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Morphemic analysis increases vocabulary and improves comprehension

ABSTRACT. The present study explored the effects of explicit and systematic teaching of morphemic analysis on vocabulary learning and comprehension. The reading class taught by the researcher was purposely taught the most common (30) prefixes and the most common (30) roots. Following fourteen 50-minute lessons, students were tested on their ability to recall the meanings of words used to teach the morphemic analysis skills, to derive meanings for new words that contained taught morphemic elements, and to comprehend text containing new words. The results indicated that (a) there was an immediate and delayed effect of morphemic analysis for lesson words, and (b) there was evidence that a morphemic approach improved students' vocabulary and, consequently, their comprehension. The findings of this study provide support for the implementation of a morphemic approach for vocabulary instruction.

KEYWORDS: morphemic analysis; reading comprehension; explicit teaching; vocabulary instruction.

1. INTRODUCTION

Vocabulary plays a crucial role in the four skills: speaking, listening, writing, and reading. It is especially critical to reading comprehension and determines how well students are able to comprehend the texts they read in college. "Vocabulary is a vital foundational thread in the tapestry of reading; it should be woven into the fabric of everything that is being studied" (Tankersley 2005: 66). A solid body of research highlights the strong relationship between vocabulary knowledge and reading comprehension (e.g. Laufer 1998; 2001; Nation 2001; 2006; Carlisle 2004; Oakhill *et al*. 2015). Comprehension, according to Tankersley (2005: 108), '…is drawing meaning from words; it is the essence of reading, central both to academic and lifelong learning'.

It is essential for any vocabulary program at the college level to develop the breadth and depth of students' vocabularies, i.e. develop a complete understanding of words (Nation 2001). Therefore, vocabulary instruction should insure that students have a deep level of word understanding that permits them to apply this knowledge to real-life situations. Since college students encounter increasingly difficult texts and vocabulary, they need strategies to help them make sense of words for better understanding of these texts. It stands to reason that insufficient vocabulary knowledge is an obvious problem for many students. Vocabulary experts agree that adequate reading comprehension depends on a student already knowing between 90 and 95 percent of the words in a text (Hirsch 2003). Coady *et. al*. (1993) found in their study that vocabulary not only has a positive effect on reading comprehension but also leads to reading proficiency.

2. MORPHEMIC ANALYSIS

For the purpose of this study, *morphemic analysis* (aka structural analysis) is defined as the ability to identify meaningful parts of words, i.e. prefixes, suffixes and roots. To be most effective, morphemic analysis instructions should teach students the meanings of particular morphemes as well as a strategy for when and why to use them. Knowledge of morphemes and word structure plays a crucial role in word learning from context, because readers can use such knowledge to examine unfamiliar words and figure out what they mean (Wolter *et al*. 2009: 288). Research findings suggest that morphological awareness is the strongest consistent predictor of success for reading comprehension, reading vocabulary, and spelling (Baumann et al. 2003; Baumannet *et al*. 2002; Guo *et al*. 2011; Mountain 2005; Cunningham and Allington 2007; Nation 1990; Nation 2006; Bauer and Nation 1993; Schmitt 2008; Wagner *et al.* 2007). Effective instructions should not require students to recite the meanings of morphemes they encounter but have them read texts with words that use the morphemes and provide them with opportunities to learn about the origins of words, derivations, and usage. Such a concept towards word learning can stir students' interest in learning more about language and building word consciousness (Baumann *et al*. 2003).

3. BENEFITS OF TEACHING ROOTS AND AFFIXES

The significance of associating a word's morphological structure with its meaning stems from the study of the relation of meaning to form. Vocabulary study programs that equip students with knowledge about

roots/affixes and strategies to deduce the meanings of words have potential benefits.

Many first language researchers (Baumann *et al*. 2003; Baumann *et al*. 2002; Mountain 2005; Cunningham and Allington 2007) and second/foreign language researchers (Nation 1990; Bauer and Nation 1993) champion the view that teaching roots and affixes helps students decode new words and deduce meaning based on their knowledge of the word parts. It is estimated that more than 60 percent of the new words that readers encounter have easily identifiable morphological structure (Nagy *et al*. 1989).

The knowledge of roots and affixes has been proven to help students of all ages and in a variety of fields of study. According to Nation (1990), one advantage of using morphemic analysis for vocabulary learning is that it can help advanced learners in learning unfamiliar words by relating them to known words or known prefixes and suffixes. Thus, it helps the learners to increase and enforce their vocabulary by perceiving words as part of a word family, i.e. closely related derived forms (Nation 2001).

