For extremists, the text has little or no meaning in and of itself. Instead, it gives direction to readers concerning how they should retrieve and construct meaning from their own previously acquired knowledge (Rumelhart, 1980; Carrell & Eisterhold, 1988). A more moderate top-down position is found in the oft-cited explanation offered by Goodman (1968), who depicts the reading process as a “psycholinguistic guessing game” (p. 126) where the reader reduces his or her dependence upon the text itself by employing strategies such as predicting and sampling. In other words the reader uses “general knowledge of the world or of particular

text components to make intelligent guesses about what might come next in the text [and] samples only enough of the text to confirm or reject these guesses” (Barnett, 1989, p. 13).

The role played by background knowledge in the reading process can be explained and formalized in the theoretical model of schema theory (Anderson & Pearson, 1988; Rumelhart, 1980; Schank & Abelson, 1977). According to Anderson and Pearson (1988), schemata are abstract knowledge structures that represent information among component parts and house a collection of previously acquired and integrated information. The store is also referred to as the reader’s background knowledge and represents general concepts of a given object, event, or situation. To illustrate the power of schemata, Carrell and Eisterhold (1988) offer the following example: “The man held up his hand and stopped the car” (p. 77). While there are several potential schemata related to this sentence, readers could make the following assumption: the car has a driver, the man (a policeman) signals for the driver to stop, the driver applies his breaks and stops the car. However, given different background knowledge and/or activation of a different schema, interpretation of this text could be quite different. For instance, imagine that the man is Superman and that the car has no driver. In the Superman schema, the holding up of the hand is no longer considered to be a signal to a driver to stop the car, but rather as a physical stopping of a driverless car by Superman’s hand.

Interactive Models

The most recent set of reading models is the interactive group, in which comprehension is considered the result of bottom-up and top-down elements working in concert; an interaction between the reader and the text (Bernhardt, 1991; Eskey, 1988; Grabe, 1991; Lontas, 2002; Rumelhart, 1980; Swaffar, Arens & Byrnes, 1991). Although interactive models acknowledge the effect of textual information on the reader’s mental activities, many assign slight importance to top-down factors such as metacognition (Bernhardt, 1986), the compensatory capacity of interest and background knowledge (Coady, 1979), and schemata (Anderson & Pearson, 1988). According to most strains of schemata theory, comprehension is the result of a union of the text and the reader’s background knowledge (Lally, 1998). Specifically, every input is mapped against some existing schema and all aspects of that schema must be compatible with the input information (Carrell & Eisterhold, 1988). Bottom-up processing “is evoked by the incoming data [and] the features of data enter the system through the best fitting, bottom-level schemata” (p. 76). Top-down processing occurs as the reader “makes inferences based on schemata and scans the input for information to match the partially satisfied, higher order schemata” (Lally, 1998, p. 271).

More and Less Skilled Readers

Numerous research studies have been conducted to better understand the reading process in general and the function of reading models in particular. Many of these studies have investigated the role and effect of reading strategies and contain a catalogue of characteristics now commonly attributed to either more or less skilled readers (Aebersold & Field, 1997; Allen, Bernhardt, Berry & Demel, 1988; Bacon, 1992; Barnett, 1989; 1990; Block, 1986; Brantmeier, 2002; Carrell, 1988; Garner, 1987; Hosenfeld, 1977, 1984; Kintsch & van Dijk, 1978; Laufer & Sim, 1989; Saricoban, 2002; Sarig, 1987; Singhal, 2001; Swaffar, Arens & Byrnes, 1991; Munby, 1979; Pressley & Afflerbach, 1995; Waxman & Padron, 1987). Similar to the traits and strategies of the bottom-

up/top-down continuum of reading models, those ascribed to more and less skilled readers also appear to form a binary set characterized by text-focused and reader-focused extremes.

“Good” or successful readers, for example, have been found to rely primarily upon top-down strategies. Using think-aloud protocols to identify relationships between reading strategies and successful or unsuccessful L2 reading, Hosenfeld (1977) found that successful L2 readers at the junior high level kept the meaning of the passage in mind, skipped words that they believe to be unimportant to the meaning of the sentence or text, read in “broad phrases,” and used context to determine the meaning of unknown words. Less successful readers, on the other hand, translated sentences on a word-for-word basis, rarely skipped words, and looked up unknown words in a glossary. While comparing think-aloud protocols produced by native English speakers and ESL students on two expository passages, Block (1986) found that more successful readers use “general” strategies such as anticipating content, recognizing text structure, identifying main ideas, using background knowledge, monitoring comprehension, and reacting to the text as a whole. Less successful readers rely on “local” strategies such as questioning the meaning of individual words and sentences, seldom integrating background knowledge with the text, and not focusing on main ideas.

