

**MORPHOLOGICAL AWARENESS AND READING: THEORY, RESEARCH
AND PRACTICE**

by

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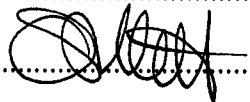
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Abstract

Morphological awareness refers to the ability to reflect on and manipulate morphemes and word formation rules in a language (Kuo & Anderson, 2006). This paper presents both a theoretical framework and current research on the relevance of morphological awareness to reading achievement as well as to reading instruction. Additionally, it provides a synthesis of empirical studies on the topic of morphological awareness and reading from a crosslinguistic perspective. Educational practices and implications to the classroom, based on the aforementioned theory and research findings, are also explored suggesting a need for explicit instruction of derivational morphology in the second language classroom to assist students in breaking down single word meaning as well as to promote reading comprehension.

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AKNOWLEDGEMENTS

I vowed for many years that I would not venture into the realm of graduate studies, always feeling somewhat satisfied with what I had already achieved. All the while, however, I felt that I was destined for more. The discovery of a small information pamphlet advertising a University of British Columbia graduate studies program in my work mailbox sparked interest for the first time in the quest for higher education. It was with this find along with unwavering support and faith in my abilities from my husband, Mark, that I began my journey into the greater depth of academia. With his help and patience along with those of my partner in crime Joy Hong, and professors, Monique Bournot-Trites, Meike Wernicke-Heinrichs, Isabelle Denizot, Martine Delsemme and Wendy Carr, I have made it through and, for this, I am eternally grateful. Thank you for believing in me.

SECTION 1: INTRODUCTION

Overview

This paper presents both a theoretical framework and current research on the relevance of morphological awareness to reading achievement as well as to reading instruction and is organized into four sections: introduction, literature review, connections to classroom practice, and conclusions. In the following section, morphology is defined as well as different types of morphology. Following this is a discussion of the development of morphological awareness in first language learners and second language learners as well as an overview of the research findings that suggest a strong link between morphological awareness and reading, a crosslinguistic transfer from English to French (and vice versa) and the promotion of morphological awareness through explicit classroom instruction. In section three, Connections to Classroom Practice, an approach to teaching students how to hone their metacognitive skills to help them deduce single word meaning and comprehend reading passages will be discussed. Finally a summary is provided that includes areas for further discussion and research.

Background

I have taught French as a second language (FSL) in the Abbotsford school district in British Columbia for the last ten years. I teach Grade 9 to 12 Honours core French, and Advanced Placement (AP). The high school in which I teach is an institution known for its academic rigor. Enrolment in our school is popular with many students transferring from outside the catchment area in order to benefit from the academic programs offered.

School results on high-stakes exams such as Ministry of Education provincial exams and AP exams are important, and it is understood in our school that students will be academically successful. Although I do not always feel that exam results reflect what students have learned nor

necessarily what teachers have taught, I do want my students to succeed. Hence, success on these exams is of importance to me.

In a school year, I teach seven courses in a semestered system. For one course, I see students for 75-minute periods every school day over a five-month semester. My classes are predominantly composed of 20 to 25 Honours students who are very motivated. Of these, some are former French (early or late) immersion students who are strongly motivated and others, a small minority, who are unmotivated or wish to be surrounded by others who display a willingness to learn. Most of my students, not including those with a French immersion background, have had virtually no exposure to the French language until Grade 9 when they enter my classroom.

Having viewed my students' results on past exams, it has become clear to me that they are more successful on oral and written tasks than they are on reading comprehension tasks. However, on some of the more difficult reading passages on both Ministry and AP exams, students' results are much lower. I take this as a personal reflection of how I have taught reading in my core French classroom.

I have observed in my classroom, during many reading assignments, that students often struggle on single words, and if they cannot deduce the meaning of the reading in context, they are unable to comprehend the passage. They also frequently rely on the use of a dictionary when permitted. In one such observation, a Grade 10 student had difficulty with the French word *boucherie*. He was able to see the word *boucher* and knew its meaning but was not familiar with the suffix *-ie* which appears at the end of several locations (*laiterie*, *épicerie*, and so on) did not comprehend the word as a whole. Several other instances similar to the aforementioned have occurred throughout my teaching.

After asking several students how they felt about the Ministry or AP exam, many stated that they experienced great difficulty with certain words that were very important to the context of the reading passages, and as a result were unable to understand the written document. Such words that I can recall from memory, included *renouveler*, *aterrir* and *illisible*. As I probed further, it seemed apparent that they were unable to decode the meaning using metalinguistic skills to break down the word into its parts. For example, *illisible* can be broken down in the following way: *il*=the opposite, *lis*= from the verb *lire*, and *ible*=able (unreadable).

Since my students are at the high school level, they have already learned to read in their first language, which for most has been English. Hence they should already have some skills to decompose a word to determine its meaning. Additionally, there are several words in French that greatly resemble their English equivalents. Nonetheless, many demonstrate an inability to deduce the meaning from a word by breaking it down into smaller parts, perhaps, as a result of not knowing what those smaller parts are in French.

After having started my Masters in modern language education, metalinguistic awareness in decoding word meaning and the strategies involved interested me greatly especially since I felt there was a direct link to the problem with which my students were faced. More specifically, the role of morphological awareness seemed important because of its relation to word meaning and reading achievement. Research suggests that knowledge of word parts, such as prefixes, suffixes and roots (word families) help students to apply metalinguistic skills to better decode and comprehend single words as well as larger reading passages (for example, Carlisle, 2000; Kuo & Anderson, 2006; and Singson, Mahony & Mann, 2000). If I am able to model and teach effective strategies for my students to break down single words in order to deduce meaning, they may

experience more success with reading tasks hence achieving a higher general literacy across the curriculum.

Research questions

I believe that my students will learn with effective instruction and I take it as a personal shortcoming of my practice if the majority of them do not succeed on certain linguistic tasks such as reading comprehension. Therefore, given my interest in improving student reading achievement, I would like to explore the following questions:

1. How does explicit instruction of derivational morphology affect student metalinguistic skills facilitating comprehension of single words as well as reading passages?
2. What is the nature of cross-linguistic influence of English to French in the decoding of single words?