Morphemic analysis results in stronger word attack and vocabulary skills. Research shows that morphemic analysis contributes to vocabulary growth (Nagy 2005; Anglin 1993), and that vocabulary knowledge contributes to reading comprehension (Stahl 1999).

Morphemic analysis also helps learners spell words more accurately. For example, if a learner knows the prefix *mis-* (bad or wrong), then he/she will understand why the word *misspell* has two s's. The same is true for *dis+satify*; *dis+suade*, etc.

Ultimately, analyzing words into their constituents makes it easier for the learner to remember, recall, and produce (spell and pronounce). Tankersley (2005: 93) pointed out that roughly 30 root words, prefixes and suffixes provide the basis for more than 14,000 commonly used words in the English language. The recognition of even one familiar part of a word can "serve as the key which will unlock the meaning" (Nilsen and Nilsen 2004: 13). For example, familiarity with the root 'spec(t)' (look) helps students derive the meaning of words related to the same root: *spectacles*, *spectacular*, *spectator*, *inspect*, *inspection*, *inspector*, *speculate*, *speculation*, *respect*, *disrespect*, etc. Spending some class time on frequently used roots and affixes is a worthwhile practice, since it helps students establish connections among words. Nilsen and Nilsen (2006: 129) argue that "retention of vocabulary words is increased when learners can group them with familiar words." Gu and Johnson (1996) confirm that high scores among college EFL learners correlate with word structure analysis and skillful dictionary use.

4. RATIONALE AND RESEARCH QUESTIONS

Given the above insights on morphemic analysis, it is important to investigate this linguistic skill as a potential source of improving vocabulary learning and text comprehension by EFL learners. This pilot study sought to answer these two questions:

(i) Does the explicit and systematic teaching of roots and affixes have a positive effect on vocabulary learning?

(ii) Does the explicit and systematic teaching of roots and affixes have a positive effect on comprehension?

5. METHODOLOGY

5.1. Participants

The participants in this study were third-semester sophomores majoring in English Language and Literature at the University of Sharjah, UAE. They were homogeneous in their educational background, having studied English for the same number of years in government schools. All the participants had passed the minimum TOEFL 500 threshold required for joining the English Language and Literature Major. They had also successfully completed a number of University and Department compulsory courses which focus on reading comprehension and vocabulary development: Academic English 1 (Reading and paragraph writing), Academic English 2 (Reading and essay writing), and Extensive Reading. At the time of the study, the participants were taking four compulsory courses in English as part of their study plan: Writing, Reading, Introduction to Language, and Introduction to Literature. The participants were 36 female students. All of them were native speakers of Emirati Arabic. The average age of the participants is 19.

5.2. Instruments

The researcher administered three tests. To avoid testing exhaustion, the three tests were administered at different times. The reading class taught by the researcher meets three times a week for 50 minutes (Sunday-Tuesday-Thursday). In the second week of the semester on Sunday, the participants' vocabulary level was assessed using the Vocabulary Levels Test (VLT). The VLT designed by Nation (1990) is still the most famous diagnostic vocabulary test. This test has been revised several times. The version used in this

study was revised and validated by Schmitt *et al*. (2001). This test measures the participants' knowledge of vocabulary words from the 2000, 3000, and 5000 most frequently occurring words in academic texts. The participants must choose the right item to go with each meaning given, as illustrated below:

This is a vocabulary test. You must choose the right word to go with each meaning. Write the number of that word next to its meaning. Here is an example.

1   business
2   clock   _____ part of a house
3   horse   _____ animal with four legs
4   pencil   _____ something used for writing
5   shoe
6   wall

You answer it in the following way.

1   business
2   clock   ___6___ part of a house
3   horse   ___3___ animal with four legs
4   pencil   ___4___ something used for writing
5   shoe
6   wall

Instructions were clearly explained to the participants on the white-board, and they were encouraged to ask questions about the test administration. The participants were also requested to leave questions unanswered if they did not know the meaning of the word. This would ensure that the true scores they get would not be affected by correct guessing. The time the participants had spent on VLT was roughly 32 minutes; some had finished earlier.