Barnett (1989) examined the reading strategies employed by native English speakers studying French and found that the effective reader tends to read the entire passage then returns to reread, thinks about what he/she knows about the topic, hypothesizes about what might come next, and guesses the meaning of unknown words. Less effective readers focus on the meaning of individual words, pay attention to text structure, reread isolated difficult passages only, never or rarely hypothesize, and resist skipping unknown words.

Recent studies tend to support the findings of investigations of strategy use conducted in the 1980s and 90s. Using a reading strategy inventory questionnaire, Saricoban (2002) examined the strategy use of post-secondary ESL students and found that the successful readers engaged in predicting and guessing activities, made use of their background knowledge related to the text’s topic, guessed the meaning of unknown words, and skimmed and scanned the text. Less successful readers focused on individual words, verbs in particular. The less successful readers were concerned with the types of verbs used, their purpose in the text and the meaning they conveyed. (p. 9). Singhal (2001) summarizes fourteen reading strategy studies and concludes that it is “clear that there are indeed differences between successful or good readers, and less successful or poor readers in terms of strategy use (p. 4). Specifically, good readers tend to use cognitive, memory, metacognitive, and compensation strategies far more than less proficient readers. Poor readers generally focus on local concerns such as grammatical structure, sound-letter correspondence, word meaning, and text details. Less proficient readers’ strategies tend to be more “local or bottom-up” reflecting a desire to treat reading as a decoding process rather than as a meaning-making process (p. 5).

Strategy research in the realm of L2 reading has produced surprisingly consistent descriptions of the tools readers use to manage their interaction with written texts. In short, poor, novice, or less successful readers attempt to process language in a “word-for-word” fashion, drawing on one type of background knowledge--their fledged knowledge of the language code (Omaggio Hadley, 2001). Skilled readers tend to avoid processing

at the word level, and instead center on meaningful and logical relations to and within the material, “even to the point of disregarding, in a certain sense, the actual printed text” (Anderson, Reynolds, Schallert & Goetz, 1997, p. 46).

Research Question

Given the tendency of less successful readers to direct their attention to the words and structures of a reading passage (bottom-up or local strategies) and the tendency of more successful readers to focus on overall meaning and background knowledge (global or top-down strategies), less skilled readers should perform well, if not better than more skilled readers, on form-focused discrete-point grammar activities. Attention to structural details such as verb tense morphology, agreement, syntax, and lexicon is needed to successfully conduct many form-focused grammar manipulations. Intuitively, a focus on background knowledge and a high tolerance for ambiguity should not be useful, and could potentially be a liability, when engaging in form-focused, grammatical manipulations. The purpose of this study, therefore, was to investigate whether or not there is a negative correlation between success on form-focused grammar exercises, and reading comprehension ability in beginning L2 learners.

Participants

Fifty-six native speakers of English enrolled in two introductory French courses at the University of Nebraska at Omaha participated in this study. Personal data questionnaires (see Appendix A) revealed students’ language learning backgrounds. All students with prior formal study of French (with the exception of culturally-driven elementary FLEX exposure) were excluded from the data. The final number of true beginners involved in this investigation is 49.

Course and Materials

The two sections of the introductory course were taught by the instructor/author. Although communication and functional language use were goals of the course, grammar was addressed in class as presented in the textbook *Vis-à-vis*. L2 composition was addressed and followed by an in-class writing activity at least once per chapter. Reading, on the other hand was not explicitly discussed, although incidental reading of exercises, sentences, instructions, and short dialogues took place regularly. Materials used in the investigation consisted of the *Vis-à-vis* textbook and instructor’s testbank. Minor modifications, additions, and deletions were made to the commercially prepared materials as needed. Exams included in the testbank contained a variety of activities and tasks, and examined multiple skills. Of interest for this study were the grammar-focused exercises and the reading comprehension passages. Grammar points presented in each chapter were tested both directly in form-focused exercises, and indirectly, in open-ended meaningful exercises, listening comprehension activities, and compositions. Given the research question, one form-focused activity per chapter was selected for review in this study. Reading comprehension was assessed by presenting an authentic target language passage ranging from 81 to 206 words in length, followed by 5-10 true/false or multiple-choice comprehension questions. The reading comprehension questions focused on text meaning rather than structural elements and were presented in French.¹ A description of the target activities for each chapter (form-focused and reading comprehension) is presented in Table 1.