SECTION 2: LITERATURE REVIEW

Factors involved in reading

“The act of reading is an attempt to decode meaning in order to comprehend the words one sees in print” (Dynamic Literacy, 2008, ¶ 2). Research to date suggests that there are some main factors involved in the development of reading. First, there are numerous studies implicating that phonological awareness, or the ability to access sound units in spoken words, plays a major role in reading achievement (Adams, 1990; Goswami & Bryant, 1990; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998). Second, there is evidence to support the importance of orthographic knowledge, or “the knowledge of the regularities of the visual and

orthographic aspects of print, in learning to read” (Roman, Kirby, Parrila, Wade-Woolley & Deacon, 2009). Naming speed or rapid automatized naming, which refers to the speed at which children are able to name certain sets of stimuli, is a third variable found in reading development (Cutting & Denckla, 2001; Kirby, Parrilla, & Pfeiffer, 2003; Scarborough, 1998; Wolf & Bowers, 1999). A fourth variable implicated in reading development is that of morphological awareness. Less research exists on this factor, however its link to reading has become a topic of interest over the last 10 years (Carlisle, 1995; Carlisle & Normanbhoy, 1993; Deacon & Kirby, 2004; Leong, 1989; Mahoney, 1994; Singson, Mahony, & Mann, 2000; Tyler & Nagy, 1989).

Definition and types of morphology

Morphological awareness refers to a “conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure” (Carlisle, 1995, p.194).

Morphemes are the smallest units of meaning in a word. Words can be either morphologically simple (a single morpheme) or complex (more than one morpheme). As well, morphemes can be either lexical (with semantic meaning) or grammatical (inflectional or derivational) (Gombert, Colé, Valdois, Goigoux, Mousty & Fayol, 2000). Inflectional morphology refers to the “systematic marking of grammatical function on a word stem required by the syntax (for example, I turn-> she turns; one book-> two books)” (Kuo & Anderson, 2006, p.163).

Derivational morphology involves “the addition of a morpheme to change the part of speech or the meaning of a base morpheme (for example, explain-> explanation)” (Kuo & Anderson, 2006, p.163).

The role of morphology in reading achievement for first language learners

In 1970, Brittain was the first to show that, in English, there was a link between morphological awareness and a general reading achievement for 7- and 8-year old children.

Brittain assessed inflections of Grade 1 and 2 students, examining whether inflectional morphological awareness was related to reading achievement. His findings showed a significant partial correlation between inflectional awareness and reading achievement. He further posited that this relationship remained unchanged following a control for general intelligence. He also noted that the correlation was stronger for Grade 2 students than for Grade 1 students.

More current research suggests that there could be a very strong association between reading development and morphological awareness (Carlisle & Nomanbhoy, 1993; Deacon & Kirby, 2004; Mahony, Singson, & Mann, 2000; Singson, Mahony, & Mann, 2000). In 2000, Mahony et al. determined that morphological awareness accounted for approximately 5 percent of the variance in reading, while controlling for verbal short-term memory. In addition to this, it was determined that morphological awareness accounted for 4 percent in word reading in addition to the 37 percent accounted for by phonological awareness (Carlisle & Nomanbhoy, 1993). Further results from Carlisle (1995) show that there is involvement of morphological awareness in early real word and *pseudoword* (a pronounceable combination of letters that is not an actual word, such as *bim* or *toaf* in English) reading achievement in addition to phonological awareness and both verbal and nonverbal intelligence. Specifically, Carlisle's results suggest that, in Grade 2, morphological awareness contributed significantly to reading achievement. Additionally and more recently, Deacon and Kirby (2004) showed that morphological awareness of children in Grade 2 contributed unique variance to their pseudoword and real word reading skill from Grade 3 to 5 after controlling statistically for phonological awareness as well as both verbal and nonverbal intelligence.

Carlisle (2000) explored the impact of morphological awareness on reading, more specifically, the metalinguistic skill to read derived forms (multimorphemic words) and its

relationship to reading comprehension. She also studied morphological awareness as it contributes to reading. According to Carlisle, morphological awareness “must have as its basis the ability to parse words and analyze constituent morphemes for the purpose of constructing meaning” (p.170). In this study, Grades 3 and 5 middle school students participated in a battery of tests including the *Word Reading Test* that measured the ability to read morphologically complex words. A second measure was the *Test of Morphological Structure* that tested students’ awareness of the base and derived forms. The *Test of Absolute Vocabulary Knowledge* involved an interview in which the student was given a word, asked to give the meaning of the word, use it in a sentence and, when needed, pick the meaning from a multiple-choice set. A final measure used in the study was the *Comprehension Testing Program* that involved the reading of short passages to answer comprehension questions. Based on the results, Carlisle suggests that morphological awareness contributes significantly to reading comprehension for both Grades 3 and 5 students. Carlisle further proposes that older students have a more developed morphological awareness due to “greater exposure to complex words in print and more opportunity to learn to use morphological decomposition and problem solving as an aid to reading” (p.186).

More than 50 percent of the English language is composed of morphologically complex words (Nagy, Berninger, & Abbott, 2006). It has been suggested that older children, with a more developed morphological awareness, may be better able to gain and retain words that are morphologically complex (Carlisle, 1995; Mahony et al., 2000; Singson et al., 2000). As well, after studying students in Grades 4, 6 and 8 (aged 10, 12 and 14 years), Roman et al. (2009) suggest that morphological awareness contributes uniquely to real word and pseudoword reading.

for older readers. Deacon and Kirby (2004) further maintain that the role of morphological awareness in reading development is relatively consistent across Grades 3 to 5.

Studies of reading achievement in languages other than English reinforce the link between morphological awareness and reading achievement. Rispen, McBride-Chang, and Reitsma's (2007) study in Denmark suggests that a focus on inflectional (gender/number), as well as derivational (prefix/suffix) morphological awareness facilitates children's reading performance throughout primary school. Kuo and Anderson's (2006) study in Chinese suggest that morphological awareness contributes to the decoding of morphologically complex words and contributes to the development of reading comprehension, though the study posits that this relationship is probably reciprocal rather than unidirectional. Another Chinese study (Wu, Anderson, Li, Wu, Li, Zhang, Zheng, Zhu, Shu, Jiang, Chen, Wang, Yin, He, Packard, & Gaffney, 2009) further demonstrates that morphological awareness leads to growth in literacy achievement and that, as children begin to master basic literacy, the relationship between morphological awareness and literacy becomes "mutually supportive reciprocal causation" (p. 49).