In the second class, the participants received a multiple-choice-question reading comprehension test (looking for main ideas, looking for specific details, making inferences and drawing conclusions) which consisted of five short passages with 30 questions. The total score was 30 points. The test was validated for its content, appropriateness, and practicality by two instructors at the department of English Language and Literature.

In the third class, a morphemic analysis test (prefixes and roots) was created in a multiple choice format. The test consisted of 30 questions containing the most common prefixes and roots. The aim of the test was to evaluate the participants' knowledge of prefixes and roots both before and after the intervention. Below is an illustrative example:

The word **aggressive** contains the Latin root **gress**, which means "go" or "step." "aggressive" literally means "going against something or someone" in a hostile manner. Use the meaning of **gress** to help you determine the meaning of each of the following words that contain this same root.

1. If a person makes **progress**, it means that he or she:
   a. goes forward or ahead.   c. steps to the side.
   b. goes backwards.   d. steps out of line.
2. If a person is talking about one thing, **digresses**, and then returns to the original topic. To **digress** means to:
   a. interrupt someone.   c. stray from your topic.
   b. laugh loudly.   d. begin talking in a whisper.

The three tests were administered in the second and before the last week of the 16-week-semester so that they would not get in the way of the course curriculum. All tests had examples at the beginning so that there would be no misunderstanding in answering. The participants were discouraged from guessing and were informed that the tests were for research purposes and, therefore, would not affect their course grades. The tests were scored by the instructor and kept with him until the last week of the semester when the same tests were administered. On the last day of the semester, the instructor met with the participants individually and provided them with feedback on the improvement they have made during the semester.

5.3. Procedure

It should be pointed out that the reading and vocabulary courses in the program include implicit (incidental) and explicit (intentional) learning activities. One crucial explicit strategy of vocabulary learning (i.e. morphemic analysis) was missing from all the reading and vocabulary courses at this department. The pilot study was conducted in intentional vocabulary learning design, i.e. the participants were informed that they would be tested after being taught roots and affixes explicitly.

It should also be pointed out that the instructor did not spend time teaching the participants about affixes and roots as technical terms because they were already doing that in another course: Introduction to Language.

During the semester, the instructor taught the most common (30) prefixes and (30) roots. For every root the instructor designed exercises where the participants had to identify the root and its meaning in a matching exercise. For example, for the root 'mit, miss' (send), an exercise like the following was given:

Underline the root in each target word on the left. Then match each word with its correct meaning on the right. Write the letter of the correct meaning in the space provided.

1. intermission _____ a. consent; approval

2. permission _____ b. to send from one person or place to another; to send a signal, as by wire or radio

3. submit _____ c. a break between parts of a theatrical or musical performance; a pause

4. transmit _____ d. to present for review or decision; to surrender

The same root would be given in a word cluster or map, and participants had to fill in the cluster with new words. The participants were also trained to use the 'family members' of the same word: submit (v), submission (n), submissive (adj), submissively (adv). Practice into using these different forms in context was also provided.

Another effective exercise used was to give the participants one root like 'gress' (step) and a number of prefixes (with their meaning) and ask them to create words that go with the meaning given in the right-hand column, as illustrated in the table below:

Prefix	Prefix + Root	Meaning
pro- (forward)	pro**gress**	step forward
re- (back, again)	re**gress**	step back
con- (with, together)	con**gress**	step together
di- (away from)	di**gress**	step away
trans- (across)	trans**gress**	step across
e- (out) from ex-	e**gress**	step out
in- (inside)	in**gress**	step in
ag- (towards) from ad-	ag**gress**	step towards

Worksheets were then handed to the participants containing the same words put into sentences and used in context. One interactive website was extremely helpful in teaching roots and affixes: The Longman Vocabulary Website: (http://wps.ablongman.com/long_licklider_vocabulary_2/4/1105/283083.cw/index.html%20parentloc).

For each word part (root/affix), exercises are grouped into beginner, intermediate, and advanced levels. Additionally, for each word part, there are four choices, and the participants had to click the right choice. This website was extensively used in class or as self-study by the participants.

Prefixes were thematically divided into the following categories: prefixes that mean 'Not', prefixes that indicate location or spatial relations, prefixes that indicate number or amount, and other important prefixes. Graves and Hammond (1980) argue that there are three reasons for teaching prefixes (a) there are relatively few prefixes, and many are used in a large number of words, (b) most prefixes have relatively constant meanings that are easily definable, and (c) that prefixes tend to have consistent spellings.