Table 1
A Description of Target Activities (Form-Focused and Reading Comprehension) for Each Chapter

CHAPTER/EXAM	FORM-FOCUSED ACTIVITIES	READING COMPREHENSION
Chapter 1 Target Activities	Students were asked to fill in missing indefinite articles or pronouns in five sentences. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 3.	Students read a 197-word article on technology and communications and answered five matching questions. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 3-4.
Chapter 2 Target Activities	Students were asked to conjugate the verb <i>étudier</i> (to study) to agree with its subject in five instances. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 21.	Students read an 81-word passage on French universities and completed five True/False questions based on the reading. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 22.
Chapter 3 Target Activities	Students were asked to transform five sentences into questions by inverting subject pronouns and verbs. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 36.	Students read a 150-word advertisement for encyclopedias and answered five questions by selecting the better of two possible answers (a or b). <u>Vis-à-Vis</u> Computerized Testing Program, pg. 37.
Chapter 4 Target Activities	Students were asked to conjugate five different verbs to agree with five different subjects. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 50.	Students read a 193-word series of ads for rental properties and answered five multiple-choice questions on the passage (a, b, c, or d). <u>Vis-à-Vis</u> Computerized Testing Program, pg. 51.
Chapter 5 Target Activities	Students were asked to complete five sentences by using the appropriate form of the possessive adjective (<i>mon, ton, etc.</i>). <u>Vis-à-Vis</u> Computerized Testing Program, pg. 62.	Students read a 169-word passage on French housing trends and answered five True/False questions on the passage. <u>Vis-à-Vis</u> Computerized Testing Program, pg. 63.
Chapter 6	Students completed a	Students read a 198-word

Target Activities	passage by adding the appropriate partitive, definite, or indefinite article (ten blanks). <u>Vis-à-Vis Computerized Testing Program</u> , pg. 75.	passage on French cuisine and answered five True/False questions on the passage. <u>Vis-à-Vis Computerized Testing Program</u> , pg. 76.
Chapter 7 Target Activities	Students completed a passage by adding the correct form of either a demonstrative (<i>ce</i>) or an interrogative (<i>quel</i>) adjective (five blanks). <u>Vis-à-Vis Computerized Testing Program</u> , pg. 87.	Students read a 206-word passage on restaurants (advertisements) and answered five multiple-choice questions on the passage. <u>Vis-à-Vis Computerized Testing Program</u> , pg. 88.

Method

At the end of each chapter, or after approximately 9-10 hours of in-class instruction, students completed a chapter examination. A total of seven chapter exams were administered in each course. One explicit grammar activity and the reading comprehension section from each exam were targeted for review and were each assigned a score (out of 10 points possible). At the end of the semester a comparison was made between students' grammar-only scores, reading comprehension-only scores and overall exam scores. Final course grades, which involved a host of factors such as attendance, participation, oral skills, quizzes, homework, compositions, and complete exam scores were not considered.

Findings

To determine whether or not there is a statistically significant difference between performance on reading comprehension and grammar tasks, a t-test for dependent samples was conducted. When comparing the 343 units (49 students x 7 exams) there was virtually no difference detected between performance on the reading ($x = 9.2$) and grammar tasks ($x = 9.1$).

Table 2
Mean and Standard Deviation Scores per Task

	<u>X</u>	<u>S.D.</u>
Form-Focused	9.1	1.3
Reading Comp	9.2	1.4

Similarly, performance on neither of the two tasks (reading or grammar) proved to be a better predictor of overall exam scores than the other. Looking at individual cases, however, yields a more interesting, although not always statistically significant picture. For example, twenty students (41%) performed equally well on both tasks across the seven measurement points. The remaining 29 (59%) performed better on either the reading or the grammar tasks.

Table 3
Individual Performance Per Task

	<u>Reading over Grammar</u>	<u>Grammar over Reading</u>	<u>No Difference</u>
% of Students	36%	23%	41%

For nine of these participants the difference in performance on one task over the other reached significance ($p \leq .05$).