In French, 80 percent of words are composed of more than one morpheme. The understanding and awareness that words are multimorphemic facilitates reading and comprehension for children whose first language is French (Gombert et al., 2000). The authors further suggest that, at the age of 6, children master the essentials of phonological inflections in French such as gender, number, verb tense, and so on, and that a derivational morphological awareness of the French language occurs later. A longitudinal study by Casalis and Louis-Alexandre (2000) of Kindergarten to Grade 2 French students from an urban school in France was conducted to determine how morphological awareness develops and how it is linked with

reading acquisition. The results of the study showed that derivational morphological awareness develops during the first two years of school. Students successfully applied derivational rules less than 50 percent of the time. The authors state that, “the ability to segment a morpheme is far from mastered in Grade 2” (p. 329). On inflectional morphological tasks (except for pseudowords) performance was very high. Their research findings support those of Gombert et al. (2000) suggesting that derivational tasks develop later than inflectional tasks and that there is a correlation between morphological development and learning to read. It appeared that, for Grades 1 and 2 students, morphological analysis accounted for a significant part of variance in both decoding and reading comprehension. In Kindergarten, morphological analysis was a predictor of reading level in Grades 1 and 2. Data from a longitudinal study by Colé, Royer, Leuwers, and Casalis (2004) of French students from Grades 1 and 2 showed that the reading level in French attained by beginning Grade 1 students is associated with their morphological awareness.

The role of morphology in reading achievement for second language learners:

The cross-linguistic influence

There are several studies suggesting that there is a cross-linguistic relationship between the learning of a first language and that of a second language. In a study involving participants whose first language (L1) was English, Schiff and Calif (2007) showed that the reading of Hebrew words as a second language (L2) correlated with English word reading. Additionally, Hebrew morphological awareness predicted English word reading. These results confirm previous studies relating L1 proficiency to L2 competence and L2 reading skills (Brown & Haynes, 1985; Koda, 1987). This cross-linguistic correlation is further corroborated by Da

Fontura and Siegel (1995); Durgunoglu (1998); Durgunoglu, Peynircioglu, and Mir (2002); Geva, Wade-Woolley, and Shany (1997); and Wiss (1993).

There are few studies of morphological awareness related to childhood biliteracy. Droop and Verhoeven (1998) explored first and second-language learners of Dutch in Grade 3. They suggested a relationship between morphological and syntactic manipulation and Dutch reading comprehension. Similar to first language learners, these second language learners seemed to be using morphological skills when reading their second language. In 2004, Bindman studied whether or not morphological knowledge was crosslinguistic by having English learners of Hebrew from the age of 6 to 10 perform morphological and syntactic tasks, such as word analogy and sentence cloze tasks (a Cloze task consists of a portion of text with certain words removed, where the participant is asked to replace the missing words). He found relationships between the two languages and morphological awareness while controlling for age and vocabulary. Wang, Cheng, and Chen's (2006) study on a biliterate population focused on the role morphological awareness in the acquisition of reading skills among Chinese learners learning English in Grade 2 and 4. The authors suggest that English morphological abilities measured using a compounding task (a task involving words that are composed of two or more elements that are themselves independent words, for example *loudspeaker*) were linked to Chinese single word reading and reading comprehension. However, they also reported that this result was not bidirectional; in other words, morphological knowledge of Chinese was not linked with English reading comprehension.

One study was found linking the role of morphological awareness and reading achievement in French immersion children. Deacon, Wade-Woolley and Kirby (2007) examined the crosslinguistic contributions of morphological awareness to the development of reading in

children who are learning to read two languages. Their study involved three questions: Is the role of morphological awareness in reading, established in monolingual populations, also found in populations of children who are developing biliteracy? Does morphological awareness assessed in one language transfer to the reading of another language? and, Does the quantity and the source of the contributing factors to reading achievement change over time?

The participants involved in this longitudinal study in Eastern Ontario, Canada, were children beginning in Grade 1 and continuing until the end of Grade 3. They reflected a range of socioeconomic situations but were all from English-speaking homes. These students came from six elementary schools and were enrolled in French immersion classes. The majority began their French immersion studies in Kindergarten while some began in Grade 1. There were 76 students at the start of the study but only 58 remained at the end of the three years. Of the sample, 38 were girls and 20 were boys. At the time of the first testing, the mean age of the participants was 6 years and 4 months. All the data were taken at the beginning and end of each grade for Grades 1, 2 and 3 (six testing periods). The English and French tests were administered individually on different days and in separate sessions. Instructions for all tasks were in English while practice and test items were administered in the language of the individual task (either English or French). The English test always preceded the French, and the tests were administered in the same order in each language. Measures were taken in English vocabulary (*Peabody Picture Vocabulary Test*), nonverbal analogical reasoning (*Matrix Analogies Test-Short Form*), phonological awareness (phoneme—counting task), English reading (*Woodcock Word Identification Task*), and French reading (*French Immersion Achievement Test*). English morphological awareness was measured with a sentence analogy task in which past tense and present tenses were manipulated. French morphological awareness was measured with a sentence

analogy task in which past tense and present tense verbs were manipulated. Means, standard deviations and ranges for the raw scores for vocabulary and matrix analogies in Grade 1 and for phonological awareness, morphological awareness, and reading ability in Grades 1, 2 and 3 were calculated and tabled. Correlations between all the aforementioned measures were also calculated and tabled. The results for each of the aforementioned questions will now be discussed.

Is the role of morphological awareness in reading, established in monolingual populations, also found in populations of children who are developing biliteracy?

The results of Deacon et al.'s (2007) study suggest that morphological knowledge has a role in reading with each language (French and English). The measure for English morphological awareness in Grade 1 contributes a stable 10 percent variance in reading in English across Grades 1 to 3, after controlling for phonological awareness, vocabulary, and nonverbal intelligence. Later contributions of English morphological awareness were insignificant. However the contributions of within-language of morphological awareness in French increased from moderate early to substantial later contributions, moving from 6 percent to 16 percent over the three years of the study. The size of the contributions made by morphological awareness in Grade 3 was greater than those made by phonological awareness. Later measures of this morphological awareness in French were strongly linked with reading achievement in that language. Contrarily, in English, it appeared as though early measures of morphological awareness contributed to reading achievement in English.