Instruction of prefixes was presented to the participants in the form of handouts or power pointed and proceeded in the following format (a) the prefix was defined (i.e., *pre-* means before), (b) a number of words (3-5) containing the prefix were presented (i.e., *pre-*, pretest, predict, precede, precook, prepay, prevent, preschool, etc.), (c) those words were put into sentences (e.g., Intensive negotiations between the two parties **preceded** the vote), (d) the words were defined (i.e., to *precede* means to happen before or go in front of), and (e) students added more examples of the prefix by using their dictionaries.

Two kinds of affixes were excluded from the study: inflectional suffixes and derivational suffixes. The former were excluded because they perform grammatical functions and, therefore, do not help students determine word class or unlock meaning. The latter were excluded because many suffixes have vague meanings; they can often confuse more than help students (Stahl 1999). For example, the suffix *-ing* in English is ambiguous between a derivational and an inflectional use, as in *Teach**ing** is interact**ing** with interest**ing** people*. It is worth pointing out that the participants in the study were taught derivational suffixes only to indicate the part of speech a word belongs to: noun, verb, adjective, or adverb.

6. RESULTS AND DISCUSSION

The study was planned to answer the questions whether knowledge of affixes and roots would enable students to decode the meaning of words and, therefore, comprehend the texts they read. To that end, we administered the vocabulary levels test, the reading comprehension test, and the morphemic analysis test. Statistical analyses were performed using easycalculation.com. The results of the three tests were compared, and the basic statistics for the tests are listed in the tables below.

According to Nation (2001) if students know the 2000 most frequent words of English, they in fact know 81% of the words on any page. Table 1 shows the results of each level of the VLT pre-test. The best results are attained in the 2000 word level where the participants know on average

Table 1: Results of VLT Pre-test (N=30)

Level	Mean	SD
2000	25.53	2.13
3000	23.36	3.14
5000	19.14	6.60
Total	68.03	11.87

26 words out of 30. As the level goes up, the average drops. Overall, the participants knew 68 words (75%) out of the 90 words that make up the three levels.

Table 2 reveals that there were statistically significant differences between the pre-test and pos-test scores of the participants at the three levels (84%) as well as in the test as a whole. The increase in the number of words the participants know also shows that the explicit and systematic teaching of roots and affixes led to better retention of words.

Table 2: Results of VLT Post-test (N=30)

Level	Mean	SD
2000	28.16	2.02
3000	25.51	2.13
5000	22.66	3.30
Total	76.33	7.45

As can be seen from Tables 3 and 4, the greatest improvement occurred both on the reading comprehension test (RCT) and the morphemic analysis test (MAT). At the end of the intervention, most of the students were able to recognize most of the words (24/30). Based on this, we can infer that the explicit and systematic teaching devoted to roots and affixes helped students improve their comprehension and vocabulary.

Table 3: Results of the Reading Comprehension Test (RCT) and the Morphemic Analysis Test (MAT) pre-test

Test	Mean	SD
RCT	21.05	4.43
MAT	13.91	4.10
Total	34.96	8.53

Table 4: Results of the Reading Comprehension Test (RCT) and the Morphemic Analysis Test (MAT) post-test

Test	Mean	SD
RCT	24.38	3.02
MAT	23.52	2.96
Total	47.9	5.98

The results of the pilot tests, conducted on the present participants, show their morphemic analysis strategy was less than 47%. However, the explicit and systematic teaching of roots and affixes during the semester almost doubled that percentage (78%). Therefore, we can see that teaching vocabulary using morphemic analysis proved to be an effective way to develop the present participants' vocabulary. Nation (1990) suggests that this strategy is only effective for advanced learners. However, from the results attained in this study, the strategy to use morphemic analysis for vocabulary development was found to have positive effects, although gains might differ according to the learners' level.

It should also be pointed out that verbal comments on and during the investigation were also recorded while working on the specific root/affix lessons. More than 15 of the 36 students were heard making positive comments about morphemic analysis with 5 students making a negative comment. Some students reported after the study that they felt like they were better readers and they appeared to improve their self-confidence. Overall, students went from being overwhelmed with the root/affix intervention and feeling that the words were *too hard* to confidently approaching the task by dividing words into the component parts and decoding the meaning of the target word.