Discussion and Limitations

Overall analysis of the 343 data units produced no significant difference in performance on the two very different tasks, indicating the lack of a strong negative correlation between success on form-focused grammar activities and that on meaning-driven reading comprehension tasks. Nevertheless, the majority of participants (59%) did perform regularly, albeit slightly, better on either one or the other task. Although weak for most participants, this tendency to perform better on either one task or the other may be attributed to individual differences in approaches to L2 tasks (form-focused versus meaning-focused) such as those commonly attributed to good versus poor readers. Indeed, good readers have been found to pay more attention to passage meaning, think about the topic, and hypothesize, while poor readers tend to pay more attention to individual words, passage structure, and focus on isolated segments (Brantmeier, 2002). The global strategies needed for successful reading comprehension were not required for the accurate completion of the form-focused activities. Instead, attention to form, grammar rules, and surface-level features (or strategies commonly ascribed to poor readers) were directly applicable to the successful completion of context-independent, fill-in-the-blank activities.

Given the tendency of “poor readers” to focus on local concerns, such as grammatical structure, sound-letter correspondence, word meaning, and text detail (Singhal, 2001), they should perform better than “good readers” on form-focused grammar activities. Moreover, since good readers tend to avoid processing at the word level and instead focus on meaningful relationships, they should not only perform better than poor readers on reading comprehension tasks, but they should also be hindered by their global top-down skills when engaged in discrete-point activities. While the purpose of this investigation was simply to confirm or deny the existence of this type of negative correlation between performance on two divergent task types, additional studies would be strengthened by expanding the line of inquiry to include assessment of participants’ general reading comprehension levels (L1 and L2).

Limitations of this study (sample size, commercially-prepared measurement tools) may be responsible for the lack of significance behind the otherwise notable trends. Replications of this study using a larger sample size, additional levels of language ability, lengthier tasks/tests and collecting additional data on student strategy use through think-aloud protocols (Ericsson & Simon, 1984) or strategy-use questionnaires (Oxford, 1990) will be needed in order to shed light on the potential currency of the trends detected here.

Conclusion and Future Applications

Although the overall statistical outcome of this investigation failed to support a strong negative correlation between success on form-focused grammar exercises and reading comprehension scores in L2 learners, the tendency of individual participants to

perform slightly better on either one task or the other over the course of the semester does. Should a negative correlation bear out through additional investigations, it has the potential to inform L2 learning style and strategy theory, as well as yield implications for task-specific strategy training. For example, according to Brantmeier (2002), learner strategies are “the cognitive steps learners use to process second language input” (p. 1). These “attacks” will need to be carefully tailored to the task at hand (reading comprehension, form-focused grammar practice, composition, or listening comprehension). Clearly, reading comprehension is “not a mere grammar-rule application process or the processing of print in an orderly sequence” (Liontas, 2002, p. 26), as are some beginning L2 exercises. Likewise, surface-level decoding exercises are rarely what most would consider to be a “meaning-making” process (Singhal, 2001). Therefore, the numerous recent top-down recommendations stemming from L2 research, in general, and reading research, in particular, should not be presented to students as a panacea for all L2 comprehension activities. Even in the post-communicative classroom where meaning reigns supreme, global or top-down strategy training would need to be modified to fit the task, or even in some extreme form-focused instances, discouraged entirely.

However, should the negatively correlated relationship fail to manifest itself at a statistically significant level in subsequent research, it would suggest that individual L2 learners are not wedded to either a global or a local level of processing, but instead are able to switch processing type, even in the absence of strategy training.

While the study of strategy use and training has provided numerous practical pedagogical recommendations, very little attention has been paid to its potential mis- or over-use. Indeed, certain approaches to, or “attacks” on (Brantmeier, 2002), an L2 text or activity could become debilitating if applied to an inappropriate task. This study only begins to posit the existence of an inverse relationship between certain tasks and approaches that will need to be replicated and expanded in future research.

Note

1. Exact activities are not reproduced here due to Copyright restrictions. Materials may be obtained from the publisher.

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Appendix A
Personal Data Form

1. What is your native language? _____

2. Number of years of prior French study _____

2a. Please describe the learning environment _____

3. Other languages studied or spoken _____

3a. Please describe the learning environment for each language listed above.