Does morphological awareness assessed in one language transfer to the reading of another language?

The results provide strong evidence that there is a cross-linguistic transfer of morphological awareness to reading achievement. Early measures of English morphological awareness contributed to reading in French, and later measures of French morphological awareness made an impact on reading in English.

Does the quantity and the source of the contributing factors to reading achievement change over time?

The Grade 1 French measure was predictive solely of the Grade 1 French reading. It did not reveal any longitudinal or crosslinguistic effects. Deacon et al. (2007) found that later measures in French morphological awareness contributed to reading achievement. Their results further suggest that morphological awareness appears to “teeter-totter in its relationship with reading; as contributions from the first language decrease, those from the second language increase” (p.741). The authors’ research shows that morphological awareness plays a role in the reading development of bilingual children. The authors acknowledge the limitation that the study used only one measure that explored past tense transformations in a sentence analogy task and suggest that there is a need for future studies to expand on the types of morphological skills under investigation.

Arguments against the unique contribution of morphological awareness and reading achievement

It should be noted that the assertion that morphological awareness contributes uniquely to reading achievement is contested. There are several arguments suggesting the primacy of phonological awareness in reading development (Carlisle, 1987, 1988; Carlisle & Nomanbhoy, 1993; Fowler & Liberman, 1995; Windsor, 2000). Though many of the aforementioned studies controlled for phonology, there is no denying that phonological insights are connected with

morphological insights (McCutchen, Green, & Abbott, 2008). Early morphological knowledge involves the recognition that similar (not always identical) phonological patterns are related to similar meanings across orally stated words. Research suggests that the phonological relationship between basic words and their derivational forms can affect the degree to which morphological relationships are recognized and manipulated (Carlisle & Nomanbhoy, 1993). According to Gombert et al. (2000), words can be either transparent phonologically (act/active—*act* pronounced the same) or opaque phonologically (sign/signature—*sign* pronounced differently). The base of the latter undergoes stress and/or phonological changes when combined with the suffix, giving the spelling a more important role in signaling the relationship across meanings (McCutchen et al., 2008). Research also suggests that phonological transparency augments the speed and accuracy with which children identify relationships between base words and derivations (Carlisle, 1987, 1988; Carlisle & Nomanbhoy, 1993; Fowler, Liberman & Feldman, 1995; Windsor, 2000). Carlisle and Stone (2005), and Carlisle, Stone and Katz (2001) hypothesized that children and adults read morphemically complex words (more than one morpheme) more efficiently when they are phonologically transparent than opaque. Some researchers further argue that phonological awareness is a critical contributor to reading achievement and that any relationship between morphological awareness and reading development is merely as a result of the innate relationship between morphology and phonology (Fowler & Liberman, 1995; Windsor, 2000).

Instruction in morphological awareness

Larsen and Nippold (2007) investigated how well school-aged children “could use morphological analysis to explain the meaning of words. They used a *Dynamic Assessment Task of Morphological Analysis* in which student were asked questions about word meaning. The

results show that some children readily made use of morphological analysis to explain the meanings of unfamiliar words. However, many others required far more adult scaffolding or instructional help to be successful. The authors suggest that it is essential for schools and curricula to have specific learning outcomes that examine knowledge of derivational morphology as well as provide students with the tools necessary to accomplish this task: “Knowledge of derivational morphemes and the ability to analyze them to determine the meanings of unfamiliar words is an important aspect of language development in school-aged children and adolescents” (p.201). They further hypothesize that word identification and reading comprehension could be improved with explicit instruction and practice geared towards morphemic analysis.

Moats (1994) conducted a survey of teacher knowledge in which it was found that many teachers were unaware of what inflection or derivational forms are, and she makes a powerful statement:

Especially since the demise of Latin in the high-school curriculum, it has been uncommon for instructional materials in word recognition, vocabulary, and spelling to systematically explicate the structural components of words and morphological relationships among words. Yet knowledge of word meaning, rapid word recognition, and spelling ability greatly depend on knowledge of word structure at the level of morphemes. Familiarity with morphology is essential for teachers who give instruction in advanced word recognition, vocabulary, and spelling from third grade on. (Moats, 1994, p. 59)

Explicit instruction

The aforementioned supports the importance of morphological awareness in reading hence explicit instruction of this morphology can be used as a valuable pedagogical tool. Hall

(2002) describes explicit instruction as providing guided instruction in the basic understanding of required skills on which students can build through practice. According to Hall, explicit instruction includes a series of steps: setting a purpose for learning, telling students what to do, showing them how to do it and guiding their application of the new learning. It begins with the teacher setting the scene for learning. Then, a clear explanation of what students must do (telling) is provided. Following this, the teacher models the process (showing the students) and finally, the students are provided with multiple opportunities for practice (guiding), until independence is attained. Explicit instruction moves systematically from extensive teacher input and little student responsibility initially, to total student responsibility and minimal teacher involvement at the conclusion of the learning cycle. Hall refers to Adams and Engelmann's (1996) study reviewing 350 publications pertaining to explicit instruction, and all suggest that, as a teaching strategy, explicit instruction is highly effective.

SECTION 3: CONNECTIONS TO CLASSROOM PRACTICE

This review of the literature reveals clearly that there is a strong link between morphological awareness and reading achievement and further suggests that there is a need for teachers to be educated in derivational as well as inflectional morphology so that they may better assist their students with word decomposition. In the following section of this paper, I explore specific practices in my core French classroom that have been used to help students improve their metalinguistic skills in breaking down an unfamiliar word to deduce its meaning as well as to improve the students' overall reading achievement.