7. LIMITATIONS

There are a number of issues which may have impacted this study. First, it should be taken into account that morphological differences between Arabic and English might have affected the participants' processing of English morphological units. Second, we have seen that working knowledge of roots and affixes results in better vocabulary. Nevertheless, derivational relationships are complex and irregular, so memorizing root/affix meanings in lists, for example, may have little value. For example, knowing that *-mort* refers to *death* may help students to figure out the meaning of *mortal or immortal,* but it probably does not help them to determine the meaning of *mortgage*

(lit. 'dead pledge' from Old French 'mort' (dead) and 'gage' (pledge; so called because the deal dies either when the debt is paid or when payment fails (Harper (n.d.))). Similarly, teaching students that *saline* means *salty* will probably not help them get the meaning of *salary,* even though the words are both derived from the same root, *sal.* In spite of the shortcomings, morphemic analysis at least gives a hint of the meaning of a word far more often than not and therefore is a useful tool.

8. CONCLUSIONS AND RECOMMENDATIONS

The aim of this paper was to investigate whether instruction of morphemic analysis would have a positive effect on vocabulary and comprehension skills. The results obtained show that vocabulary and comprehension skills noticeably improved following the intervention.

Reading research has shown that students employ various strategies in order to understand what they read. Morphemic analysis proved to be a strategy that helped students understand the word and, therefore, comprehend the text they were reading. Stahl and Fairbanks (1986) back up the hypothesis that the systematic teaching of morphemic analysis directly impacts student vocabulary and comprehension. Lehr, Osborn, and Hiebert (n.d.) estimated that sixty percent of the new words readers come across have easily identifiable morphological structure. So using morphemic analysis does appear to have a definite effect on vocabulary learning. Being able to look at specific word parts and identify their meaning to help understand the word, equips students with effective tools to tackle progressively more difficult academic texts. Given that vocabulary directly impacts comprehension, the improving of vocabulary results in an improvement in comprehension.

The findings of this study have some implications in the field of foreign language teaching. The investigation provided evidence that morphemic analysis has a potential effect on vocabulary learning. Therefore, a morphemic approach for vocabulary instruction should be implemented in any vocabulary program in an EFL setting. This approach helps learners associate a meaningful morpheme in a familiar word with the same morpheme in a new word, and can thereby derive part of the meaning. Since vocabulary has a direct effect on comprehension, the improving of vocabulary results in an improvement in comprehension.

Nation's vocabulary levels test should be used by teachers to determine the kind of attention they should be paying to teaching vocabulary to their students. As stated in (Laufer and Nation 1999: 35), this decision is cost-

effective as regards the use of class time to determine which vocabulary should be taught, because high-frequency vocabulary development requires a different program from low-frequency vocabulary development.

REFERENCES

Anglin, J. M. 1993. Vocabulary development: A morphological analysis. In: *Monographs of the Society for Research in Child Development*, 58(10), 1-166.

Baumann, J. / Edwards, E. / Font, G. / Tereshinski, C. / Kame'enui, E. / Olejnik, S. 2002. Teaching morphemic and contextual analysis to fifth-grade students. In: *Reading Research Quarterly*, 37(2), 150-176.

Baumann, J. F. . Edwards, E. C. / Boland, E. M. / Olejnik, S. / Kame'enui, E. (2003). Vocabulary tricks: Effects of instruction in morphology and context on fifth-grade students' ability to derive and infer word meanings. In: *American Educational Research Journal*, 40(2), 447-494.

Bauer, L. / Nation, P. 1993. Word families. In: *International Journal of Lexicography*, 6, 253-279.

Carlisle, J. F. 2004. Morphological processes that influence learning to read. In: Stone, C.A. / Silliman, E. R. / Ehren, B. J. / Apel, K. (eds.). *Handbook of Language and Literacy*. NewYork/London: The Guilford Press.

Coady, J. / Magoto, J. / Hubbard, P. / Graney, J. / Mokhtari, K. 1993. High frequency vocabulary and reading proficiency in ESL readers. In: Huckin, T /, Haynes, M. / Coady, J. (eds.). *Second Language Reading and Vocabulary*. Norwood, NJ.: Ablex, 3-23.

Cunningham, P. M. / Allington, R. L. 2007. *Classrooms that Work*. Boston, MA: Pearson Allyn and Bacon.

Guo, Y. / Roehrig, A.D. / Williams, R. S. 2011. The relation of morphological awareness and syntactic awareness to adults' reading comprehension: Is vocabulary knowledge a mediating variable? In: *Journal of Literacy Research*, 43(2) 159–183.