Introducing the idea of word decomposition

In order to introduce the notion of breaking down an unfamiliar word into familiar parts, I used an English example, such as the word “transformation”. Students were asked to define the word and look at the different parts such as *trans*, *form* and *ation*. By making them aware of the different parts of the word they were encouraged to deduce meaning from each part. I also guided them to make an educated guess as to what type of word it was (noun, verb, adjective, adverb, and so on). This entire procedure is intended merely to get students thinking about the fact that some larger words have multiple parts that might each have meaning. By thinking about what these parts mean, students may be able to deduce the meaning of an unfamiliar word, and this may assist them in their reading comprehension. The idea appears to be simple enough, but it was shocking to find out from a questionnaire (Appendix E) that many of my students never thought to breakdown an unfamiliar French word into parts, such as prefix, suffix and root, to help them deduce the word meaning. In fact, when I questioned them orally as to how they decipher the meaning of an unfamiliar English or French word, many students indicated that they do not breakdown the word into meaningful parts. Fewer students stated that they often try to see if the unfamiliar multimorphemic French word resembles an English cognate. A large number of students did indicate that when all else fails in terms of determining the meaning of a word, they are left with looking at the context of the entire reading passage to deduce meaning. Few students resort to guessing the meaning of an unfamiliar French term.

Morpheme triangle

Following this introduction to breaking down words into meaning-filled parts, I presented my students with a “morpheme triangle” (Winter, 2009). By displaying a word in the center of a triangle on the board and dividing this word into parts of the triangle (Appendix A), I demonstrated that a target word such as *transporter*, in French, can be visually split into

morpheme parts such as prefix, root and suffix. Hence, *trans* is the prefix, *port* is the root, and *er* the suffix. Each word part was represented in a corner of the morpheme triangle. The intent behind presenting the morpheme triangle was two-fold: first, to introduce the students to the terminology of prefix, suffix and root while presenting them with an example and second, to promote and guide students into further inquiry of words that also have these similar parts. For example, next to the triangle corner with *trans*, students were asked to list additional words that contained this element. Words such as *transférer*, *transport*, and *transportation* were mentioned and written down on the board. For the suffix *er*, the words *regarder*, *parler*, and *danser*, were suggested by students. Hence, I was able to make them connect the suffix *er* to verbs in French. For the root *port*, students provided examples such as *porter*, “portable”, and *importer*. Here again, I was able to guide them to the understanding that *port* could mean *to carry*. To lead them further down the path of meaning, I proposed the words *trance* and *Portugal* as each containing a similar part (*trans/port*). I asked them if these two words related in any way to the meaning of the parts presented in the triangle. Following a few seconds of pondering, they decided that these words were unrelated. Hence, they were made to see that not all words containing similar parts (morphemes) will have the same meaning.

Explicitly listing common prefixes, suffixes, and roots

Once I had students actively thinking about the idea that big, unfamiliar words can often be broken down into prefixes, roots and suffixes, I provided them with commonly used lists of each as well as their meaning (Appendices B-D). For example, for the prefixes, *anti*, and *bi*, meanings such as *against* and *two* were provided on paper, along with example words containing the prefixes such as *antihygiénique* and *bicolore*. Similar lists were provided for suffixes and roots.

There were approximately 70 prefixes, 15 suffixes and 71 roots provided. Ten such parts were explored with example words on a weekly basis. Approximately nine weeks were required to sufficiently explore all the information provided on the lists.

***Banque murale* and other activities**

In addition to reviewing the lists and providing examples, other activities occurred in the classroom, such as *Banque murale* (adapted from Tomkins & Blanchfield, 2004) which involves a grid of multimorphemic French words resembling that of a BINGO card (Appendix A). Each word has a specific number and colour and, when called on explicitly by the teacher, students have to determine the meaning of the word by actively breaking down the word into its constituent parts (prefix, root, suffix). This activity took 15 to 25 minutes and, from lesson to lesson, I changed the words in order to accommodate the prefixes, suffixes, and/or roots covered in class. Ultimately, the goal of this activity was for students to break down those words that they may never have seen in French into meaningful parts in order to deduce their meaning.

Additional activities involved having students working in groups to establish a list of words that corresponded to the prefixes, suffixes or roots covered that day in class. I often did this by selecting ten different morphemes and making it a competition to see which group could come up with the most interesting but accurate list of words containing the morphemes, as well as the definitions for the words they selected. I often let students use a dictionary for this activity. A variation to this was to have them invent their own words using the lists provided and points were awarded to the most creative words.

It is important to note that in all of these activities students were encouraged to try to find cognates or words that resembled English in the multimorphemic French words presented to them.

Outcome from explicit instruction of morphology

Following a questionnaire (Appendix E) and field notes taken during group or independent student work throughout the ten weeks of the aforementioned activities, distinct observations were made. During conversations between students in groups, initially there didn't appear to be any discussion of word parts and meaning. Students were looking at the word as a whole and trying to deduce its meaning. At this point, I would intervene to suggest that students break down the word into meaningful parts and model it form them with examples. Further, I observed that several students weren't trying to link unfamiliar words in French to English cognates. I shared this observation with them and assisted them in connecting French multimorphemic words to English cognates. Hence, through this process of encouraging students to break down words into meaningful parts as well as to try to make links to English, many students were actively engaging in these two strategies by the end of the ten weeks.

Immediately after administering the questionnaire and before any specific explicit instruction of morphology had occurred, single multimorphemic French words were presented to the students in the beginning of the ten weeks as well as a reading passage containing several large unfamiliar French words. Students were asked to define the words as well as answer some comprehension questions pertaining to the passage. As well, they were asked to explain how they figured out each word definition. Many stated they had guessed or did not know. Following the ten weeks of explicit instruction, students were asked to define the same set of words and answer the same passage comprehension questions. Students appeared to be able to define the terms with more accuracy by either breaking words down into prefixes, roots and suffixes or relating the French word to cognates.

SECTION 4: CONCLUSION

Through my review of the literature and my personal practice in the classroom, I feel I have addressed my research questions:

1. How does explicit instruction of derivational morphology affect student metalinguistic skills facilitating comprehension of single words as well as reading passages?
2. What is the nature of cross-linguistic influence of English to French in the decoding of single words?

A plethora of research suggests that morphological awareness contributes to the decoding of morphologically complex words and contributes, reciprocally, to the development of reading comprehension. Furthermore, research suggests that some form of explicit instruction to help students hone their metalinguistic skills assists them in decoding. The results of my students on pre- and post-tasks suggest that my practice involving explicit instruction of prefixes, roots and suffixes, the *morpheme triangle*, and modeling strategies to break down unfamiliar words, as well as student group activities such as *banque murale* and group games to either deduce the meaning of multimorphemic French terms or invent terms, supports the aforementioned research. It provides some evidence of the importance of explicit instruction to assist students in decoding larger unfamiliar words. As well, guiding students to make connections between English and French as they try to decipher word meaning is critical.

To conclude, it is clear that some form of explicit instruction in derivational morphology is required for students to effectively tap into their metalinguistic ability to break down words into morphemes and to deduce meaning.

Areas for further discussion/research

The role of morphological awareness in literacy acquisition cannot be ignored. The literature indicates that students, as early as Grade 1, can benefit from learning about morphemic representation in the written language. Research further suggests that educators need to include more word study incorporating morphemes into reading programs. An area for further inquiry is the role of morphological awareness in reading for middle school or high school-aged students. Finally, another valuable topic for study is the role of morphological awareness when learning to read French as a second language.

REFERENCES

- Adams, M. (1990). *Beginning to read*. Cambridge, MA: MIT Press.
- Adams, G.L., & Engelmann, S. (1996). Research in direct instruction: 25 years beyond DISTAR. Seattle, WA: Educational Achievement Systems.
- Bindman, M. (2004). Grammatical awareness across languages and the role of social context: Evidence from English and Hebrew. In T. Nunes & P. Bryant (Eds.), *Handbook of children's literacy* (pp. 691-709). Dordrecht, Netherlands: Kluwer.
- Brittain, M. (1970). Inflectional performance and early reading achievement. *Reading Research Quarterly*, 6, 34-48.
- Brown, T., & Haynes, M. (1985). Literacy background and reading development in a second language. In H. Carr (Ed.) *The development of reading skills* (pp. 19-34). San Francisco: Jossey Bass.
- Carlisle, J.F. (1987). The use of morphological knowledge in spelling derived forms by learning-disabled and normal students. *Annals of Dyslexia*, 37, 90-108.
- Carlisle, J.F. (1988). Knowledge of derivational morphology and spelling ability in fourth, sixth, and eighth graders. *Applied Psycholinguistics*, 9, 247-266.
- Carlisle, J.F. (1995). Morphological awareness and early reading achievement. In L.B. Feldman (Ed.), *Morphological aspects of language processing* (pp. 189-209). Hillsdale, NJ: Lawrence Erlbaum.
- Carlisle, J.F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing: An Interdisciplinary Journal*, 12, 169-190.

- Carlisle, J.F., & Nomanbhoy, D. (1993). Phonological and morphological awareness in first graders. *Applied Psycholinguistics*, 14, 177-195.
- Carlisle, J.F., & Stone, C.A. (2005). Exploring the roles of morphemes in word reading. *Reading Research Quarterly*, 4, 428-449.
- Carlisle, J.F., Stone, C.A., & Katz, L.A. (2001). The effects of phonological transparency on reading derived words. *Annals of Dyslexia*, 51, 249-274.
- Casalis, S. & Louis-Alexandre, M. F. (2000). Morphological analysis, phonological analysis and learning to read French: A longitudinal study. *Reading and Writing: An Interdisciplinary Journal*, 12, 303-335.
- Colé, C., Royer, C., Leuwers, S., & Casalis, S. (2004). Les connaissances morphologiques dérivationnelles et l'apprentissage de la lecture chez l'apprenti-lecteur français du CP au CE2. *L'Année Psychologique*, 102(4), 701-750.
- Cutting, L.E., & Denckla, M.B. (2001). The relationship of serial rapid naming and word reading in normally developing readers: An exploratory model. *Reading & Writing: An Interdisciplinary Journal*, 14, 673-681.
- Da Fontura, H.A., & Siegel, L.S. (1995). Reading, syntactic, and working memory skills of bilingual Portuguese-English Canadian children. *Reading and Writing: An Interdisciplinary Journal*, 7, 139-153.
- Deacon, H., & Kirby, J. (2004). Morphological awareness: Just more phonological? The roles of morphological and phonological awareness in reading development. *Applied Psycholinguistics*, 25, 223-238.

- Deacon, H., Wade-Woolley, L., & Kirby, J. (2007). Crossover: the role of morphological awareness in French immersion children's reading. *Developmental Psychology*, 43 (3), 732-746.
- Droop, M., & Verhoeven, L. (1998). Reading comprehension problems in second language learners. In P. Reitsma & L. Verhoeven (Eds.), *Problems and interventions in literacy development* (pp. 193-208). Dordrecht, the Netherlands: Kluwer.
- Durgunoglu, A.Y. (1998). Language and literacy development in Spanish and English: the U.S.A context. In A.Y. Durgunoglu & L. Verhoeven (Eds.), *Literacy development in a multilingual context: A cross-cultural perspective* (pp. 135-146), Hillsdale, NJ: Erlbaum.
- Durgunoglu, A.Y., Peynircioglu, Z., & Mir, M. (2002). The role of formal definitions in reading comprehension of bilingual students. In R. Heredia & J. Altarriba (Eds.), *Sentence processing in bilinguals* (pp. 299-316). Amsterdam: Elsevier.
- Dynamic Literacy.(2008) *The role of morphology in reading instruction*. Retrieved 28 March, 2009, from <http://www.dynamicliteracy.com/Documents/Morpheme%20White%20Paper.pdf>
- Fowler, A., & Liberman, I. (1995). The role of phonology and orthography in morphological awareness. In L.B. Feldman (Ed.), *Morphological aspects of language processing* (pp. 157-188). Mahwah, NJ: Erlbaum.
- Geva, E., Wade-Woolley, L., & Shany, M. (1997). Development of reading efficiency in first and second language. *Scientific Studies of Reading*, 1(2), 119-144.
- Gombert, E., Colé, P., Valdois, S., Goigoux, R., Moutsy, P., & Fayol, M. (2000). *Enseigner la lecture au cycle 2*. Paris, France. Nathan Pédagogie.