Graves, M.F. / Hammond, H.K. 1980. A validated procedure for teaching prefixes and its effect on students' ability to assign meaning to novel words. In: Kamil, M.L. / Moe, A.J. (eds.). Perspectives on reading research and instruction. 29th Yearbook of the National Reading Conference. Washington, D.C.: National Reading Conference, 184-188.

Gu, Y. / Johnson, R. K. 1996. Vocabulary learning strategies and language learning outcomes. In: *Language Learning*, 46, 4: 643-679.

Harper, D. (n.d.). Online Etymology Dictionary. Retrieved June 10, 2015 from: <http://www. etymonline.com/index.php?search=mortgage&searchmode=none>.

Hirsch, E. D. Jr. (2003). Reading comprehension requires knowledge of words and of the world: Scientific Insights into the Fourth-Grade Slump and Nation's Stagnant Reading Comprehension. In: *American Educator*, spring 2003, American Federation of Teachers.

Laufer, B. 1998. The development of passive and active vocabulary in a second language: Same or different? In: *Applied Linguistics*, 19(2), 255-271.

Laufer, B. 2001. Reading, word-focused activities and incidental vocabulary acquisition in a second language. In: *Prospect*, 16, 44–54.

Laufer, B. / Nation, P. 1999. A vocabulary-sized test of controlled productive ability. In: *Language Testing*, 16(1), 33-51.

Lehr, F. / Osborn, J. / Hiebert, E. (n.d.). *A focus on vocabulary*. Research-based practices in early reading series. Retrieved June 11, 2015, from http://eric.ed.gov/?id=ED483190

Mountain, L. 2005. Rooting out meaning: More morphemic analysis for primary pupils. In: *The Reading Teacher*, 58, (8), 742–749.

Nagy, W. 2005. Why vocabulary instruction needs to be long-term and comprehensive. In: Hiebert, E., Kamil, M. (eds.). *Teaching and Learning Vocabulary: Bringing Research to Practice*. Mahwah, NJ: Erlbaum, 27-44.

Nagy, W. E. / Anderson, R. C. / Schommer, M. / Scott, J. A. / Stallman, A. 1989. Morphological families in the internal lexicon. In: *Reading Research Quarterly*, 24, 262-282.

Nation, P. 1990. *Teaching and Learning Vocabulary*. New York: Heinle and Heinle.

Nation, P. 2001. *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Nation, P. 2006. How large a vocabulary is needed for reading and listening? In: *Canadian Modern Language Review*, 63, 59–82.

Nielson, A.P. / Nielson, D.L.F. 2004. *Vocabulary, K-8*: A Sourced-Based Approach. Boston, MA: Pearson.

Nilsen, A. P. / Nilsen, D.L.F. 2006. Latin revived: Source-based vocabulary lessons courtesy of Harry Potter. In: *Journal of Adolescent & Adult Literacy*, 50, (2), 128–134).

Oakhill, J. / Cain, K. / Elbro, C. 2015. *Understanding and Teaching Reading Comprehension: A Handbook*. London: Routledge.

Schmitt, N. / Schmitt, D. / Clapham, C. 2001. Developing and exploring the behavior of two new versions of the Vocabulary Levels Test. In: *Language Testing*, 18, 55-88.

Schmitt, N. 2008. Instructed second language vocabulary learning. In: *Language Teaching Research*, 12, 329–63.

Stahl, S. A. 1999. *Vocabulary Development*. Cambridge, MA: Brookline Books. Teacher's Guide, Iowa Test of Basic Skills, Multilevel Battery, Levels 9–14. (1986) Chicago: Riverside Publishing.

Stahl, S. A. / Fairbanks, M. M. 1986. The effects of vocabulary instruction: A model-based meta-analysis. In: *Review of Educational Research*, 56, 72-110.

Tankersley, K. 2005. Vocabulary. In: *Literacy strategies for grades 4-12: Reinforcing the threads of reading*. Alexandria, VA: Association for Supervision and Curriculum Development, 66-107.

Wagner, R.K. / Muse, A.E., Tannenbaum, K.R. 2007. *Vocabulary Acquisition: Implications for Reading Comprehension*. New York/London: The Guilford Press.

Wolter, J.A. / Wood, A. / D'Zatko, K. 2009. The influence of morphological awareness on first-grade children's literacy development. In: *Language, Speech, and Hearing Services in the Schools*, 40(3), 1-13.