- Goswami, U., & Bryant, P. (1990). *Phonological skills and learning to read*. Hove, UK: Lawrence Erlbaum.
- Hall, T. (2002). *Explicit instruction*. Wakefield, MA: National Center on Accessing the General Curriculum. Retrieved July 20, 2009 from http://www.cast.org/publications/ncac/ncac_explicit.html
- Kirby, J.R., Parrila, R., & Pfeiffer, S. (2003). Naming speed and phonological processing as predictors of reading development. *Journal of Educational Psychology, 95*, 453-464.
- Koda, K. (1987). Cognitive process in second language reading: Transfer of L1 reading skills and strategies. *Second Language Research, 4*, 133-156.
- Kuo, L., & Anderson, R. (2006). Morphological awareness and learning to read: a cross-language perspective. *Educational Psychology, 41*(3), 161-180.
- Larsen, J.A., & Nippold, M.A. (2007). Morphological analysis in school-aged children: dynamic assessment of a word learning strategy. *Language, Speech, and Hearing in Schools, 38*, 201-212.
- Leong, C.K. (1989). Productive knowledge of derivational rules in poor readers. *Annals of Dyslexia, 39*, 94-115.
- Mahoney, D. (1994). Using sensitivity to word structure to explain variance in high school and college level reading ability. *Reading and Writing: An Interdisciplinary Journal, 6*, 19-44.
- Mahoney, D., Singson, M., & Mann, V. (2000). Reading ability and sensitivity to morphological relations. *Reading and Writing: An Interdisciplinary Journal, 12*, 191-218.
- McCutchen, D., Green, L., Abbott, R.D. (2008). Children's morphological knowledge: Links to literacy. *Reading Psychology, 29*(4), 289-314.

- Moats, L.C. (1994). The missing foundation in teacher education: Knowledge of the structure of spoken and written language. *Annals of Dyslexia*, 44, 81-102.
- Nagy, W.E., Berninger, V.W., & Abbott, R.C. (2006). Contributions of morphology beyond phonology to literacy outcomes of upper elementary and middle-school students. *Journal of Educational Psychology*, 98(1), 134-147.
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific literature on reading and its implications for reading instruction*. Bethesda, MD: National Institute of Child Health and Human Development.
- Rispen, J.E, McBride-Chang, C., & Reitsma, P. (2007). Morphological awareness to word recognition and spelling. *Reading and Writing*, 21, 587-607.
- Roman, A.A., Kirby, J.R., Parrila, R.K., Wade-Woolley, L., & Deacon, S.H. (2009). Toward a comprehensive view of the skills involved in word reading in Grades 4, 6, and 8. *Journal of Experimental Child Psychology*, 102, 96-113.
- Scarborough, H.S. (1998). Predicting the future achievement of second graders with reading disabilities: Contributions of phonemic awareness, verbal memory, rapid naming, and IQ. *Annals of Dyslexia*, 48, 115-36.
- Schiff, R., & Calif, S. (2007). Role of phonological and morphological awareness. *Language Learning*. 57(2), 271-298.
- Singson, M., Mahony, D., & Mann, V. (2000). The relation between reading ability and morphological skills: Evidence from derivational suffixes. *Reading and Writing: An Interdisciplinary Journal*, 12, 219-252.
- Snow, C.E., Burns, S., & Griffin, P. (Eds). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

- Tyler, A., & Nagy, W. (1989). The acquisition of English derivational morphology. *Journal of Memory and Language*, 28, 649-667.
- Wang, M., Cheng, C., & Chen, S.W. (2006). Contributions of morphological awareness to Chinese-English biliteracy acquisition. *Journal of Educational Psychology*, 98, 542-553.
- Windsor, J. (2000). The role of phonological opacity in reading achievement. *Journal of Speech, Language, and Hearing Research*, 43, 50-61.
- Winter, R. (2009). Interactive frames for vocabulary growth and word consciousness. *The Reading Teacher*, 62(2), 685-690.
- Wiss, C.A. (1993). Crosslinguistic comparisons of learning disabilities in French immersion poor readers. *Canadian Journal of Special Education*, 9(2), 171-176.
- Wolf, M., & Bowers, P.G. (1999). The double-deficit hypothesis for the developmental dyslexias. *Journal of Educational Psychology*, 91, 415-438.
- Wu, X., Anderson, R.C., Li, W., Wu, X., Li, H., Zhang, J., Zheng, Q., Zhu, J., Shu, H., Jiang, W., Chen, X., Wang, Q., Yin, L., He, Y., Packard, J., & Gaffney, J.S. (2009). Morphological awareness and Chinese children's literacy development: an intervention study. *Scientific Studies of Reading*, 13(1), 26-52.

Appendix A: Morpheme Triangle

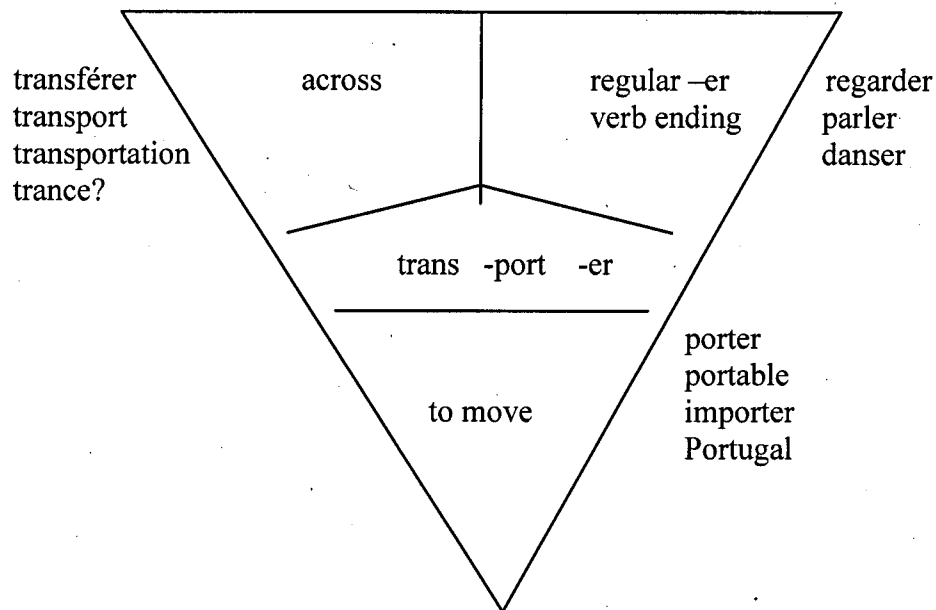


Table 1: Banque Murale

1	transporter	hypernerveux	insérer	insensible
2	bicyclette	refaire	circonférence	immigré
3	exporter	anormal	coopérative	inattaquable
4	malformation	périmètre	bienfaisant	quadrimoteur
5	postdater	perforer	parcourir	reformer
	rouge	bleu	orange	vert

The teacher will call on students by asking for the completion of certain tasks such as:

- donne un antonyme de VERT #1 (which is “insensible”), (answer=sensible)
- donne une définition de “refaire” (answer=redo)
- fais une phrase avec _____ (teacher gives a colour and number and student states a sentence)
- donne les coordonnées d’un mot qui veut dire “redo”? (answer= bleu 2)

Appendix B: Des préfixes

Des principaux préfixes d'origine latine:

Préfixes	Sens
1. a-, ac-, af-, al-, ar-, at-	towards,
2. ambi-	from both sides
3. anté-, anti-	in front, before
4. bi-	two
5. circum-	around
6. centi-	hundred, one hundredth
7. co-, col-, con-	with, together
8. contre-	against
9. dé-, dés-, dis-, di-	by separating
10. demi-	half
11. déci-	ten, a tenth
12. é-, ef-, ex-, es-	without
13. en-, em-	in
14. en-, em-	from there
15. entre-	in the middle, half way
16. équi-	equal
17. extra-	outside of
18. in-, im-	in
19. im-, in-, il-, ir-	the opposite
20. infra-	under
21. inter-	between
22. intra-	inside of
23. intro-	inside
24. juxta-	next to
25. mal-, mau-	poorly, bad (not)
26. mi-	from the middle, half
27. multi-	many, several
28. milli-	thousand, one thousandth
29. non-	not
30. outre-	beyond
31. omni-	all
32. par-	across, by
33. pluri-	many, several
34. post-	after

35. pour-	in front, in the place of, for
36. pré-	before, in front
37. pro-	in favour of
38. quadri-	four
39. quasi-	approximately
40. re-, ré-	again, repeat
41. retro-	behind, from the past
42. semi-	half, halfway
43. sou-	under, underneath
44. sous-	under, less
45. sub-	under, a bit
46. sur-	over, on top
47. super-, supra-	on top of, above
48. trans-	across
49. tré-, tres-	across, beyond
50. tri-	three
51. uni-	one, only
52. ultra-	beyond, very
53. vice-	in place of

Des principaux préfixes d'origine grecque

1. a-, an-	absence
2. amphi-	around
3. anti-, anté-	against
4. archi-, arch-	superior, better
5. di-/dipl-	two, double
6. dys-	bad
7. épi-	on, on top
8. eu-	good, well
9. hémi-	half
10. hyper-	beyond, in excess
11. hypo-	below, not enough
12. iso-	same, equal
13. méta-	change
14. pan-/panto-	all
15. para-	next to, beside
16. péri-	around
17. syn-, sym-, sys-	together, reunion

Appendix C: Des suffixes

Suffixes	Sens
1. e, es, ons, ez, ent, ais, ait, ai, ant, é, er, re, oir, ir, etc....	verb
2. e, esse, se.... etc...	feminine
3. -ment	adverb
4. s, x	plural
5. -able, -ible	quality/fault/adjective
6. -ade	noun
7. -age	noun
8. -ation	noun
9. -ateur	profession, object
10. -âtre	quality
11. -ier	object, job, tree
12. -erie	location
13. -eron	profession
14. -ique	pertaining to, about
15. -iste	job, quality

Appendix D: Les racines les plus utilisées en français

Les racines latines

Racines	Sens
1. agri	field
2. calori	heat
3. cide	that which kills
4. fère	that which carries, transports or contains
5. fique	that produces/makes
6. forme	that has the shape of
7. frigori	cold
8. fuge	that which escapes/leaves
9. grade	by degrees
10. omni	all
11. pare	to bring in the world
12. pède	foot
13. vore	that eats

Les racines grecques

Racine	Sens
1. aéro	air
2. agro	field
3. algie	pain
4. anthropo	man
5. archéo	old, ancient
6. auto	by one self
7. biblio	book
8. bio	life
9. chrome	colour
10. cinéma	movement
11. cosmo	world
12. cyclo	wheel
13. dactylo	finger
14. démo	people
15. drome	course, obstacle course
16. dynamo	power, force

17. électro	electricity
18. géo	earth
19. gone	angle
20. gramme	weight, letter
21. graphe	that writes, writing
22. hémo	blood
23. hémi	a half
24. hippo	horse
25. homo	same, similar
26. hydro	water
27. kilo	thousand
28. litho	rock, stone
29. logie, logue	science, study of
30. mane, manie	that is crazy, crazy
31. métro	measure
32. micro	small
33. mono	alone, single
34. morphe	forme, shape
35. néo	new
36. neuro, névr	nerve
37. nome, nomie	that studies, law
38. onyme	noun, word
39. ortho	right, law
40. patho	pain
41. pédie	education
42. pédo	child
43. phage	that eats
44. philo, phile	that likes
45. phobie, phobe	fear, fear or
46. phono, phone	sound
47. photo	light
48. poly	many, several
49. psycho	mind, spirit
50. pyro	fire
51. scope	to help see
52. techno	science, art
53. télé	far
54. thérapie	care, cure
55. thermo	heat

56. topo	location, place
57. xéno	strange
58. zoo	animal

Appendix E: Questionnaire

1. When I see a French word in a sentence that I have never seen before, I figure out its meaning by:

a) doing nothing, I just skip it and forget it.

all of the time most of the time some of the time rarely never

b) guessing

all of the time most of the time some of the time rarely never

c) seeing if the word looks like a word in English that I know.

all of the time most of the time some of the time rarely never

d) rereading the word/sentence more slowly to try to figure out the meaning.

all of the time most of the time some of the time rarely never

e) looking at where the word is placed in the sentence to figure out if it is a noun, verb, adjective, adverb, etc.

all of the time most of the time some of the time rarely never

f) breaking down the word into parts like prefix, suffix, roots, and trying to figure it out from there.

all of the time most of the time some of the time rarely never

g) trying to piece together the meaning of the sentence/paragraph and then coming back to the word to decide its meaning (in context).

all of the time most of the time some of the time rarely never